

Programs

Undergraduate Areas of Study

3D GRAPHICS AND ANIMATION EMPHASIS, FINE ARTS BFA

Introduction

Please click [here](#) to see General Visual Arts information.

The 3D graphics and animation emphasis at the University of Colorado Denver is a competitive and rigorous four-year curriculum focused on preparing students to work in a wide variety of fields that use animated digital computer graphics (CG), including entertainment, film and television, gaming, medicine, and science. The 3D graphics and animation emphasis courses (FINE 1810-4820 below) are billed at a different rate than the standard course tuition due to the state-of-the-art technology used in the program. For more information regarding this rate, contact Digital Animation Center (DAC) Director Howard Cook at howard.cook@ucdenver.edu or the College of Arts & Media Advising Office at CAMadvising@ucdenver.edu.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click [here](#) to go to information about declaring a major.
- In order to maintain the highest standards of excellence, acceptance into the 3D graphics and animation emphasis happens at the end of the first year (during the Spring term) and is competitive by portfolio review. To be considered, students are required to take the first two courses in the 3D graphics and animation curriculum, FINE 1810 - Digital Animation Foundations: Producing Animation (offered Fall only) and FINE 1820 - Digital Animation Foundations: Introduction to Digital 3D (offered Spring only). These two courses are open to all College of Arts & Media and CU Denver students. Students wishing to enroll in these entry-level courses must contact DAC Director Howard Cook at howard.cook@ucdenver.edu or the College of Arts & Media Advising Office at CAMadvising@ucdenver.edu before registering.

Selection for entrance into the 3D graphics and animation emphasis occurs at the end of the first year of the program and is a competitive process (by faculty review) that includes:

- Submission by the candidate of a "Portfolio Demo Reel". The reel must include original works from FINE 1810 - Digital Animation Foundations: Producing Animation and FINE 1820 - Digital Animation Foundations: Introduction to Digital 3D as well as representative works created in other Visual Arts courses completed during the first year of the program. The Portfolio Demo Reel must be turned in as a .mov (Quicktime, H.264, 720x404 minimum frame size, 16:9 aspect ratio). Still work should be a component of the reel and should be on screen for at least 3 seconds but no more than 10 seconds. Name and contact information should appear at the beginning and end of the reel. The reel should not be greater in length than 3.5 minutes.
- A "breakdown sheet": the run time at which the work occurs and which describes what work is included on the submission reel, and, if collaborative in nature, what aspect of the work shown was created by the applicant. Turn in .pdf only please.
- A one page double-spaced written statement regarding the applicant's aspirations as a productive and contributing member of the 3D graphics and animation cohort and the CG community as a whole. Turn in .pdf only please.
- A minimum of a 2.8 GPA in the CU Denver 3D graphics and animation courses.

The student's application must be submitted electronically (instructions will be provided in FINE 1820 - Digital Animation Foundations: Introduction to Digital 3D) - no later than the first Friday after the Spring semester has ended. Notification is by e-mail and/or letter and occurs on or before the first Monday of June of the application year. Upon acceptance, students will be able to enroll in advanced digital animation classes.

Students should show only their best work and show the very best work first. Students should be selective since reels may only be 3.5 minutes long. Music is not recommended for professional reels, but if music is used, students should choose wisely.

Please see <http://www.cu3d.org> or <http://www.ucdenver.edu/academics/colleges/CAM/programs/va/Pages/3danimation.aspx> for more emphasis and portfolio information, or contact DAC Director Howard Cook at howard.cook@ucdenver.edu.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Arts & Media Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Each course counting toward the major must be completed with a grade of C (2.0) or better.
2. All upper-division visual arts courses must be taken at CU Denver unless otherwise approved by Visual Arts faculty.
3. At least 27 semester hours of visual arts credits (at any level) must be taken at CU Denver.
4. At least 24 semester hours of total visual arts courses must be upper-division.
Take **all** of the following Visual Arts Foundation courses:
 - FINE 1100 - Drawing I
 - FINE 1400 - Two Dimensional Design
 - FINE 1500 - Three-Dimensional Design
 - FINE 2600 - Art History Survey I
 - FINE 2610 - Art History Survey II

Take **all** of the following 3D Graphics/Animation Emphasis courses (entry level):

- FINE 1810 - Digital Animation Foundations: Producing Animation
- FINE 1820 - Digital Animation Foundations: Introduction to Digital 3D

Take **all** of the following 3D Graphics and Animation Emphasis courses (available only to students accepted to emphasis via portfolio review):

- FINE 2810 - Digital Animation Techniques: Surface Modeling
- FINE 2820 - Digital Animation Techniques: Surface Properties
- FINE 2830 - Digital Animation Techniques: Lighting
- FINE 2850 - Digital Animation Techniques: 3D Character Creation
- FINE 3810 - Digital Animation Studio: Set/Environment Design
- FINE 3820 - Digital Animation Techniques: Rigging and Animation
- FINE 3830 - Digital Animation Technique: Character Animation
- FINE 3845 - Digital Animation Discovery and Preproduction Seminar
- FINE 3850 - Digital Animation Techniques: Dynamic Simulation

- FINE 4810 - Digital Animation Studio: Animation Production I
- FINE 4820 - Digital Animation Studio: Animation Production Thesis

Take **all** of the following courses:

- FINE 2155 - Introduction to Digital Photography
- ENGL 2250 - Introduction to Film
- FINE 4990 - Contemporary Art: 1960 to Present

Take **one** of the following courses:

- FINE 2010 - The Graphic Novel Workshop
- FINE 2030 - Life Drawing
- FINE 3414 - Motion Design I
- FINE 3815 - Storyboarding for Cinema and Game Previsualization

Take **three** semester hours of Pre-20th Century Art History elective. Consult a CAM advisor for approved options.

Take **twelve** semester hours of Visual Arts electives. These may include studio, lecture, internship or art history courses.

ACCOUNTING EMPHASIS - BS IN BUSINESS ADMINISTRATION

Introduction

Accounting courses are offered in several fields of professional accountancy at the intermediate, advanced and graduate levels. They provide preparation for practice in one or more of the following fields:

- Auditing
- Financial Accounting
- Financial Management
- Management Control Systems
- Managerial Accounting
- Tax Accounting
- Teaching and Research

In all of these fields a thorough knowledge of the social, legal, economic and political environment is needed. A high degree of analytical ability and communication skill is indispensable.

Courses in English composition, speech, ethics and logic are desirable. Courses in statistics and information systems, beyond the required business core courses, are highly recommended.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click [here](#) to go to information about declaring a 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 Requirements
- Business School Graduation Requirements
- Click here for information about Academic Policies

Program Requirements

1. A grade of C must be earned in all accounting courses to qualify for graduation.

- Take **all** of the following required courses:
- ACCT 3220 - Intermediate Financial Accounting I
- ACCT 3230 - Intermediate Financial Accounting II
- ACCT 3320 - Intermediate Cost Accounting
- ACCT 4054 - Accounting Systems and Data Processing
- ACCT 4410 - Income Tax Accounting
- ACCT 4620 - Auditing Theory

Take **one** of the following courses:

- ACCT 4070 - Management Accounting
- ACCT 4240 - Advanced Financial Accounting
- ACCT 4330 - Managerial Accounting Problems and Cases
- ACCT 4370 - International Accounting
- ACCT 4520 - Oil and Gas Accounting
- ACCT 4780 - Accounting and Information Systems Processes and Controls
- ACCT 4800 - Accounting for Government and Nonprofit Organizations
- ACCT 4840 - Independent Study
- ACCT 4915 - Accounting for the Public Interest

- ACCT 4950 - Special Topics
- Or any other 4000-level ACCT course

ACCOUNTING EMPHASIS - BS IN BUSINESS ADMINISTRATION WITH SPECIALIZATION IN INFORMATION SYSTEMS

Introduction

Accounting courses are offered in several fields of professional accountancy at the intermediate, advanced and graduate levels. They provide preparation for practice in one or more of the following fields:

- Auditing
- Financial Accounting
- Financial Management
- Management Control Systems
- Managerial Accounting
- Tax Accounting
- Teaching and Research

In all of these fields a thorough knowledge of the social, legal, economic and political environment is needed. A high degree of analytical ability and communication skill is indispensable.

Courses in English composition, speech, ethics and logic are desirable. Courses in statistics and information systems, beyond the required business core courses, are highly recommended.

Within the Accounting curriculum students can specialize in Information Systems to compliment their individual interest.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements

- Business School Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. A grade of C must be earned in all accounting courses to qualify for graduation.
 - Take **all** of the following courses:
 - ACCT 3220 - Intermediate Financial Accounting I
 - ACCT 3230 - Intermediate Financial Accounting II
 - ACCT 3320 - Intermediate Cost Accounting
 - ACCT 4054 - Accounting Systems and Data Processing
 - ACCT 4410 - Income Tax Accounting
 - ACCT 4620 - Auditing Theory
 - and choose **two** 3000 or 4000-level courses

Take **one** of the following courses:

- ACCT 4780 - Accounting and Information Systems Processes and Controls
- ISMG 4780 - Accounting and Information Systems Processes and Controls

Within the Accounting curriculum students can choose to add additional courses in Information Systems to compliment their individual interest.

ANTHROPOLOGY BA

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Majors must complete a minimum of 40 semester hours in Anthropology with a grade of C (2.0) or better in each course.
2. At least 24 hours must be at the upper-division level.
3. A minimum of 21 semester hours must be taken from CU Denver faculty.
4. All upper division Anthropology courses must be taken from CU Denver faculty in order to count for specific majors requirements. Upper division courses from other institutions will only count as electives.

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

- ANTH 1302 - Introduction to Archaeology
- ANTH 1303 - Introduction to Biological Anthropology
- ANTH 2102 - Culture and the Human Experience

Take **three** of the following courses:

- ANTH 3101 - Foundations of Cultural Anthropology
- ANTH 3121 - Language, Culture, and Communication
- ANTH 3301 - World Prehistory
- ANTH 3512 - Human Evolution

Take **20 elective credit hours** from the Anthropology Department.

ARCHITECTURE BS

Introduction

The College of Architecture and Planning offers a Bachelor of Science in Architecture degree exclusively on the downtown Denver campus. The city of Denver provides a rich environment to explore a diverse historic and cultural world that includes multiple approaches to solving urban and building problems. The degree is a "pre-professional" degree, which will provide fast track entry into the accredited Master of Architecture degree that is required for licensure in the profession. This degree provides an education in the sciences and humanities in design theory of the built world and its practice. Our graduates will have significant grounding in the science of building and the practice of architecture in a rapidly evolving profession. Our educational goal is to engender active and creative making of architecture along with critical thinking skills. Our graduates will have employment options in entry level architectural practices or related fields of urban design, historic preservation, design-build, construction, and even urban planning; or the opportunity to enter any accredited graduate program in the country.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a major](#)

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- [CU Denver General Graduation Requirements](#)
- [CU Denver Core Requirements](#)
- [College of Architecture and Planning Graduation Requirements](#)
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must earn at least a C- grade in required architecture core courses. Architecture courses must be repeated if the student earns less than a C- grade.

Take **all** of the following required Design Studies courses:

- ARCH 2110 - Design Studio I
- ARCH 3110 - Design Studio II
- ARCH 3120 - Design Studio III
- ARCH 4110 - Design Studio IV
- ARCH 4120 - Design Studio V

Take **all** of the following Cultural Studies courses:

- ARCH 1110 - Introduction to Architecture
- ARCH 2230 - Architectural History I
- ARCH 3230 - Architectural History II

Take **all** of the following Technical Studies courses:

- ARCH 3130 - Construction Practices I
- ARCH 3430 - Construction Practices II
- ARCH 3330 - Building Systems I
- ARCH 4440 - Building Systems II
- ARCH 3340 - Theory of Structures I
- ARCH 4340 - Theory of Structures II

Take **seventeen** hours of Architecture electives.

Take **twelve** hours of General electives.

ART HISTORY EMPHASIS, FINE ARTS BA

Introduction

Please click [here](#) to see General Visual Arts information.

The art history emphasis familiarizes students with a range of developments in the history of art while developing skills in critical thinking, writing, research and the study of artworks. After an introduction to the canonical traditions of art and architecture, students take advanced lecture courses on specific subjects. This curriculum concludes with seminars on the methods of art historical scholarship as well as a thesis project.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here to go to information about declaring a major.
- Consult an advisor in the College of Arts & Media at CAMadvising@ucdenver.edu for information about this emphasis.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Arts & Media Graduation Requirements
- Click here for information about Academic Policies

Program Requirements

1. Each course counting toward the major must be completed with a grade of C (2.0) or better.
2. All upper-division visual arts courses must be taken at CU Denver unless approved otherwise by visual arts faculty.
3. At least 21 semester hours of all visual arts credits (at any level) must be taken at CU Denver.
4. At least 18 semester hours of total visual arts courses must be upper-division.
Take **all** of the following Studio Arts & English Rhetoric courses:
 - FINE ____ 2-dimensional Studio Arts course (3 semester hours) - *consult a CAM advisor for approved options*
 - FINE ____ 3-dimensional Studio Arts course (3 semester hours) - *consult a CAM advisor for approved options*
 - FINE ____ Studio Arts Elective (3 semester hours)
 - ENGL 2070 - Grammar, Rhetoric and Style

Take **all** of the following Art History courses:

- FINE 2600 - Art History Survey I
- FINE 2610 - Art History Survey II
- FINE 4790 - Methods in Art History
- FINE 4951 - Bachelor of Art Thesis

Take **three** semester hours of Pre-20th Century Art History elective. Consult a CAM advisor for approved options.

Take **eighteen** semester hours of upper-division (3000/4000) Art History electives (six courses). Contact an advisor in the College of Arts & Media at CAMadvising@ucdenver.edu for a complete list of options.

BIOENGINEERING BS

Introduction

The undergraduate program at CU Denver is a highly rigorous program that instills competencies in biomedical science, engineering and mathematics and biomedical design, while emphasizing the professional competencies of leadership, communication, presentation and critical problem solving. Our mission is to improve human health through the application of engineering principles, ideas, methods and inventions to solve important clinical problems. Bioengineering is a highly interdisciplinary field that brings together: (1) biological, chemical and physical sciences; (2) engineering and mathematics; and (3) clinical medicine. The undergraduate bioengineering program provides training at both the Denver campus (years 1 and 2) and the Anschutz Medical Campus (years 3 and 4).

Graduates will be well-prepared for further education in graduate school, medical school or other advanced professional preparation. The department also offers a Master of Science (MS) and Doctor of Philosophy (PhD) degrees in bioengineering.

Program Delivery

- This is an on-campus program.
- Upper-division major courses will be taught at the Anschutz Medical Campus.

Declaring This Major

- Click [here](#) to go to information about declaring a major.
- Students applying to the program must select bioengineering (pre-major) as their "Field of Study" in the online application. If you are admitted to the pre-major program you will enroll in pre-major courses, which are offered at the Denver campus. Students in the pre-major must apply to advance to major status in bioengineering. Admittance to the major in bioengineering will be granted to students who have successfully completed all pre-major courses and who meet the program's selection criteria. Upper-division courses will be taught at the Anschutz Medical Campus.

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 Requirements
- College of Engineering & Applied Science Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

Pre-Major Courses (56 credit hours)

1. Students must complete all of these courses before they may apply for bioengineering major status. Credit for some of these courses may be achieved through high school Advanced Placement (AP) course work and exams.

Take **all** of the following Mathematics courses:

- MATH 1401 - Calculus I
- MATH 2411 - Calculus II
- MATH 2421 - Calculus III
- MATH 3195 - Linear Algebra and Differential Equations

Take **all** of the following Biology courses:

- BIOL 2051 - General Biology I
- BIOL 2071 - General Biology Laboratory I
- BIOL 2061 - General Biology II
- BIOL 2081 - General Biology Laboratory II

Take **all** of the following Chemistry courses:

- CHEM 2031 - General Chemistry I
- CHEM 2038 - General Chemistry Laboratory I
- CHEM 2061 - General Chemistry II
- CHEM 2068 - General Chemistry Laboratory II
- CHEM 3411 - Organic Chemistry I
- CHEM 3418 - Organic Chemistry Laboratory I

Take **all** of the following Physics courses:

- PHYS 2311 - General Physics I: Calculus-Based
- PHYS 2321 - General Physics Laboratory I
- PHYS 2331 - General Physics II: Calculus-Based
- PHYS 2341 - General Physics Laboratory II

Take **all** of the following Bioengineering courses:

- BIOE 1010 - Bioengineering Design and Prototyping I
- BIOE 1020 - Bioengineering Design and Prototyping II
- BIOE 2010 - Introduction to Programming for Bioengineers
- BIOE 2020 - Introduction to Computational Methods for Bioengineers

Upper-division Bioengineering Courses

Students admitted into the Bioengineering major will undertake the upper-division major bioengineering courses regardless of the track they choose. Upper-division major classes will be taught at the Anschutz Medical Campus. These classes build upon pre-major courses and provide the next level of instruction in bioengineering. This instruction includes a year-long laboratory course, design experiences, and disciplinary subjects. Additional information regarding these courses will be available in the 2015-2016 academic catalog.

Track Electives

The goal of the track electives requirement is to provide students with more advanced understanding of specialized areas in Bioengineering. Students must take a minimum of twelve semester hours to meet Bioengineering track elective requirements. Of these twelve semester hours, a minimum of six semester hours must be upper-division (3000- or 4000-level) and taught within the Department of Bioengineering.

Bioengineering track options and course offerings are under development and subject to change, however, the Department of Bioengineering anticipates offering the following tracks:

- Biomedical Devices and Biomechanics
- Imaging Instrumentation and Diagnostics

BIOLOGY BS

Introduction

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. To ensure a proper background for the study of biology, majors are required to pass 31-33 hours of course work in ancillary disciplines.
2. A minimum of 36 hours of biology must be completed, of which 18 hours are at the upper-division level and taken in residence with CU Denver downtown campus Biology faculty.
3. The following courses will not count toward the BS in Biology: BIOL 1136, BIOL 1550 and BIOL 1560.
4. All biology courses applied to the undergraduate biology major must be completed within 10 years of graduation.
5. A GPA of 2.0 must be attained in BIOL coursework.
6. Biology and ancillary courses must be completed with a letter grade of C- (1.7) or higher. Take **all** of the following Biology core courses:
 - BIOL 2051 - General Biology I **or**
 - BIOL 2095 - Honors General Biology I

 - BIOL 2071 - General Biology Laboratory I **or**
 - BIOL 2096 - Honors General Biology Lab I

 - BIOL 2061 - General Biology II **or**
 - BIOL 2097 - Honors General Biology II

- BIOL 2081 - General Biology Laboratory II **or**
- BIOL 2098 - Honors General Biology Lab II

- BIOL 3411 - Principles of Ecology
- BIOL 3611 - General Cell Biology
- BIOL 3832 - General Genetics

Take **one** of the following courses:

- BIOL 3225 - Human Physiology
- BIOL 3244 - Human Anatomy
- BIOL 3413 - Ecology Laboratory
- BIOL 3612 - Cell Biology Laboratory
- BIOL 3654 - General Microbiology
- BIOL 4125 - Molecular Biology Laboratory
- BIOL 4335 - Plant Science
- BIOL 4345 - Flora of Colorado
- BIOL 4640 - Mammalogy
- BIOL 4644 - Advanced Human Anatomy Laboratory
- BIOL 4910 - Field Studies

Take an **additional** 11-13 semester hours of upper-division biology to create a total of 36 BIOL credit hours for the major.

Note: Biochemistry (CHEM 3810-4 or 4820-3) may be counted as biology elective hours, if taken in addition to second semester organic chemistry.

- BIOL 3411, 3412, 3611 and 3832 cannot apply as electives
- A maximum of six hours of Independent Study (BIOL 3840 or 4840) and Internship (BIOL 3939), including a maximum of three credits of BIOL 3939, may be counted toward the upper-division biology electives.

Take **three** credits of a 4000-level BIOL course taken from CU Denver Biology faculty.

Note: BIOL 4840 and 4990 will not apply

Take **all** of the following Ancillary Core courses:

- CHEM 2031 - General Chemistry I **or**
- CHEM 2081 - Honors General Chemistry I

- CHEM 2038 - General Chemistry Laboratory I **or**
- CHEM 2088 - Honors General Chemistry I Laboratory

- CHEM 2061 - General Chemistry II **or**

- CHEM 2091 - Honors General Chemistry II
- CHEM 2068 - General Chemistry Laboratory II **or**
- CHEM 2098 - Honors General Chemistry II Laboratory
- CHEM 3411 - Organic Chemistry I **or**
- CHEM 3481 - Honors Organic Chemistry I
- CHEM 3421 - Organic Chemistry II **or**
- CHEM 3810 - Biochemistry **or**
- CHEM 4820 - General Biochemistry II
- PHYS 2010 - College Physics I **or**
- PHYS 2311 - General Physics I: Calculus-Based
- PHYS 2030 - College Physics Lab I **or**
- PHYS 2321 - General Physics Laboratory I
- PHYS 2020 - College Physics II **or**
- PHYS 2331 - General Physics II: Calculus-Based
- PHYS 2040 - College Physics Lab II **or**
- PHYS 2341 - General Physics Laboratory II
- MATH 1401 - Calculus I **or**
- MATH 1110 - College Algebra
 * and BIOL 3763 **or**
 MATH 1110 - College Algebra
 *and MATH 4830
 *Note: MATH 1120 or MATH 1130 may substitute for MATH 1110

Take **one** of the following:

- BIOL 3763 - Biostatistics
- MATH 4830 - Applied Statistics

CHEMISTRY BS

Introduction

Students interested in the traditional chemistry major should consult regularly with a chemistry advisor. A complete description of the chemistry major's program may be obtained in the Department of Chemistry office or department website.

Qualified majors are strongly urged to participate in independent study or departmental honors programs.

Students planning chemistry as a career should be familiar with the recommendations of the American Chemical Society for the professional training of chemists. For ACS certification, students following the traditional BS program of study are required to take inorganic laboratory (CHEM 3018), at least one semester of biochemistry (CHEM 3810 or CHEM 4810), and one additional 3- or 4-credit upper-division chemistry course in addition to the curriculum outlined above. No course with a grade of less than *C* (2.0) can be applied toward ACS certification. Students should check with a chemistry advisor for details. CU Denver maintains an ACS chapter of student affiliates.

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a major](#)

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Liberal Arts & Sciences Graduation Requirements

- [Click here for information about Academic Policies](#)

Program Requirements

1. The Chemistry major requires 45 semester hours in chemistry.
2. Students must take at least 14 upper-division chemistry hours, including CHEM 4128, 4518 or 4538, in residency at CU Denver.
3. The minimum grade in Chemistry courses is C- (1.7).
4. A minimum chemistry GPA of 2.0 is required in chemistry and ancillary required courses.
5. A student who has declared a chemistry major at CU Denver may not take additional chemistry courses outside of the department for the purpose of applying those credits toward meeting the requirements of the major without prior written approval of the undergraduate advisor. No more than 3 additional hours of transfer credits will be allowed.

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

- CHEM 2031 - General Chemistry I **or**
- CHEM 2081 - Honors General Chemistry I

- CHEM 2038 - General Chemistry Laboratory I **or**
- CHEM 2088 - Honors General Chemistry I Laboratory

- CHEM 2061 - General Chemistry II **or**
- CHEM 2091 - Honors General Chemistry II

- CHEM 2068 - General Chemistry Laboratory II **or**
- CHEM 2098 - Honors General Chemistry II Laboratory

- CHEM 3011 - Inorganic Chemistry
- CHEM 3111 - Analytical Chemistry
- CHEM 3118 - Analytical Chemistry Laboratory

- CHEM 3411 - Organic Chemistry I **or**
- CHEM 3481 - Honors Organic Chemistry I

- CHEM 3418 - Organic Chemistry Laboratory I **or**
- CHEM 3488 - Honors Organic Chemistry Laboratory I

- CHEM 3421 - Organic Chemistry II **or**
- CHEM 3491 - Honors Organic Chemistry II

- CHEM 3498 - Honors Organic Chemistry Laboratory II
- CHEM 4121 - Instrumental Analysis
- CHEM 4128 - Instrumental Analysis Laboratory
- CHEM 4511 - Physical Chemistry I
- CHEM 4518 - Physical Chemistry Laboratory I
- CHEM 4521 - Physical Chemistry II
- CHEM 4538 - Physical Chemistry II Laboratory

Take **one** of the following courses:

- CHEM 3018 - Inorganic Chemistry Laboratory
- CHEM 4828 - Biochemistry Lab

Take **all** of the following Ancillary courses:

- MATH 1401 - Calculus I
- MATH 2411 - Calculus II
- MATH 3511 - Mathematics of Chemistry
- PHYS 2311 - General Physics I: Calculus-Based
- PHYS 2321 - General Physics Laboratory I
- PHYS 2331 - General Physics II: Calculus-Based
- PHYS 2341 - General Physics Laboratory II

CHEMISTRY BS, BIOCHEMISTRY EMPHASIS

Introduction

Students interested in the traditional chemistry major with the biochemistry emphasis should consult regularly with a chemistry advisor. A complete description of the program may be obtained in the Department of Chemistry office or department website.

Qualified majors are strongly urged to participate in independent study, American Chemical Society (ACS) certification, or departmental honors programs.

Students planning chemistry as a career should be familiar with the recommendations of the American Chemical Society for the professional training of chemists. For ACS certification, students following the biochemistry emphasis BS program required to take inorganic lecture (CHEM 3011), inorganic laboratory (CHEM 3018), and physical chemistry II laboratory (CHEM 4538) in addition to the curriculum outlined above. No course with a grade of less than C (2.0) can be applied toward ACS certification. Students should check with a chemistry advisor for details. CU Denver maintains an ACS chapter of student affiliates.

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. The chemistry major with a biochemistry emphasis requires 44-45 semester hours in Chemistry.
2. Students must take at least 14 upper-division chemistry hours, including CHEM 4518, in residency at CU Denver.
3. The minimum grade in Chemistry courses is C- (1.7).
4. A minimum Chemistry GPA of 2.0 is required in chemistry and ancillary required courses.
5. A student who has declared a chemistry major at CU Denver may not take additional chemistry courses outside of the department for the purpose of applying those credits toward meeting the requirements of the major without prior written approval of the undergraduate advisor. No more than 3 additional hours of transfer credits will be allowed.

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

- CHEM 2031 - General Chemistry I **or**
- CHEM 2081 - Honors General Chemistry I

- CHEM 2038 - General Chemistry Laboratory I **or**
- CHEM 2088 - Honors General Chemistry I Laboratory

- CHEM 2061 - General Chemistry II **or**
- CHEM 2091 - Honors General Chemistry II

- CHEM 2068 - General Chemistry Laboratory II **or**
- CHEM 2098 - Honors General Chemistry II Laboratory

- CHEM 3111 - Analytical Chemistry
- CHEM 3118 - Analytical Chemistry Laboratory

- CHEM 3411 - Organic Chemistry I **or**
- CHEM 3481 - Honors Organic Chemistry I

- CHEM 3418 - Organic Chemistry Laboratory I **or**
- CHEM 3488 - Honors Organic Chemistry Laboratory I

- CHEM 3421 - Organic Chemistry II **or**
- CHEM 3491 - Honors Organic Chemistry II

- CHEM 3498 - Honors Organic Chemistry Laboratory II
- CHEM 4511 - Physical Chemistry I
- CHEM 4518 - Physical Chemistry Laboratory I
- CHEM 4521 - Physical Chemistry II
- CHEM 4810 - General Biochemistry I
- CHEM 4820 - General Biochemistry II
- CHEM 4828 - Biochemistry Lab

Take **all** of the following Ancillary courses:

- BIOL 2051 - General Biology I
- BIOL 2071 - General Biology Laboratory I
- MATH 1401 - Calculus I
- MATH 2411 - Calculus II
- MATH 3511 - Mathematics of Chemistry
- PHYS 2311 - General Physics I: Calculus-Based

- PHYS 2321 - General Physics Laboratory I
- PHYS 2331 - General Physics II: Calculus-Based
- PHYS 2341 - General Physics Laboratory II

Take any 3000-level or higher CHEM course except CHEM 3810 (Biochemistry) or CHEM 3428 (Organic Chemistry II Laboratory).

Note: some of these courses may require additional prerequisites.

or

Choose **one** of the following:

- BIOL 3124 - Introduction to Molecular Biology
- BIOL 3611 - General Cell Biology
- BIOL 3621 - Introduction to Immunology
- BIOL 3654 - General Microbiology

CIVIL ENGINEERING BS

Introduction

The objectives of the bachelor of science in civil engineering program are to produce graduates who:

- are able to perform the technical analyses and design tasks of entry-level civil engineers
- can successfully work toward professional engineering licensure
- communicate effectively, both orally and in writing
- understand the importance of leadership skills, team building and ethical practice
- value lifelong learning and improvement through graduate degrees or professional study
- appreciate the importance of community involvement and social contribution civil engineers are dedicated to improving our living environment

Civil engineering offers an interesting and challenging career in the design, construction, and maintenance of buildings and urban infrastructure; in transportation systems, including highways, airports, rapid transit lines, railroads, and harbor facilities; in the development of water resources, including reservoirs for storage, canals for irrigation, dams for power generation, stormwater management for drainage, groundwater recharge for contamination prevention, wastewater treatment for environmental protection, and water purification for drinking purposes; in the construction industry; including foundations, bridges, concrete and steel structures, in problems concerned with environmental preservation; and in the sustainable development of cities. In preparing for work in such a broad field, the civil engineering student studies mathematics, basic science, communication, social science and humanities, engineering science and civil engineering design. CU Denver's civil engineering graduates usually find their

first professional employment with consulting engineering firms, government agencies and various industries.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a major](#)

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Engineering and Applied Science Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must maintain a minimum 2.0 GPA in all courses applying to major requirements.
2. Students must maintain a minimum 2.0 GPA in all CVEN courses attempted.

Take **all** of the following Civil Engineering courses:

- CVEN 1025 - Civil Engineering Graphics and Computer Aided Design
- CVEN 2121 - Analytical Mechanics I
- CVEN 2200 - Computing Methods in Civil Engineering
- CVEN 2212 - Plane Surveying
- CVEN 3111 - Analytical Mechanics II
- CVEN 3121 - Mechanics of Materials
- CVEN 3141 - Introduction to Structural Materials
- CVEN 3313 - Theoretical Fluid Mechanics
- CVEN 3323 - Applied Fluid Mechanics
- CVEN 3401 - Introduction to Environmental Engineering
- CVEN 3414 - Design of Water and Wastewater Systems
- CVEN 3505 - Structural Analysis
- CVEN 3602 - Transportation Engineering

- CVEN 3718 - Geotechnical Engineering I
- CVEN 4000 - Senior Seminar
- CVEN 4067 - Senior Design Projects
- CVEN 4728 - Geotechnical Engineering II
- ELEC 3030 - Electric Circuits and Systems
- MECH 3012 - Thermodynamics

Take **four** of the following Design Electives courses:

- CVEN 4427 - Storm Water System Design
- CVEN 4565 - Timber Structure Design
- CVEN 4575 - Structural Steel Design
- CVEN 4585 - Reinforced Concrete Design
- CVEN 4602 - Highway Engineering
- CVEN 4738 - Intermediate Foundation Engineering

Take **all** of the following Mathematics courses:

- MATH 1401 - Calculus I
- MATH 2411 - Calculus II
- MATH 2421 - Calculus III
- MATH 3195 - Linear Algebra and Differential Equations

Take **one** of the following Chemistry courses/sets:

- CHEM 1130 - Engineering General Chemistry **or**
- CHEM 2031 - General Chemistry I **and**
- CHEM 2038 - General Chemistry Laboratory I

Take **all** of the following Physics courses:

- PHYS 2311 - General Physics I: Calculus-Based
- PHYS 2321 - General Physics Laboratory I
- PHYS 2331 - General Physics II: Calculus-Based
- PHYS 2341 - General Physics Laboratory II

Take **one** of the following Civil Engineering Electives:

- CVEN 4780 - Engineering Geology
- GEOL 1072 - Physical Geology: Surface Processes
- MATH 3800 - Probability and Statistics for Engineers

Take **three** courses from the following departments:

- BIOE, CVEN, CSCI, ELEC, ENGR, MECH, MATH, CHEM, BIOL, PHYS, or GEOL
Note: MATH courses must be higher than 3800, CHEM courses must be higher than 1130, PHYS courses must be higher than 2331 and GEOL courses must be higher than 1072.

COMMUNICATION BA

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here](#) to go to information about declaring a 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 Requirements](#)
- [College of Liberal Arts & Sciences Graduation Requirements](#)
- [Click here](#) for information about Academic Policies

Program Requirements

1. The communication major requires that students take a total of 39 hours of course work in communication, 18 of which must be taken in residence at CU Denver.
2. At least 21 of the 39 hours must be upper-division.
3. Students may transfer in 7 or fewer classes.
4. Communication majors may complete up to 6 hours of internship credit (COMM 3939).

Take **all** of the following Communication courses:

- COMM 1011 - Fundamentals of Communication
- COMM 1021 - Introduction To Media Studies
- COMM 2020 - Communication, Citizenship, and Social Justice

Take **one** of the following courses:

- COMM 1001 - Presentational Speaking
- COMM 2050 - Business and Professional Speaking

Take **eight** Communication electives:

Note: In addition to the four communication core courses, students are required to complete at least 24 credits from among the department's nine pathways, which include:

- community service and public affairs
- legal communication
- health communication
- mass media
- human resources and organizational communication
- mediation and conflict resolution
- political communication and government
- technical communication and public relations
- advertising

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

- COMM 3939 - Internship
- COMM 4040 - Communication, Prisons, and Social Justice
- COMM 4282 - Environmental Communication
- COMM 4500 - Health Communication
- COMM 4640 - Advanced Public Relations
- COMM 4688 - Senior Seminar: Transitioning from College to Career
- COMM 4700 - Writing Practicum
- COMM 4995 - Travel Study

COMPUTER SCIENCE BS

Introduction

The educational objectives of the computer science undergraduate program are to produce graduates who:

- Advance professionally as productive, practicing professionals in computer science and related careers through the continued development of their expertise and skills.

- Further develop their knowledge, skill set, and career opportunities through graduate education and/or professional studies.
- Function effectively as part of a team to succeed in their professional careers.

Measurable Outcomes

The BS-CS program must enable its students to attain, by the time of graduation:

- An ability to apply knowledge of computing and mathematics appropriate to the discipline
- An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
- An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
- An ability to function effectively on teams to accomplish a common goal
- An understanding of professional, ethical, legal, security and social issues and responsibilities
- An ability to communicate effectively with a range of audiences
- An ability to analyze the local and global impact of computing on individuals, organizations, and society
- Recognition of the need for and an ability to engage in continuing professional development
- An ability to use current techniques, skills, and tools necessary for computing practice
- An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the trade-offs involved in design choices. (CS)
- An ability to apply design and development principles in the construction of software systems of varying complexity. (CS)

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here](#) to go to information about declaring a major

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Engineering and Applied Science Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must maintain a minimum 2.0 GPA in all courses applying to major requirements.
2. Students must maintain a minimum 2.0 GPA in all CSCI courses attempted.
Take **all** of the following Computer Science courses:
 - CSCI 1410 - Fundamentals of Computing
 - CSCI 1411 - Fundamentals of Computing Laboratory
 - CSCI 1510 - Logic Design
 - CSCI 2312 - Intermediate Programming
 - CSCI 2421 - Data Structures and Program Design
 - CSCI 2511 - Discrete Structures
 - CSCI 2525 - Assembly Language and Computer Organization
 - CSCI 3287 - Database System Concepts
 - CSCI 3320 - Advanced Programming
 - CSCI 3412 - Algorithms
 - CSCI 3415 - Principles of Programming Languages
 - CSCI 3453 - Operating System Concepts
 - CSCI 3508 - Introduction to Software Engineering
 - CSCI 3511 - Hardware-Software Interface
 - CSCI 3560 - Probability and Computing
 - CSCI 4034 - Theoretical Foundations of Computer Science
 - CSCI 4287 - Embedded Systems Programming
 - CSCI 4591 - Computer Architecture
 - CSCI 4650 - Numerical Analysis I
 - CSCI 4738 - Senior Design I
 - CSCI 4739 - Senior Design II
 - CSCI 4761 - Introduction to Computer NetworksTake **eighteen** hours of Technical Electives from CSCI 3000 or 4000-level that are not part of the required Bachelor of Science in Computer Science (BSCS) curriculum ("CSCI 2930 - Practical Systems Administration" counts as well).

Take **all** of the following Mathematics courses:

- MATH 1401 - Calculus I
- MATH 2411 - Calculus II
- MATH 3195 - Linear Algebra and Differential Equations

Take **all** of the following Science courses:

- PHYS 2311 - General Physics I: Calculus-Based
- PHYS 2321 - General Physics Laboratory I
- PHYS 2331 - General Physics II: Calculus-Based
- PHYS 2341 - General Physics Laboratory II

CRIMINAL JUSTICE BA

Introduction

The School of Public Affairs' Bachelor of Arts program in criminal justice is an interdisciplinary program that combines specific course work in criminal justice with a liberal arts focus. The criminal justice degree offers training for specific occupations within criminal justice agencies and provides students with the critical thinking, writing and presentation skills necessary for career advancement and graduate study. The course work explores the complex nature of crime causation, criminal justice organizations and the implications of public policies that allow graduates to adapt to the evolving nature of the field.

As with all undergraduate degrees, students are required to complete the requirements of the CU Denver core curriculum, providing an education that draws heavily on social and natural sciences as well as liberal arts. The program will not only provide a direct line to employment in the growing field of criminal justice, but will also facilitate the movement of outstanding students into SPA's MCJ and PhD graduate programs. Students will be well prepared to pursue additional advanced degrees in fields where critical thinking and analytical skills are required.

Program Delivery

- This is an on-campus and online program.

Declaring This Major

- [Click here to go to information about declaring a major](#)

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- School of Public Affairs Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must receive a minimum C- grade in each undergraduate course applied to satisfy major or minor degree requirements and must maintain a 2.0 GPA overall in major or minor courses.

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

- CRJU 1000 - Criminal Justice: An Overview
- CRJU 2041 - Crime Theory and Causes
- CRJU 3100 - Criminal Justice Research Methods
- CRJU 3150 - Statistics for Criminal Justice
- CRJU 4042 - Corrections
- CRJU 4043 - Law Enforcement
- CRJU 4044 - Courts and Judicial Process
- SOCY 1001 - Introduction to Sociology *

*This class also fulfills a Social Science requirement of the CU Denver Undergraduate Curriculum

Take **fifteen** semester hours of electives, **nine** of which must be Criminal Justice courses offered by the School of Public Affairs, and **six** of which may be taken from other departments.

*The Internship course, CRJU 4939 , is required as one of the electives for the major unless officially waived by the BACJ Program Director. See SPA Graduation Requirements for more information.

School of Public Affairs electives:

- CRJU 3160 - White-Collar Crime
- CRJU 3220 - Community-Based Corrections
- CRJU 3250 - Violence in Society
- CRJU 3251 - Crime and Media
- CRJU 3252 - Violent Offenders
- CRJU 3310 - Police in Contemporary Society
- CRJU 3320 - Police-Community Relations
- CRJU 3410 - Probation and Parole
- CRJU 3420 - Pleas, Trials and Sentences
- CRJU 3510 - Drugs, Alcohol and Crime
- CRJU 3520 - Juvenile Justice Administration
- CRJU 3540 - Crime and Delinquency Prevention
- CRJU 4120 - Race, Class and Crime
- CRJU 4121 - Ethics in Criminal Justice
- CRJU 4130 - Poverty and Crime
- CRJU 4140 - Domestic Violence and Crime
- CRJU 4150 - Sex Offenders and Offenses
- CRJU 4170 - Victim Studies
- CRJU 4171 - Murder In America
- CRJU 4180 - Comparative Study of Criminal Justice Systems
- CRJU 4190 - Women and Crime
- CRJU 4230 - Corrections and Treatment
- CRJU 4252 - Criminal Offenders
- CRJU 4310 - Leadership Roles in Criminal Justice
- CRJU 4410 - Criminal Law and Constitutional Procedures
- CRJU 4430 - Law and Society
- CRJU 4440 - Courts and Social Policy
- CRJU 4450 - Homeland Security
- CRJU 4520 - Gangs and Criminal Organizations
- CRJU 4530 - Families and Intergenerational Crime
- CRJU 4600 - Special Topics in Criminal Justice
- CRJU 4840 - Independent Study: CRJU
- CRJU 4939 - Internship *

Other electives: **

- COMM 4265 - Gender and Communication
- ECON 3300 - Economics of Crime and Punishment
- PSCI 3034 - Race, Gender, Law and Public Policy
- PSCI 4124 - Denver Politics

- PSCI 4185 - Corruption in the U.S. and Abroad
- PSCI 4427 - Law, Politics and Justice
- PSCI 4477 - Constitutional Law I
- PSCI 4487 - Constitutional Law II
- PSCI 4545 - Immigration Politics
- PSCI 4837 - Contemporary Issues in Civil Liberties
- PSYC 3205 - Human Development I: Child Psychology
- PSYC 3215 - Human Development II: Adolescence and Adulthood
- PSYC 3265 - Drugs, Brain and Behavior
- PSYC 3305 - Abnormal Psychology
- PSYC 3612 - Domestic Abuse
- SOCY 2462 - Introduction to Social Psychology
- SOCY 3020 - Race and Ethnicity in the U.S.
- SOCY 3600 - Social Relations
- SOCY 3700 - Sociology of the Family
- SOCY 4340 - Juvenile Delinquency
- SOCY 4440 - Social Inequality
- SOCY 4460 - Hate Groups and Group Violence
- SOCY 4770 - Advanced Topics in Sociology

**Students must comply with departmental prerequisites.

DIGITAL DESIGN EMPHASIS, FINE ARTS BFA

Introduction

Please click here to see General Visual Arts information.

The digital design emphasis integrates aesthetic, creative and critical thought with expertise in advanced electronic media. Configured as an interdisciplinary arts and design laboratory, digital design offers a hands-on education combining new art technologies and design concepts in a concentrated theoretical framework that promotes an understanding of the cultural impact and uses of digital technologies. Through this interdisciplinary approach combining arts and communication, digital design strives to produce artists and designers who will use technology in innovative ways in both commercial and artistic spheres.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here to go to information about declaring a major
- Students who are applying for entrance into the digital design emphasis are required to submit a designed portfolio and unofficial transcript(s) from CU Denver and all previous post-secondary educational institutions. For specific application details, see <http://designucd.com/index.php/portfolio/>. The digital design course sequence starts in fall semester. Students who meet the following requirements can apply. Upon acceptance students will be able to register for upper-division digital design courses.

ELIGIBILITY

The student has completed, or is in the process of completing, the following foundation studio courses with a grade of C (2.0) or better in each:

- FINE 1400 - Two Dimensional Design
- FINE 2405 - Introduction to Digital Design
- FINE 2415 - Typography Studio

FINE 2405 and 2415 are both offered fall-only at CU Denver.

APPLICATION PORTFOLIO REQUIREMENTS

To properly prepare your application, refer to <http://designucd.com/index.php/portfolio/> for detailed instructions. Applications are due by 5 p.m. on December 1 or on the following business day if the deadline falls on a weekend or holiday.

Applications are only accepted online via the portfolio service SlideRoom and must be formatted to the specifications listed on <http://designucd.com/index.php/portfolio/>. The portfolio samples should consist of images (.jpgs) and embedded video. Written work should be integrated into the submission. It is VERY important for students to visit the submission page early and begin uploads two weeks before the due date. Late submissions due to technical difficulties on the part of the applicant will NOT be accepted.

Portfolio of Images

The portfolio must include 13-17 electronic examples of the student's creative work, consisting of a Design Project (including a writing sample) and works from FINE 1400 Two Dimensional Design, FINE 2405 Introduction to Digital Design and FINE 2415 Typography. Two to five additional creative works may also be included within the maximum of 17 works altogether.

Course Transcripts

These may be official or unofficial transcripts from CU Denver and previous post-secondary institutions.

THE EVALUATION PROCESS

- A committee of design faculty members reviews the portfolio and grades. For acceptance, the committee looks for an understanding of 2D design, writing and presentation skills.
- If not admitted into the digital design emphasis, a student has the choice of attempting the review process again the following year or applying to another emphasis outside of digital design. Students not admitted into the digital design emphasis are encouraged to schedule a meeting with a digital design faculty member to learn of ways to improve portfolios for future submissions.

Broad criteria for the portfolio evaluation are as follows:

- **Process Research and Analysis** – Does the portfolio demonstrate an ability to compile relevant information by identifying resources necessary to formulate a deeper understanding of context(s)?
- **Design Principles** – Does the portfolio demonstrate awareness of design principles through various means of technical production and successful color experimentation?
- **Visual Literacy** - Does the portfolio reflect sensitivity to design concepts and visual logic, and does it demonstrate fundamental understanding of composition? Does the work communicate effectively?
- **Use of Imagery** – Does the portfolio demonstrate a student's potential ability to create and develop visual form in response to communication problems?
- **Expressive Typography** – Does the portfolio demonstrate a burgeoning awareness of the importance of risk-taking while solving typographic design problems?
- **Generating and Selecting Ideas** – Does the portfolio demonstrate the student's ability to generate multiple solutions to artistic problems and utilize process to select the most effective solutions?
- **Technical Skill** - Does the portfolio reflect a strong knowledge of tools and materials and an aptitude for digital design skills?
- **Conceptual Skills** - Do the portfolio and writing samples demonstrate analytical thinking as it applies to visual art and design? Is there a developing conceptual exploration of the digital medium?
- **Writing Sample** - Does the writing demonstrate the student's critical thinking skills regarding the work and ability to address an assignment in a notable way?
- **Presentation** - Is the portfolio well-crafted and well organized in content and presentation? Are all of the required components included?
- **Academic Performance** - Do the student's grades reflect a commitment to learning and growth?

QUESTIONS

Please contact CAMadvising@ucdenver.edu for emphasis and portfolio information, or contact digital design area head Brian DeLevie at brian.delevie@ucdenver.edu.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Arts & Media Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Each course counting toward the major must be completed with a grade of C (2.0) or better.
2. All upper-division visual arts courses must be taken at CU Denver unless otherwise approved by visual arts faculty.
3. At least 27 semester hours of visual arts credits (at any level) must be taken at CU Denver.
4. At least 24 semester hours of total visual arts courses must be upper-division.

Take **all** of the following Visual Arts Foundation courses:

- FINE 1100 - Drawing I
- FINE 1400 - Two Dimensional Design
- FINE 1500 - Three-Dimensional Design
- FINE 2600 - Art History Survey I
- FINE 2610 - Art History Survey II

Take **all** of the following Digital Design Emphasis courses (entry level):

- FINE 2405 - Introduction to Digital Design
- FINE 2415 - Typography Studio

Take **all** of the following Digital Design Emphasis courses (available only to students accepted to emphasis via portfolio review):

- FINE 3414 - Motion Design I
- FINE 3415 - Design Studio I
- FINE 3417 - Design Research
- FINE 3424 - Interactive Media
- FINE 3434 - 3D Motion Design
- FINE 3444 - Interactive Media II
- FINE 3454 - Motion Design II
- FINE 3464 - Design Studio II
- FINE 3474 - Narrative and Experience

- FINE 4400 - Design Studio III
- FINE 4480 - The Practice of Design
- FINE 4495 - Design Studio IV: Thesis (It is highly suggested that ALL art history courses be completed prior to enrolling in FINE 4495.)

Take **all** of the following additional Visual Arts courses:

- FINE 2155 - Introduction to Digital Photography
- FINE 4600 - History of Modern Design:Industrial Revolution-Present
- FINE 4990 - Contemporary Art: 1960 to Present

Take **three** semester hours of Pre-20th Century Art History elective. Consult a CAM advisor for approved options.

Take **six** semester hours of Studio Arts electives.

Take **six** semester hours of Visual Arts electives. These may include studio, lecture, internship or art history courses.

DIGITAL DESIGN EMPHASIS, SCIENTIFIC MEDIA DESIGN TRACK, FINE ARTS BFA

Introduction

Please click [here](#) to see General Visual Arts information.

Through a truly interdisciplinary approach that integrates design, art and science, the scientific media design track (offered within the digital design emphasis) provides an educational experience that combines collaboration, exploration, project-based learning and real world problem solving skills. Theoretical as well as practical knowledge prepares graduates for successful careers designing clear, accurate, communicative works for science and medicine.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click [here](#) to go to information about declaring a major
- Students who are applying for entrance into the digital design emphasis - scientific media design track are required to submit a designed portfolio and unofficial transcript(s) from CU Denver and all previous post-secondary educational institutions. For specific

application details, see <http://designucd.com/index.php/portfolio/>. The digital design course sequence starts in fall semester. Students who meet the following requirements can apply. Upon acceptance students will be able to register for upper-division digital design courses.

ELIGIBILITY

The student has completed, or is in the process of completing, the following foundation studio courses with a grade of C (2.0) or better in each:

- FINE 1400 - Two Dimensional Design
- FINE 2405 - Introduction to Digital Design
- FINE 2415 - Typography Studio

FINE 2405 and 2415 are both offered fall-only at CU Denver.

APPLICATION PORTFOLIO REQUIREMENTS

To properly prepare your application, refer to <http://designucd.com/index.php/portfolio/> for detailed instructions. Applications are due by 5 p.m. on December 1 or on the following business day if the deadline falls on a weekend or holiday.

Applications are only accepted online via the portfolio service SlideRoom and must be formatted to the specifications listed on <http://designucd.com/index.php/portfolio/>. The portfolio samples should consist of images (.jpgs) and embedded video. Written work should be integrated into the submission. It is VERY important for students to visit the submission page early and begin uploads two weeks before the due date. Late submissions due to technical difficulties on the part of the applicant will NOT be accepted.

Portfolio of Images

The portfolio must include 13-17 electronic examples of the student's creative work, consisting of a Design Project (including a writing sample) and works from FINE 1400 Two Dimensional Design, FINE 2405 Introduction to Digital Design and FINE 2415 Typography. Two to five additional creative works may also be included within the maximum of 17 works altogether.

Course Transcripts

These may be official or unofficial transcripts from CU Denver and previous post-secondary institutions.

THE EVALUATION PROCESS

- A committee of design faculty members reviews the portfolio and grades. For acceptance, the committee looks for an understanding of 2D design, writing and presentation skills.

- If not admitted into the scientific media design track, a student has the choice of attempting the review process again the following year or applying to another emphasis outside of digital design. Students not admitted into the scientific media design track are encouraged to schedule a meeting with a scientific media design faculty member to learn of ways to improve portfolios for future submissions.

Broad criteria for the portfolio evaluation are as follows:

- **Process Research and Analysis** – Does the portfolio demonstrate an ability to compile relevant information by identifying resources necessary to formulate a deeper understanding of context(s)?
- **Design Principles** – Does the portfolio demonstrate awareness of design principles through various means of technical production and successful color experimentation?
- **Visual Literacy** - Does the portfolio reflect sensitivity to design concepts and visual logic, and does it demonstrate fundamental understanding of composition? Does the work communicate effectively?
- **Use of Imagery** – Does the portfolio demonstrate a student's potential ability to create and develop visual form in response to communication problems?
- **Expressive Typography** – Does the portfolio demonstrate a burgeoning awareness of the importance of risk-taking while solving typographic design problems?
- **Generating and Selecting Ideas** – Does the portfolio demonstrate the student's ability to generate multiple solutions to artistic problems and utilize process to select the most effective solutions?
- **Technical Skill** - Does the portfolio reflect a strong knowledge of tools and materials and an aptitude for digital design skills?
- **Conceptual Skills** - Do the portfolio and writing samples demonstrate analytical thinking as it applies to visual art and design? Is there a developing conceptual exploration of the digital medium?
- **Writing Sample** - Does the writing demonstrate the student's critical thinking skills regarding the work and ability to address an assignment in a notable way?
- **Presentation** - Is the portfolio well-crafted and well organized in content and presentation? Are all of the required components included?
- **Academic Performance** - Do the student's grades reflect a commitment to learning and growth?

QUESTIONS

Please contact CAMadvising@ucdenver.edu for track and portfolio information, or contact scientific media design Professor Travis Vermilye at travis.vermilye@ucdenver.edu.

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 Requirements
- College of Arts & Media Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Each course counting toward the major must be completed with a grade of C (2.0) or better.
2. All upper-division visual arts courses must be taken at CU Denver unless otherwise approved by visual arts faculty.
3. At least 27 semester hours of visual arts credits (at any level) must be taken at CU Denver.
4. At least 24 semester hours of total visual arts courses must be upper-division.

Take **all** of the following Visual Arts Foundation courses:

- FINE 1100 - Drawing I
- FINE 1400 - Two Dimensional Design
- FINE 1500 - Three-Dimensional Design
- FINE 2600 - Art History Survey I
- FINE 2610 - Art History Survey II

Take **all** of the following Scientific Media Design Track courses (entry level):

- FINE 2405 - Introduction to Digital Design
- FINE 2428 - Introduction to Scientific Media Design
- FINE 2415 - Typography Studio

Take **all** of the following Scientific Media Design Track courses (available only to students accepted to emphasis via portfolio review):

- FINE 3414 - Motion Design I
- FINE 3415 - Design Studio I
- FINE 3424 - Interactive Media
- FINE 3434 - 3D Motion Design
- FINE 3444 - Interactive Media II
- FINE 3454 - Motion Design II
- FINE 4446 - Visualization & Infographics
- FINE 4448 - BioMedical 3D Animation

- FINE 4480 - The Practice of Design
- FINE 4495 - Design Studio IV: Thesis

Take **all** of the following additional Science courses (**seven** semester hours of the biology/chemistry courses also apply toward the Core Biological/Physical Sciences requirement):

- BIOL 2051 - General Biology I
- BIOL 2071 - General Biology Laboratory I
- BIOL 2061 - General Biology II
- BIOL 2081 - General Biology Laboratory II
- CHEM 2031 - General Chemistry I
- CHEM 2038 - General Chemistry Laboratory I
- ____ Science Elective (3 hours) - consult faculty advisor for approved options.

Take **all** of the following additional Visual Arts courses:

- FINE 2030 - Life Drawing
- FINE 4020 - Anatomy for the Artist
- FINE 4600 - History of Modern Design:Industrial Revolution-Present
- FINE 4990 - Contemporary Art: 1960 to Present

Take **three** semester hours of Pre-20th Century Art History elective. Consult a CAM advisor for approved options

Take **six** semester hours of Visual Arts electives. These may include studio, lecture, internship or art history courses.

ECONOMICS BA

Introduction

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must complete a minimum of 40 semester hours in Economics.
2. The minimum grade in each CU Denver economics course is a C- (1.7), except that one D- in one economics elective is allowed.
3. A GPA of 2.5 in economics courses taken at CU Denver is required to graduate.
4. No pass/fail grades may count toward a major.
5. All courses other than ECON 2012 and ECON 2022 require written department approval to be transferred in as satisfying major requirements.
6. Graduating seniors must submit the three best papers that the student wrote in any three separate courses taken in the Economics Department for the outcomes assessment of the Economics program. The three papers should be handed in at one time in a folder to the Economics office, before the first day of the month in which the student plans to graduate.

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

- ECON 2012 - Principles of Economics: Macroeconomics
- ECON 2022 - Principles of Economics: Microeconomics
- ECON 3801 - Introduction to Mathematical Economics
(ECON 3801 may be waived if student has completed Calculus I, II and III with a grade of B or better. CU Denver equivalents are MATH 1401, 2411 and 2421.)

Note: The requirement of 40 hours of economics remains unchanged.

- ECON 3811 - Statistics with Computer Applications

- ECON 4071 - Intermediate Microeconomic Theory
- ECON 4081 - Intermediate Macroeconomic Theory
- ECON 4091 - History of Economic Thought
- ECON 4811 - Introduction to Econometrics

Take any **five** three-semester hour courses in economics. Any courses taken in Economics may satisfy this requirement, other than internships and independent studies which require the approval of the department chair.

ELECTRICAL ENGINEERING BS

Introduction

The educational objectives of the Electrical Engineering undergraduate program are to produce graduates who will within a few years of graduation:

- Advance professionally as productive, practicing engineers through the continued development of their technical capabilities and expertise.
- Further develop their knowledge, skill set, and career opportunities through graduate education in engineering and other fields such as business, medicine, and law.

These objectives are consistent with the mission of the University of Colorado Denver, congruent with the goals of the College of Engineering and Applied Science and reflective of the mission of the Department of Electrical Engineering.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a major](#)

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Engineering and Applied Science Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. The particular curriculum to be satisfied by each student is the one published in the catalog current at the time of his/her 30-hour senior checkout.
2. A graduation agreement should be requested by each student before completing registration for his/her last semester.
3. All electrical engineering students must satisfactorily complete ELEC 4309, Senior Design Project I, and ELEC 4319, Senior Design Project II, in consecutive semesters.
4. Students must maintain a minimum 2.0 GPA in all courses applying to major requirements.
5. Students must maintain a minimum 2.0 GPA in all ELEC courses attempted.

Take **all** of the following Electrical Engineering courses:

- ELEC 1201 - Introduction to Electrical Engineering
- ELEC 1510 - Logic Design
- ELEC 1520 - Embedded Systems Engineering I
- ELEC 2132 - Circuit Analysis I
- ELEC 2142 - Circuit Analysis II
- ELEC 2520 - Embedded Systems Engineering 2
- ELEC 2531 - Logic Laboratory
- ELEC 2552 - Sophomore Circuits Laboratory
- ELEC 3133 - Electromagnetic Fields
- ELEC 3164 - Energy Conversion
- ELEC 3215 - Electronics I
- ELEC 3225 - Electronics II
- ELEC 3316 - Linear Systems Theory
- ELEC 3651 - Digital Hardware Design
- ELEC 3715 - Electronics Laboratory
- ELEC 3724 - Energy Conversion Laboratory
- ELEC 3735 - Junior Laboratory
- ELEC 3817 - Engineering Probability and Statistics
- ELEC 4309 - Senior Design Project I
- ELEC 4319 - Senior Design Project II
- ENGR 3400 - Technology and Culture

Take **two** Professional Elective courses. Professional electives may be selected from an approved list of upper-division or graduate-level courses or cooperative education. The electrical engineering advisor must be consulted prior to the selection of these electives.

Take **one** of the following Engineering Science Elective courses:

- MECH 3012 - Thermodynamics
- ELEC 4678 - Quantum Electronics

- ELEC 4755 - Renewable Energy Systems

Take **seventeen** semester hours from the following lists. At least **two** laboratories with an associated lecture course must be completed.

Control Systems

- ELEC 4136 - Control Systems Analysis
- ELEC 4276 - Digital Control Systems
- ELEC 4406 - Control Systems Laboratory

Micro-electronics

- ELEC 4025 - Device Electronics
- ELEC 4225 - Advanced Electronics
- ELEC 4435 - Advanced Electronics Laboratory
- ELEC 4555 - VLSI Circuit Simulation

Communications

- ELEC 4247 - Communication Theory
- ELEC 4248 - Digital Communication Systems
- ELEC 4467 - Communications Laboratory

Electromagnetic Fields and Waves

- ELEC 4133 - Advanced Electromagnetic Fields
- ELEC 4373 - Optical Engineering
- ELEC 4423 - Radio Frequency Laboratory
- ELEC 4678 - Quantum Electronics

Computer Engineering

- ELEC 4501 - Microprocessor Based Design
- ELEC 4511 - Hardware-Software Interface
- ELEC 4521 - Microprocessor Laboratory
- ELEC 4561 - Hardware-Software Lab
- ELEC 4723 - High Performance Computer Architecture

Power Systems

- ELEC 4164 - Electric Drive Systems
- ELEC 4170 - Electric Drive Systems Laboratory
- ELEC 4174 - Power Electronic Systems
- ELEC 4184 - Power Systems Analysis
- ELEC 4444 - Power Systems Laboratory

- ELEC 4474 - Power Electronics Laboratory
- ELEC 4755 - Renewable Energy Systems

Take **all** of the following Mathematics courses:

- MATH 1401 - Calculus I
- MATH 2411 - Calculus II
- MATH 2421 - Calculus III
- MATH 3195 - Linear Algebra and Differential Equations

Take **all** of the following Science courses:

- CHEM 1130 - Engineering General Chemistry
- PHYS 2311 - General Physics I: Calculus-Based
- PHYS 2321 - General Physics Laboratory I
- PHYS 2331 - General Physics II: Calculus-Based
- PHYS 2341 - General Physics Laboratory II (optional)

ENGLISH WRITING BA

Introduction

Especially designed for future writers, the writing major offers a wide range of intensive writing experiences combining such areas as rhetoric, professional, general and creative writing.

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.

Program Delivery

- This is an on-campus and online program.

Declaring This Major

- [Click here](#) to go to information about declaring a 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 Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students majoring in English Writing must present a total of 39 hours in the major (excluding ENGL 1010, 1020 and 2030), of which 27 hours must be earned in upper-division courses.
2. None of the required 39 hours may be taken on a pass/fail basis.
3. Only courses completed with a grade of C (2.0) or above may be counted toward the major.
4. At least 15 upper-division hours of the student's work in writing must be taken from English faculty at CU Denver.
5. Internship/cooperative education courses may be counted toward the major for students who have completed over 60 credit hours (up to 6 hours).

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

- ENGL 2060 - Introduction to Writing Studies
- ENGL 3084 - Multimedia Composition
- ENGL 3160 - Language Theory **or**
- ENGL 4080 - History of English Language
- ENGL 4190 - Special Topics in Rhetoric and Writing
- ENGL 4830 - Advanced Rhetorical Analysis

Take **three** of the following courses:

- ENGL 2070 - Grammar, Rhetoric and Style
 - ENGL 3154 - Technical Writing
 - ENGL 3160 - Language Theory (if not taken above)
 - ENGL 3170 - Business Writing
 - ENGL 4180 - Argumentation and Logic
 - ENGL 4190 - Special Topics in Rhetoric and Writing *
- *repeatable if topics are different
- ENGL 4280 - Proposal and Grant Writing
 - ENGL 4601 - Principles and Practices of Second Language Acquisition
 - ENGL 4651 - Second Language Writing

Interdisciplinary Language, Literacy and Digital Media

Students may choose any language, literacy and/or digital media course within the English department. With prior approval from an English advisor, students may also choose courses offered by other departments up to 9 hours.

Take **five** Interdisciplinary Language, Literacy and Digital Media courses at the 3000 or 4000-level.

ENGLISH, CREATIVE WRITING OPTION BA

Introduction

The course of study offered by the Department of English is designed to develop a student's ability to read literature responsibly and imaginatively, to foster an understanding and appreciation of our literary inheritance and to provide the historical perspective from which to evaluate contemporary writing and to produce it. Students who complete the program in English are expected to have mastered the ability to express their ideas in creative work.

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a major](#)
- Students planning to major in English must consult with an advisor as soon as possible.
- Students may choose only one of the three options in the English major.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- [CU Denver General Graduation Requirements](#)
- [CU Denver Core Requirements](#)
- [College of Liberal Arts & Sciences Graduation Requirements](#)
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students majoring in English must present a total of 39 hours in the creative writing option (excluding ENGL 1010, 1020 and 2030), of which 27 hours must be earned in upper-division courses.
2. None of the required 39 hours may be taken on a pass/fail basis.
3. Only courses completed with a grade of C (2.0) or above may be counted toward the major.
4. At least 15 upper-division hours of the student's work in English must be taken from English faculty at CU Denver.
5. Internship/cooperative education courses may be counted toward the major for students who have completed over 60 credit hours.
6. Students are not to exceed 56 English credit hours (any level).
Take the following **required** course:
 - ENGL 2450 - Introduction to Literature

Complete the following **poetry or fiction** section:

--Poetry Track--

Take **all** of the following courses:

- ENGL 3020 - Poetry Workshop
- ENGL 3050 - Fiction Workshop
- ENGL 4025 - Advanced Poetry Workshop
- ENGL 4160 - Poetics
- ENGL 4820 - Senior Poetry Workshop

Take **one** of the following courses:

- ENGL 4080 - History of English Language
- ENGL 4166 - History of American Poetry
- ENGL 4320 - History of Poetry in English
- ENGL 4800 - Special Topics in Creative Writing

--Fiction Track--

Take **all** of the following courses:

- ENGL 3020 - Poetry Workshop
- ENGL 3050 - Fiction Workshop
- ENGL 4055 - Advanced Fiction Workshop
- ENGL 4610 - Narrative: Form and Theory
- ENGL 4850 - Senior Fiction Workshop

Take **one** of the following courses:

- ENGL 4200 - History of the English Novel I
- ENGL 4210 - History of the English Novel II
- ENGL 4230 - The American Novel
- ENGL 4236 - The American Short Story
- ENGL 4800 - Special Topics in Creative Writing

Take **six** upper-division English electives (choose from the following list or other ENGL courses at the 3000 or 4000-level):

- ENGL 3001 - Critical Writing
- ENGL 3106 - Advocate Practicum
- ENGL 3416 - Magazine Writing
- ENGL 4800 - Special Topics in Creative Writing
- ENGL 4810 - Literary Editing Practicum

ENGLISH, FILM STUDIES OPTION BA

Introduction

The film studies option within the English major is designed to prepare students for a range of professional careers in areas such as screenwriting, film criticism, video production and the teaching of film, as well as those students who plan to pursue graduate programs in film studies. Required courses give students a strong grounding in film history, verbal and visual narrative, and the critical terms and techniques used in both film and literary analysis. Electives give students the option of emphasizing either the creative approach or the critical approach to moving-image media, or a combination of the two. The film studies option also affords students the opportunity to create video productions using state-of-the-art digital video and editing equipment and the possibility of airing their productions on cable TV. Offered in cooperation with the College of Arts & Media (CAM), the film studies option can be completed entirely on the Auraria Campus.

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here to go to information about declaring a major
- Students planning to major in English must consult with an advisor as soon as possible.
- Students may choose only one of the three options in the English major.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- Click here for information about Academic Policies

Program Requirements

1. Students majoring in English must present a total of 39 hours in the film studies option (excluding ENGL 1010, 1020 and 2030), of which 27 hours must be earned in upper-division courses.
2. None of the required 39 hours may be taken on a pass/fail basis.
3. Only courses completed with a grade of C (2.0) or above may be counted toward the major.
4. At least 15 upper-division hours of the student's work in English must be taken from English faculty at CU Denver.
5. Internship/cooperative education courses may be counted toward the major for students who have completed over 60 credit hours.
6. Students are not to exceed 56 English credit hours (any level).
Take **all** of the following courses:
 - ENGL 2250 - Introduction to Film
 - ENGL 2450 - Introduction to Literature
 - ENGL 3070 - Film History I
 - ENGL 3080 - Film History II
 - ENGL 4420 - Film Theory and Criticism

Take **eight** of the following courses:

*Students may take courses in all areas. Eighteen of the 24-hour minimum must be at the 3000/4000 level. Production courses must be taken through the College of Arts & Media (CAM). Equivalent screenwriting courses may also be taken through CAM. [Courses marked by an asterisk are repeatable if taken as a different genre/director/topic.]

--Critical Studies--

- ENGL 1601 - Telling Tales: Narrative Art in Literature and Film
- ENGL 3001 - Critical Writing
- * ENGL 3075 - Film Genres
- * ENGL 3085 - Film Directors
- ENGL 3200 - From Literature to Film
- * ENGL 3300 - Topics in Film
- * ENGL 4190 - Special Topics in Rhetoric and Writing
(film and media-focused only; e.g., Film and Rhetoric)
- * ENGL 4770 - Topics in English: Film and Literature
(film and media-focused only)
- ENGL 4990 - Senior Writing Project in Creative Writing or Film Studies
- Any 3000- or 4000-level literature course with ENGL prefix

--Screenwriting--

- ENGL 2390 - Writing the Short Script
- ENGL 2415 - Introduction to Movie Writing
- ENGL 3415 - Screenwriting Workshop
- ENGL 4990 - Senior Writing Project in Creative Writing or Film Studies

--Production--

- FITV 1050 - Production I Basics of Film and Television
- FITV 2050 - Production II Film and Television Techniques

ENGLISH, LITERATURE OPTION BA

Introduction

The course of study offered by the Department of English is designed to develop a student's ability to read literature responsibly and imaginatively, to foster an understanding and appreciation of our literary inheritance and to provide the historical perspective from which to evaluate contemporary writing. Careful study of the use of the English language also should help a student to resist the misuse and corruption of language in politics, the media and elsewhere.

Students who complete the program in English are expected to have mastered the ability to express their ideas in clear and succinct prose.

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here](#) to go to information about declaring a major
- Students planning to major in English must consult with an advisor as soon as possible.
- Students may choose only one of the three options in the English major.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- [CU Denver General Graduation Requirements](#)
- [CU Denver Core Requirements](#)
- [College of Liberal Arts & Sciences Graduation Requirements](#)
- [Click here](#) for information about Academic Policies

Program Requirements

1. Students majoring in English must present a total of 39 hours in the literature option (excluding ENGL 1010, 1020 and 2030), of which 27 hours must be earned in upper-division courses.
2. None of the required 39 hours may be taken on a pass/fail basis.
3. Only courses completed with a grade of C (2.0) or above may be counted toward the major.
4. At least 15 upper-division hours of the student's work in English must be taken from English faculty at CU Denver.
5. Internship/cooperative education courses may be counted toward the major for students who have completed over 60 credit hours.
6. Students are not to exceed 56 English credit hours (any level).
Take **all** of the following courses:

- ENGL 2450 - Introduction to Literature
- ENGL 3001 - Critical Writing
- ENGL 4999 - Literary Studies Senior Seminar

Take **one** of the following courses:

- ENGL 4080 - History of English Language
- ENGL 4166 - History of American Poetry
- ENGL 4200 - History of the English Novel I
- ENGL 4210 - History of the English Novel II
- ENGL 4230 - The American Novel
- ENGL 4236 - The American Short Story
- ENGL 4300 - History of British Drama
- ENGL 4320 - History of Poetry in English
- ENGL 4350 - History of American Drama

Take **one** of the following courses:

- ENGL 4400 - Old English I
- ENGL 4500 - Medieval Literature
- ENGL 4510 - Whores and Saints: Medieval Women
- ENGL 4730 - Chaucer

Take **one** of the following courses:

- ENGL 3661 - Shakespeare
- ENGL 4520 - English Renaissance
- ENGL 4530 - Milton
- ENGL 4540 - Restoration and the 18th Century

Take **one** of the following courses:

- ENGL 4200 - History of the English Novel I
- ENGL 4210 - History of the English Novel II
- ENGL 4560 - English Romanticism
- ENGL 4580 - The Victorian Age

Take **one** of the following courses:

- ENGL 3700 - American Literature to the Civil War
- ENGL 3750 - American Literature after the Civil War
- ENGL 4166 - History of American Poetry
- ENGL 4230 - The American Novel
- ENGL 4236 - The American Short Story
- ENGL 4350 - History of American Drama

Take **one** of the following courses:

- ENGL 3450 - Twentieth Century Women Writers
- ENGL 3480 - Modern Drama
- ENGL 4250 - Twentieth Century Fiction
- ENGL 4460 - Contemporary World Literature
- ENGL 4600 - Modernism

Take **four** elective courses with an ENGL prefix. At least two courses must be at the 3000 or 4000-level.

ETHNIC STUDIES BA

Introduction

The skills and knowledge that students gain while pursuing a BA degree with a Major in Ethnic Studies at CU Denver are transferable to a variety of careers. In common with other liberal arts graduates, those with a degree in ethnic studies will be trained in creative and critical thinking, complex reasoning, and effective communication. In addition, ethnic studies graduates will have cultural competency skills that are highly valued by employers, especially those in sales, and service areas. Other occupations that employ many ethnic studies graduates include: law, teaching, journalism, marketing, community and union organizing and social work. Ethnic studies graduates also find work in non-profit agencies and in federal, state, and local government agencies.

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Advisors: Donna Martinez and Jennifer Williams

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. All grades in ETST must be a C or above. Grades of C- or below DO NOT APPLY.
2. Students will complete a minimum of 33 credit hours in ethnic studies (21 required credit hours in ethnic studies, 12 elective credit hours in ethnic studies).

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

- ETST 2000 - Introduction to Ethnic Studies
- ETST 2155 - African American History
- ETST 3108 - Chicano/a and Latino/a History
- ETST 3297 - Social History of Asian Americans
- ETST 3396 - History of the American Indian
- ETST 4960 - Senior Seminar in Ethnic Studies

Take **one** of the following courses:

- COMM 4221 - Research Methods: Qualitative
- ETST 4000 - Research Methods in Ethnic Studies
- PSCI 3011 - Research Methods
- SOCY 3111 - Research Methods

Take **four** Ethnic Studies Electives.

FILM AND TELEVISION EMPHASIS, THEATRE, FILM & TELEVISION BFA

Introduction

Please click [here](#) to see General Theatre, Film and Video Production information.

The Department of Theatre, Film and Video Production offers a bachelor of fine arts (BFA) in theatre, film and television with an emphasis in film and television. This BFA emphasis provides training at a professional skill level, culminating in a comprehensive review that requires

successful completion of numerous film/TV projects, varying in styles from fiction to documentary. The emphasis is designed so that students will progress through the semesters as a cohort group. Students will not only work on their own projects but also will assist on group projects such as our episodic web series, a television studio pilot and our department's sponsored film project (all written by students). Students will graduate with both a theoretical and historical perspective, as well as a hands-on experience in film and television production. This prepares students to begin their careers with entry-level positions in film or television, start their personal creative work or continue their studies in a graduate program. Consult an advisor in the College of Arts & Media at CAMadvising@ucdenver.edu for more information.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here to go to information about declaring a major.
- Students seeking this BFA emphasis should apply to the university and be accepted under the Theatre, Film, and Television BFA program. The Department of Theatre, Film and Video Production is working to develop a departmental application. Please contact CAMadvising@ucdenver.edu for updates. Given the cohort nature of the program, students should be aware that failing to take courses in order and/or failing to earn the minimum required grade in any course may delay their graduation date.
- Transfer students should contact CAMadvising@ucdenver.edu for information about applying prior semester hours toward the BFA.
- All students in the film and television emphasis are required to know and abide by the policies and procedures regarding the use of departmental equipment and facilities, outlined on the Equipment Checkout Agreement Form, and available by contacting CAMadvising@ucdenver.edu or the department.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Arts & Media Graduation Requirements
- Click here for information about Academic Policies

Program Requirements

1. Each course must be completed with a grade of C (2.0) or better.
2. At least 24 of the major semester hours must be earned at CU Denver.

Take **all** of the following Film & TV Emphasis courses:

- FITV 1000 - Introduction to Visual Culture
- FITV 1040 - Lighting, Grip, and Sound Introductory Workshop
- FITV 1550 - Scriptwriting 1 - Fiction

- FITV 1050 - Production I Basics of Film and Television
- FITV 1200 - Aesthetics of Television
- FITV 1600 - Writing Short Film:Non Fiction
- THTR 1110 - Production Design: Theatre, Film and Video

- FITV 2040 - Introduction to Digital Effects
- FITV 2090 - Production Management for Film and Television
- FITV 2220 - Acting for Film and Television

- FITV 2050 - Production II Film and Television Techniques
- FITV 2570 - Directing for Film and Television

- FITV 2670 - Cinematography for Directors **or**
- FITV 2650 - Sound for Film and TV

- FITV 3050 - Production III: Junior Project
- FITV 3500 - Writing for Episodic Television
- FITV 3200 - History of Film to 1937

- FITV 3060 - Editing for Film and Television

- FITV 3040 - TV Studio Production **or**
- FITV 3090 - Producing Episodic Television

- FITV 3300 - History of Film from 1938

- FITV 4000 - Senior Thesis Production
- FITV 4050 - Shooting Action

- FITV 4010 - Senior Thesis Post-Production
- FITV 4055 - Documentary Production

FINANCE EMPHASIS - BS IN BUSINESS ADMINISTRATION

Introduction

The principal areas of study in finance are financial management in small and large businesses, investments, financial institutions, and international finance. The study of finance is intended to provide an understanding of fundamental theory and practice pertaining to finance, to make sound financial decisions. Students are taught to think logically about financial problems, so that they can formulate and implement value maximizing decisions and policies for the business. For this purpose, it is necessary to understand the importance of finance in the economy and the functions and purposes of monetary systems, credit, prices, money markets and financial institutions. Emphasis is placed on financial policy, management, control, analysis, and decision making.

The finance emphasis provides the students with the skills to succeed in all areas of finance. Numerous job opportunities exist in the field of business finance and with financial institutions, mutual funds, securities firms, personal wealth management firms, and financial planning firms including positions involving an understanding and sale of securities.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements
- Business School Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students following this emphasis must also take FNCE 4370 as their international studies course.

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

- FNCE 3500 - Management of Business Capital
- FNCE 3600 - Financial Markets and Institutions
- FNCE 3700 - Investment and Portfolio Management
- FNCE 4500 - Corporate Financial Decisions
- Choose **four** courses (12 semester hours) of 3000 or 4000-level business electives.

FINANCIAL MANAGEMENT AND INFORMATION SYSTEMS EMPHASIS - BS IN BUSINESS ADMINISTRATION

Introduction

The Financial Management and Information Systems emphasis provides students with skills that they need to succeed in careers that bridge the fields of finance and information systems.

The Financial Management and Information Systems specialty incorporates knowledge of financial management and markets, accounting and information systems and technology. This specialization provides the manager with knowledge of financial information systems, databases, risk management and accounting systems.

Job opportunities include positions that require knowledge of both financial management and business information systems and databases. The specialization provides a solid accounting/finance and information systems background for other finance specialist and business analyst positions as well.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements
- Business School Graduation Requirements

- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must also complete FNCE 4370 - International Financial Management , to fulfill the International Studies requirement.

Finance and Risk Management

Take **all** of the following courses:

- FNCE 3500 - Management of Business Capital
- FNCE 3600 - Financial Markets and Institutions
- FNCE 3700 - Investment and Portfolio Management
- FNCE 4500 - Corporate Financial Decisions
- RISK 3809 - Introduction to Risk Management

Accounting

Take **all** of following courses:

- ACCT 3220 - Intermediate Financial Accounting I
- ACCT 3230 - Intermediate Financial Accounting II
- ACCT 4054 - Accounting Systems and Data Processing
- ACCT 4780 - Accounting and Information Systems Processes and Controls **or**
- ISMG 4780 - Accounting and Information Systems Processes and Controls

Information Systems

Take **all** of the following courses:

- ISMG 3500 - Enterprise Data and Content Management
- ISMG 3600 - System Strategy, Architecture and Design
- ISMG 4900 - Project Management and Practice

FINANCIAL MANAGEMENT EMPHASIS - BS IN BUSINESS ADMINISTRATION

Introduction

The financial management emphasis provides students with the skills needed to succeed in careers in financial management. The business community has affirmed that students need skills in both the accounting and finance areas. The financial management specialty incorporates knowledge of corporate financial management, financial institutions and markets, investments,

financial accounting and managerial accounting, accounting information systems and information technology. Career opportunities include corporate financial management, finance/accounting positions with financial institutions and accounting positions that are not CPA-track. The specialization provides a solid finance and accounting background for other business positions as well.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements
- Business School Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Financial Management students must complete FNCE 4370 - International Financial Management, to fulfill the International Studies requirement.
 - ACCT 3220 - Intermediate Financial Accounting I
 - ACCT 3230 - Intermediate Financial Accounting II
 - ACCT 4410 - Income Tax Accounting
 - FNCE 3500 - Management of Business Capital
 - FNCE 3600 - Financial Markets and Institutions
 - FNCE 3700 - Investment and Portfolio Management
 - FNCE 4500 - Corporate Financial Decisions
 - RISK 3809 - Introduction to Risk Management

Note: Students should note that all finance, risk and accounting courses are not offered every semester. Students should take the ACCT 2200 and ACCT 2220 courses as soon as possible to avoid future problems in their schedules, since these are prerequisites for all courses in the specialization.

FRENCH BA

Introduction

Students wishing to improve their linguistic skills as well as their knowledge of Francophone literature and culture may choose this major.

The French program offers courses in advanced language, linguistics, literature, civilization, culture and business, all taught exclusively in French. A minor is also offered. All French majors are strongly encouraged to participate in a study abroad program. Please see your French department advisor for information about opportunities to include study abroad as part of your major.

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- To be admitted to major status in French, students must have an overall GPA of C+ (2.3).
- Students presenting four years of high school French (Level IV) for admission to CU Denver must see a French advisor before enrolling in courses for the major.
- [Click here to go to information about declaring a 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 Requirements](#)
- [College of Liberal Arts & Sciences Graduation Requirements](#)
- [Click here for information about Academic Policies](#)

Program Requirements

1. The minimum grade acceptable in an French course applied to a French major is C (2.0).
2. The grade point average in all courses applied to a French major at CU Denver must be 2.5.
3. No courses taken on a pass/fail basis may be credited toward a French major.
4. All students majoring in French must complete 30 semester hours of upper-division courses taught in French (3000-level or higher). A minimum of 18 of those semester hours must be taken from the faculty in French at CU Denver.
5. Courses taken at other institutions while a student is enrolled at CU Denver may be applied to the major only with departmental approval before enrollment in those courses. Students studying French for the professions must also take courses in other areas.
6. Students with advanced placement credits from high school must see a French advisor about course equivalencies. The Department of Modern Languages does not accept CLEP credits.
7. Upon declaring a major in French, each student will be assigned to a faculty advisor with whom the student should consult at least once per semester thereafter. It is especially important that students have their transcripts reviewed by their advisor before enrolling in their final 30 credit hours at CU Denver. Failure to do so may result in delay of graduation.
8. During their final semester in the language, French major students participate in an oral proficiency interview and take a written outcomes assessment exam to measure their level of proficiency and mastery of key concepts.

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

- FREN 3010 - French Phonetics and Pronunciation
- FREN 3020 - Oral Practice
- FREN 3050 - Advanced Grammar and Composition
- FREN 3060 - Advanced French Language Skills

Take **three** elective courses at the 4000-level.

Take **three** elective courses at the 3000 or 4000-level.

Note: Students must take at least one literature course and at least one culture or civilization course.

GEOGRAPHY - BA

Introduction

The Geography program (within the Department of Geography and Environmental Sciences) offers a BA degree that includes a full range of courses in the fundamentals of geography taught mainly by full-time faculty.

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here](#) to go to information about declaring a 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 Requirements](#)
- [College of Liberal Arts & Sciences Graduation Requirements](#)
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must complete a minimum of 24 hours of upper-division credit.
2. At least 15 semester hours must be taken at CU Denver.
Take **all** of the following required courses:
 - GEOG 1202 - Introduction to Physical Geography
 - GEOG 1302 - Introduction to Human Geography
 - GEOG 2080 - Introduction to Mapping and Map Analysis
 - GEOG 3232 - Weather and Climate
 - GEOG 3411 - Globalization and Regional Development

- GEOG 4080 - Introduction to GIS

Choose **six** additional courses, **including at least one course from each of the following subfields:**

Physical Geography

- GEOG 3240 - Colorado Climates
- GEOG 3302 - Water Resources
- GEOG 4010 - Landscape Geochemistry
- GEOG 4020 - Earth Environments and Human Impacts
- GEOG 4240 - Geomorphology
- GEOG 4270 - Glacial Geomorphology
- GEOG 4280 - Environmental Hydrology

Human Geography

- ENVS 1342 - Environment, Society and Sustainability
- GEOG 1602 - Introduction to Urban Studies
- GEOG 2202 - Natural Hazards
- GEOG 3300 - Population and Resources in the World Environment
- GEOG 3401 - Geography of Food and Agriculture
- GEOG 3430 - Geography of Tourism
- GEOG 3440 - Ecotourism
- GEOG 3501 - Geography of Health
- GEOG 4265 - Sustainability in Resources Management
- GEOG 4335 - Contemporary Environmental Issues
- GEOG 4350 - Environment and Society in the American Past
- GEOG 4420 - The Politics of Nature
- GEOG 4440 - Science, Policy and the Environment
- GEOG 4450 - Urban Food and Agriculture: Perspectives and Research
- GEOG 4640 - Urban Geography: Denver and the U.S.
- GEOG 4680 - Urban Sustainability: Perspectives and Practice
- GEOG 4710 - Disasters, Climate Change, and Health

Regional Geography

- GEOG 1102 - World Regional Geography
- GEOG 3100 - Geography of Colorado
- GEOG 3120 - Geography of Europe
- GEOG 3130 - Central America and the Caribbean
- GEOG 3140 - Geography of South America
- GEOG 3150 - Middle East

- GEOG 3160 - Geography of China

Techniques for Geographical Analysis

- GEOG 4060 - Remote Sensing I: Introduction to Environmental Remote Sensing
- GEOG 4070 - Remote Sensing II: Advanced Remote Sensing
- GEOG 4081 - Cartography and Computer Mapping
- GEOG 4085 - GIS Applications for the Urban Environment
- GEOG 4090 - Environmental Modeling with Geographic Information Systems
- GEOG 4095 - Deploying GIS Functionality on the Web
- GEOG 4220 - Environmental Impact Assessment
- GEOG 4230 - Hazard Mitigation and Vulnerability Assessment
- GEOG 4235 - GIS Applications in the Health Sciences
- GEOG 4770 - Applied Statistics for the Natural Sciences

GEOGRAPHY - EARTH SCIENCE OPTION BA

Introduction

The Geography program (within the Department of Geography and Environmental Sciences) offers a BA degree that includes a full range of courses in the fundamentals of geography taught mainly by full-time faculty.

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here](#) to go to information about declaring a major.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must complete a minimum of 24 hours of upper-division credit.
2. At least 15 semester hours must be taken at CU Denver.
3. Any upper division course used to fulfill requirements for the Geography - Earth Science BA cannot also be used for the Geology Minor.

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

- ENVS 1342 - Environment, Society and Sustainability **or**
- GEOG 1302 - Introduction to Human Geography

- GEOL 1072 - Physical Geology: Surface Processes
- GEOL 1082 - Physical Geology: Internal Processes
- GEOG 2080 - Introduction to Mapping and Map Analysis

- GEOG 3411 - Globalization and Regional Development **or**
- GEOG 4335 - Contemporary Environmental Issues

- GEOG 4080 - Introduction to GIS

Take **all** of the following Earth Science courses:

- GEOG 3232 - Weather and Climate
- GEOG 4240 - Geomorphology
- GEOL 3011 - Mineralogy
- GEOL 3421 - Sedimentation and Stratigraphy

Take **one** of the following courses:

- GEOG 3240 - Colorado Climates
- GEOG 4010 - Landscape Geochemistry
- GEOG 4020 - Earth Environments and Human Impacts
- GEOG 4095 - Deploying GIS Functionality on the Web
- GEOG 4270 - Glacial Geomorphology

- GEOL 3032 - Geology of Colorado
- GEOL 4030 - Environmental Geology
- GEOL 4111 - Field Methods In Geology
- GEOL 4280 - Environmental Hydrology
- GEOL 4402 - Unsaturated Zone Hydrology

Take **one** of the following Techniques for Earth Science Analysis courses:

- GEOG 4060 - Remote Sensing I: Introduction to Environmental Remote Sensing
 - GEOG 4070 - Remote Sensing II: Advanced Remote Sensing
 - GEOG 4090 - Environmental Modeling with Geographic Information Systems
 - GEOG 4095 - Deploying GIS Functionality on the Web
-
- GEOG 4770 - Applied Statistics for the Natural Sciences **or**
 - GEOL 4770 - Applied Statistics for the Natural Sciences

GEOL 4111 - Field Methods In Geology

GEOGRAPHY - ENVIRONMENTAL SCIENCE OPTION BA

Introduction

The Geography program (within the Department of Geography and Environmental Sciences) offers a BA degree that includes a full range of courses in the fundamentals of geography taught mainly by full-time faculty.

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here](#) to go to information about declaring a 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 Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must complete a minimum of 24 hours of upper-division credit.
2. At least 15 semester hours must be taken at CU Denver.

Take **one** general biology and one general chemistry course (both with labs), **OR** a sequence of either (BIOL 2051 and 2061 with labs or CHEM 2031 and 2601 with labs). If applying to the MS in Environmental Sciences program, students must have taken both sequences. Course choices with descriptions are below:

- BIOL 2051 - General Biology I **and**
- BIOL 2071 - General Biology Laboratory I
- BIOL 2061 - General Biology II **and**
- BIOL 2081 - General Biology Laboratory II
- CHEM 2031 - General Chemistry I **and**
- CHEM 2038 - General Chemistry Laboratory I
- CHEM 2061 - General Chemistry II **and**
- CHEM 2068 - General Chemistry Laboratory II

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

- ENVS 1042 - Introduction to Environmental Sciences
- GEOG 1202 - Introduction to Physical Geography

- GEOG 1302 - Introduction to Human Geography **or**
- ENVS 1342 - Environment, Society and Sustainability

- GEOG 2080 - Introduction to Mapping and Map Analysis
- GEOG 3232 - Weather and Climate

- GEOG 3411 - Globalization and Regional Development **or**
- GEOG 4335 - Contemporary Environmental Issues

- GEOG 4080 - Introduction to GIS

Take **both** of the following Environmental Science courses:

- GEOG 4020 - Earth Environments and Human Impacts
- GEOG 4265 - Sustainability in Resources Management

Take **one** from the following courses:

- ENV5 3082 - Energy and the Environment
- GEOG 3240 - Colorado Climates
- GEOG 4010 - Landscape Geochemistry
- GEOG 4240 - Geomorphology
- GEOG 4270 - Glacial Geomorphology
- GEOG 4280 - Environmental Hydrology
- GEOL 4030 - Environmental Geology

Take **one** upper-division Biology or Chemistry course related to the student's Environmental Science interest.

Take **one** of the following Quantitative Methods courses:

- ANTH 4050 - Quantitative Methods in Anthropology
- GEOG 4770 - Applied Statistics for the Natural Sciences
- GEOL 4770 - Applied Statistics for the Natural Sciences
- MATH 2830 - Introductory Statistics
- PSYC 2090 - Statistics and Research Methods
- SOCY 3121 - Statistics

Take **one** of the following Geo-Spatial Analysis courses:

- GEOG 4060 - Remote Sensing I: Introduction to Environmental Remote Sensing
- GEOG 4085 - GIS Applications for the Urban Environment
- GEOG 4090 - Environmental Modeling with Geographic Information Systems
- GEOG 4230 - Hazard Mitigation and Vulnerability Assessment
- GEOG 4235 - GIS Applications in the Health Sciences

GEOGRAPHY - ENVIRONMENTAL STUDIES OPTION BA

Introduction

The Geography program (within the Department of Geography and Environmental Sciences) offers a BA degree that includes a full range of courses in the fundamentals of geography taught mainly by full-time faculty.

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here](#) to go to information about declaring a 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 Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here](#) for information about Academic Policies

Program Requirements

1. Students must complete a minimum of 24 hours of upper-division credit.
2. At least 15 semester hours must be taken at CU Denver.
3. Up to 4 semester hours of honors thesis course work or up to 3 semester hours of internships may be counted toward the 18 hours of additional requirements. Such substitutions must be approved by a program option advisor.

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

- ENVS 1042 - Introduction to Environmental Sciences
- ENVS 1342 - Environment, Society and Sustainability
- GEOG 1302 - Introduction to Human Geography

- GEOG 2080 - Introduction to Mapping and Map Analysis
- GEOG 3232 - Weather and Climate
- GEOG 3411 - Globalization and Regional Development
- GEOG 4080 - Introduction to GIS

Take **three** of the following Environmental Studies courses:

- GEOG 3300 - Population and Resources in the World Environment
- GEOG 3302 - Water Resources
- GEOG 3401 - Geography of Food and Agriculture
- GEOG 3440 - Ecotourism
- GEOG 3501 - Geography of Health
- GEOG 4335 - Contemporary Environmental Issues
- GEOG 4350 - Environment and Society in the American Past
- GEOG 4420 - The Politics of Nature
- GEOG 4450 - Urban Food and Agriculture: Perspectives and Research
- GEOG 4680 - Urban Sustainability: Perspectives and Practice

Take **two** of the following Environmental Policy and Planning courses:

- GEOG 4220 - Environmental Impact Assessment
- GEOG 4230 - Hazard Mitigation and Vulnerability Assessment
- GEOG 4260 - Natural Resource Planning and Management
- GEOG 4265 - Sustainability in Resources Management
- GEOG 4440 - Science, Policy and the Environment
- GEOG 4710 - Disasters, Climate Change, and Health

Take **one** of the following Techniques for Environmental Analysis courses:

- GEOG 4060 - Remote Sensing I: Introduction to Environmental Remote Sensing
- GEOG 4070 - Remote Sensing II: Advanced Remote Sensing
- GEOG 4081 - Cartography and Computer Mapping
- GEOG 4085 - GIS Applications for the Urban Environment
- GEOG 4090 - Environmental Modeling with Geographic Information Systems
- GEOG 4095 - Deploying GIS Functionality on the Web
- GEOG 4235 - GIS Applications in the Health Sciences
- GEOG 4770 - Applied Statistics for the Natural Sciences

GEOGRAPHY - URBAN STUDIES AND PLANNING BA

Introduction

The Geography program (within the Department of Geography and Environmental Sciences) offers a BA degree that includes a full range of courses in the fundamentals of geography taught mainly by full-time faculty.

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements](#)
- [College of Liberal Arts & Sciences Graduation Requirements](#)
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must complete a minimum of 24 hours of upper-division credit.
2. At least 15 semester hours must be taken at CU Denver.
Take **all** of the following required courses:
 - GEOG 1202 - Introduction to Physical Geography
 - GEOG 1302 - Introduction to Human Geography
 - GEOG 1602 - Introduction to Urban Studies
 - GEOG 2080 - Introduction to Mapping and Map Analysis
 - GEOG 3232 - Weather and Climate
 - GEOG 3411 - Globalization and Regional Development

- GEOG 4080 - Introduction to GIS

Take **both** of the following upper-division Urban Studies courses:

- GEOG 4640 - Urban Geography: Denver and the U.S.
- GEOG 4680 - Urban Sustainability: Perspectives and Practice

Take **three** of the following Urban Planning courses:

- GEOG 4000 - Planning Methods I
- GEOG 4220 - Environmental Impact Assessment
- GEOG 4230 - Hazard Mitigation and Vulnerability Assessment
- GEOG 4260 - Natural Resource Planning and Management
- GEOG 4265 - Sustainability in Resources Management
- GEOG 4400 - Regional Economic Development
- GEOG 4450 - Urban Food and Agriculture: Perspectives and Research
- GEOG 4630 - Transportation Planning I: Transport Network Analysis
- GEOG 4670 - Transportation Planning II: Urban Transportation Planning
- GEOG 4710 - Disasters, Climate Change, and Health

Take **one** of the following Techniques for Urban Analysis courses:

- GEOG 4060 - Remote Sensing I: Introduction to Environmental Remote Sensing
- GEOG 4070 - Remote Sensing II: Advanced Remote Sensing
- GEOG 4081 - Cartography and Computer Mapping
- GEOG 4085 - GIS Applications for the Urban Environment
- GEOG 4090 - Environmental Modeling with Geographic Information Systems
- GEOG 4095 - Deploying GIS Functionality on the Web
- GEOG 4235 - GIS Applications in the Health Sciences

HISTORY BA

Introduction

The bachelor's degree in history provides students with firm grounding for advanced studies in education, librarianship, law, business and public service, as well as graduate work in the humanities and social sciences broadly. History is an all-inclusive discipline, making it an excellent choice for students with a wide variety of career goals.

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must complete a minimum of 36 credit hours of history course work, with at least 18 history hours taken at the University of Colorado Denver.
2. Majors must have at least 18 upper division (3000 and 4000) history credit hours, of which 15 must be taken at the 4000 level, including **HIST 4839 - History Seminar** or the equivalent as determined by the department.
3. Not more than 56 hours of history will be counted toward graduation requirements.
4. A student needs a cumulative grade point average of 2.5 or better in the major to graduate.
5. No grade below a C (2.0) will count toward major requirements to graduate.
Take **all** of the following required courses:
 - HIST 3031 - Theory and Practice of History: An Introduction to the Major
 - HIST 4839 - History SeminarStudents must complete HIST 3031 with a grade of C (2.0) or better before enrolling in HIST 4839.

Take a minimum of **six** semester hours in each of the following areas: United States, Europe and world (Africa, Asia, Latin America). At least **three** semester hours in each area must be upper-division (3000- and 4000-level). *Note:* Please see your advisor for a list of acceptable elective courses.

HUMAN RESOURCES MANAGEMENT EMPHASIS - BS IN BUSINESS ADMINISTRATION

Introduction

Human Resources Management offers opportunities for students to develop professional competence in the areas of personnel administration and development. Students acquire an understanding of, and skills in, developing and implementing human resources systems, including recruitment, selection, evaluation, training, motivation and compensation.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here](#) to go to information about declaring a 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 Requirements
- Business School Graduation Requirements
- [Click here](#) for information about Academic Policies

Program Requirements

Take the following **required** course:

- MGMT 3010 - Managing People for a Competitive Advantage

Take **two** of the following courses:

- MGMT 4420 - Human Resources Management: Staffing
- MGMT 4430 - Human Resources Management: Training
- MGMT 4440 - Human Resource Management: Performance Management
- MGMT 4450 - Human Resources Management: Compensation

Take **three** of the following courses (choose any combination of the following):

- ENTP 3000 - Principles of Entrepreneurship
- ENTP 3500 - Entrepreneurship Law and Ethics
- MKTG 4050 - Applied Marketing Management
- 4000-Level MGMT courses
- 4000-Level MGMT courses
- 4000-Level MGMT courses

ILLUSTRATION EMPHASIS, FINE ARTS BFA

Introduction

Please click [here](#) to see General Visual Arts information.

Illustration is the art of making ideas communicate through visual art. The profession spans a wide range of applications, encompassing graphic novels, scientific illustration, visual development for animation and games, children's books, interactive illustration and anything an illustrator can bring to life. The field includes editorial, advertising and product illustration. Given the vast array of opportunities, today's illustrators must understand how to communicate effectively with a chosen medium and situate their work professionally within a particular market.

Students in the illustration emphasis receive instruction in conceptual illustration, digital illustration, rendering, perspective, painting, exhibition preparation, professional practices and the use of various artistic and illustration techniques. In preparation for a professional illustration career, the course work allows students to master numerous essential digital and traditional tools.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click [here](#) to go to information about declaring a major.

- Students who are applying for entrance into the illustration emphasis are required to submit a portfolio of 10 images in digital format, a written statement and unofficial transcript(s) from CU Denver and all previous post-secondary educational institutions. The illustration emphasis only accepts applications once a year. Students who meet the following requirements can apply. Upon acceptance students will be able to register for upper-division courses in illustration.

ELIGIBILITY

University of Colorado Denver Students

The student has completed, or is in the process of completing, the following courses:

- FINE 1100 - Drawing I
- FINE 1400 - Two Dimensional Design
- FINE 1500 - Three-Dimensional Design
- FINE 2030 - Life Drawing
- FINE 2155 - Introduction to Digital Photography
- FINE 2600 - Art History Survey I
- FINE 2610 - Art History Survey II

A minimum cumulative fine arts/art history GPA of 2.75

Transfer Students

The student has completed and is transferring a minimum of 24 credit hours from a previous institution.

Student has completed, or is in the process of completing, the equivalents of the following courses:

- FINE 1100 - Drawing I
- FINE 1400 - Two Dimensional Design
- FINE 1500 - Three-Dimensional Design
- FINE 2030 - Life Drawing
- FINE 2600 - Art History Survey I

A minimum cumulative fine arts/art history GPA of 2.75

APPLICATION PORTFOLIO REQUIREMENTS

Students applying to the illustration emphasis submit a portfolio of 10 images in digital format, a written statement and unofficial transcript(s) from CU Denver and all previous post-secondary educational institutions. Application materials must be uploaded to SlideRoom.com by **November 1, 2014, 5:00 pm** (Mountain Time). Applications are only accepted online and must be formatted to the specifications listed below. There is a \$20 fee to apply.

Portfolio of Images

- The portfolio must include a minimum of 10 digital images of creative work (but no more than 15). Submit six or more images of artworks done in foundation courses and from FINE 2030 Life Drawing that visually demonstrate an understanding of design principles and perspective. Additional examples (up to five) may be in the form of design, drawing, painting, mixed media and/or printmaking.
- All images should be formatted as JPEGs. **Limit file size to 1 megabyte.** File names must be numbered, include the student's last name, and then an underscore, and a brief title.

File Name Examples:

- 1_lastname_figuredrawing.jpeg
- 2_lastname_still-lifedrawing.jpeg

Note: For each image uploaded to SlideRoom, the applicant must provide the following information: title, year, media and size, and a brief explanation of the artwork.

Written Statement

A written statement must be uploaded as a PDF file with the portfolio on SlideRoom. In the essay, the student should address the following in no more than one page in length (400-500 words).

- Why do you want to study illustration and what goals and expectations do you have regarding a career as an illustrator?
- What are your creative strengths, and what areas need further development?
- What other accomplishments would you like the committee to know about, such as Dean's List, GPA, internships, art-related extracurricular activities or relevant professional experience?

Course Transcripts

These may be official or unofficial transcripts from CU Denver and previous post-secondary institutions.

THE EVALUATION PROCESS

- A committee of painting, drawing and illustration faculty members reviews the application materials. Acceptance into the illustration emphasis is based on the portfolio images, written statement and GPA.
- If not admitted into the illustration emphasis, a student has the choice of attempting the review process again the following year or applying to another emphasis. Students are encouraged to schedule a meeting with the area head of illustration to learn ways to improve their portfolios for future submissions.

The application is evaluated on the following criteria:

- **Presentation** - The portfolio should be well crafted and well organized in content and presentation.
- **Technical Skill** - The portfolio should demonstrate strong proficiency in drawing, composition, design and color.
- **Creativity** – The portfolio should demonstrate creative choices in content and aesthetics.
- **Conceptual Skills** - The portfolio and written statements should reflect analytical thinking and conceptual exploration of the foundations of drawing and design.
- **Written Statement** - The statement should outline academic and artistic goals, addressing any potential strengths and weaknesses.
- **Academic Performance** - The grades must reflect a commitment to learning and growth.
- All required documentation included (images, written statement and transcripts).

QUESTIONS

Please contact CAMadvising@ucdenver.edu for emphasis and portfolio information, or contact Illustration area head Mary K. Connelly at 303-315-1508 or mary.connelly@ucdenver.edu.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Arts & Media Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Each course counting toward the major must be completed with a grade of C (2.0) or better.
2. All upper-division visual arts courses must be taken at CU Denver unless otherwise approved by visual arts faculty.
3. At least 27 semester hours of visual arts credits (at any level) must be taken at CU Denver.
4. At least 24 semester hours of total visual arts courses must be upper-division.
Take **all** of the following Visual Arts Foundation courses:
 - FINE 1100 - Drawing I
 - FINE 1400 - Two Dimensional Design

- FINE 1500 - Three-Dimensional Design
- FINE 2155 - Introduction to Digital Photography
- FINE 2600 - Art History Survey I
- FINE 2610 - Art History Survey II

Take **all** of the following Illustration Emphasis courses (entry level):

- FINE 2010 - The Graphic Novel Workshop
- FINE 2030 - Life Drawing
- FINE 2200 - Painting I
- FINE 2405 - Introduction to Digital Design
- FINE 2415 - Typography Studio

Take **one** of the following Illustration Emphasis courses (entry level):

- FINE 3300 - Painting, Drawing and the Printed Image
- FINE 3030 - The Media of Drawing

Take **all** of the following Illustration Emphasis courses (available only to students accepted to emphasis via portfolio review):

- FINE 3001 - Digital Illustration Studio
- FINE 3002 - Spatial Draw for Illustrators
- FINE 3260 - Portraiture
- FINE 4020 - Anatomy for the Artist
- FINE 4001 - Adv Illustration Studio I: Conceptual Illustration
- FINE 4002 - Adv Illustration Studio II: Professional Practice
- FINE 4003 - Advanced Illustration Studio III: BFA Thesis

Take **the** following additional Visual Arts course:

- FINE 4990 - Contemporary Art: 1960 to Present

Take **three** semester hours of Pre-20th Century Art History elective. Consult a CAM advisor for approved options.

Take **three** semester hours of upper-division Art History elective.

Take **three** semester hours of Studio Arts elective in an area outside of painting, drawing or illustration.

Take **six** semester hours of Studio Arts electives.

Take **six** semester hours of Visual Arts electives. These may include studio, lecture, internship or art history courses.

INDIVIDUALLY STRUCTURED MAJOR BA

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here to go to information about declaring a major
- The ISM program plan contract is approved by faculty for each discipline and submitted along with a cover letter identifying the ISM focus or academic theme to the CLAS Advising Office, North Classroom, 4002, for college approval by the assistant/associate dean or CLAS academic advisor. The ISM program plan must be approved before one-third of the ISM course work is completed. Typically, a maximum of 16-18 hours of previously completed courses is allowed.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- Click here for information about Academic Policies

Program Requirements

The ISM program plan requires course work over two or three disciplines. A discipline is defined as a single department or program such as biology, ethnic studies or math. The ISM program plan must comply with the following policies:

- Between 48 and 54 semester hours are allowed for the program plan.
- A minimum of 16 semester hours must be upper-division credit.

- A minimum of 30 semester hours must be completed in liberal arts and sciences course work.
- Each discipline requires a minimum of 15 semester hours, of which at least 3 must be upper-division hours.
- A minimum of 6 semester hours in each discipline must be taken from CU Denver faculty.
- A maximum of one discipline may be outside CLAS.
- A third optional discipline may be a mixture of course work, excluding courses from the first and second disciplines.
- An ISM title must be consistent with the academic theme and disciplines in the program plan.
- Once the ISM contract is approved, any changes to course work must be approved by the faculty advisor in the affected disciplines and the student's CLAS academic advisor. Students are encouraged to include alternate courses in the ISM to minimize contract alterations.

Graduation requirements for ISM students include a minimum 2.0 GPA for all ISM course work, a minimum 2.0 GPA in each discipline in the program plan and a minimum of 24 hours of course work taken from CU Denver faculty.

INFORMATION SYSTEMS EMPHASIS - BS IN BUSINESS ADMINISTRATION (SPECIALIZATIONS IN ACCOUNTING, FINANCE, HUMAN RESOURCE MANAGEMENT, MANAGEMENT AND MARKETING)

Introduction

The information systems program at the University of Colorado Denver is a nationally accredited program for students who want to design and implement effective solutions to meet organizational and management needs for information, control and decision making.

An information systems (ISMG) emphasis draws on a diverse set of skills and strengths requiring creative and innovative thinking at the intersections of disciplinary knowledge and practice. Information systems students learn how information technology, effective teamwork and leadership and sound project management combine to enable innovation and change, to improve organizational agility and to add compete value. Courses require extensive hands-on projects, teamwork and use of high-end technology. A combination of technical skills gained in class work with broad based business process knowledge enables our graduates to be ideally situated to take leading roles in shaping the technology-based future of employers in the Rocky Mountain region and the nation.

Undergraduate options

The Business School at the University of Colorado Denver offers a bachelor of science in business administration where you may choose information systems as your primary core specialty:

- Information Systems, Bachelor of Science in Business Administration degree

Or you may choose to add an information systems specialty to another business discipline.

- Accounting and Information Systems emphasis
- Financial Management Systems emphasis
- Management and Information Systems emphasis
- Marketing and Information Systems emphasis

Career Opportunities

Careers in information systems continue to be one of the highest growth markets in the business world. A student completing the information systems program curriculum will be prepared for challenging careers as business analyst, database analyst, Web content manager, project manager, IT consultant and information auditing and compliance specialist. Employment possibilities include financial operations, health care, management consulting, service operations, transportation and logistics and government.

Information systems is becoming the foundation of all business activities, and a solid understanding of the role of information systems in business and in the national and global economy is now critical for every business student. The information systems emphasis focuses on effective use of information technology in business. You are equipped with logical and analytical thinking in all areas of business and a strong basis for continued career growth in a variety of growing professions. You will develop the technical skills, business know-how and administrative insights required for acquisition, deployment and management of IT resources and services development, operation and evolution of IS infrastructure for use in accounting, finance, marketing, management and other business processes.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here](#) to go to information about declaring a 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 Requirements
- Business School Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. The courses emphasize both team and individual work, allowing students to gain critical thinking skills, knowledge and experience to analyze, design, program, implement and use information.

Take **all** of the following courses:

- ISMG 2800 - Designing for the Web
- ISMG 3500 - Enterprise Data and Content Management
- ISMG 3600 - System Strategy, Architecture and Design
- ISMG 4200 - Building Business Applications
- ISMG 4700 - Business Data Communications and Networking
- ISMG 4900 - Project Management and Practice

Take **two** of the following courses or a specialization (listed below):

- ACCT 4054 - Accounting Systems and Data Processing
- CSCI 2312 - Intermediate Programming
- CSCI 2421 - Data Structures and Program Design
- ISMG 4300 - Information Security and Compliance
- ISMG 4750 - Business Intelligence and Financial Modeling
- ISMG 4760 - Customer Relationship Management

Accounting

Take **two** of the following courses:

- ACCT 4054 - Accounting Systems and Data Processing
- ACCT 3220 - Intermediate Financial Accounting I
- ACCT 3230 - Intermediate Financial Accounting II
- ACCT 4780 - Accounting and Information Systems Processes and Controls

Finance

Take **two** of the following courses:

- FNCE 3500 - Management of Business Capital
- FNCE 3600 - Financial Markets and Institutions
- FNCE 3700 - Investment and Portfolio Management
- FNCE 4750 - Business Intelligence and Financial Modeling

Human Resource Management

Take **two** of the following courses:

- MGMT 3010 - Managing People for a Competitive Advantage
- MGMT 4420 - Human Resources Management: Staffing
- MGMT 4430 - Human Resources Management: Training
- MGMT 4450 - Human Resources Management: Compensation
- MGMT 4770 - Human Resource Information Systems

Management

Take **two** of the following courses:

- MGMT 4350 - Leading Organizational Change
- MGMT 4370 - Organization Design
- MGMT 4400 - Environments of International Business

Marketing

Take **two** of the following courses:

- MKTG 3100 - Marketing Research
- MKTG 3200 - Buyer Behavior
- MKTG 4050 - Applied Marketing Management
- MKTG 4760 - Customer Relationship Management

Note: All Information Systems courses are not offered every semester.

INTERNATIONAL BUSINESS EMPHASIS - BS IN BUSINESS ADMINISTRATION

Introduction

Increasingly, businesses are reorienting their thinking, planning and operations to capitalize on opportunities that exist in the world marketplace. Every phase of business is affected by this reorientation. For individuals with the appropriate skills, training and interest, international business provides excellent career opportunities.

The international business curriculum is designed to enhance and build on thorough training in basic business skills and to provide students with additional skills and knowledge appropriate to international business.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements
- Business School Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

Take **all** of the following Foundation courses:

- MGMT 4370 - Organization Design
- MKTG 4050 - Applied Marketing Management

Take **all** of the following Emphasis courses:

- FNCE 4370 - International Financial Management
- MGMT 4400 - Environments of International Business
- MGMT 4410 - Operations of International Business

- MKTG 4200 - International Marketing
A second area of emphasis in Business is highly recommended. In addition, serious consideration should be given to advanced study of a foreign language and a minor in International Studies , offered by College of Liberal Arts and Sciences.

INTERNATIONAL STUDIES BA

Introduction

The major is interdisciplinary, and students must take classes in at least three different disciplines (anthropology, economics, geography, history, international commerce/business, modern languages, political science or religious studies). 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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students are expected to develop a regional specialization. They must choose courses from the introductory and thematic concentration lists that contribute to an understanding of a world region.

2. All International Studies majors must demonstrate a proficiency in a language other than English. This may be fulfilled with the fourth semester of a foreign language course sequence.
3. No more than 18 hours in any one discipline will be accepted toward a major.
4. Students must receive a grade of C (2.0) or better in all language courses; they also have the option of testing out of this requirement.
5. Majors must complete at least half (24 hours) of the semester hours at CU Denver.
6. A cumulative GPA of 2.5 or better is required, with a minimum grade of C- (1.7) earned in all major courses to graduate.
7. No more than 18 semester hours from a study abroad program can apply to the major. The courses applied to the major must also be approved by their respective disciplines.
8. Students may use up to 6 internship semester hours toward international studies graduation requirements. The internship must have a CLAS faculty sponsor who teaches courses applicable to the international studies degree. The internship must have an international element to count toward the degree.
9. Students may apply up to 6 semester hours of independent study toward international studies graduation requirements.

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

- ECON 2012 - Principles of Economics: Macroeconomics
- GEOG 1102 - World Regional Geography

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

- INTB 3000 - Global Perspectives
- PSCI 3022 - Introduction to Comparative Politics
- PSCI 3042 - Introduction to International Relations

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

- ANTH 2102 - Culture and the Human Experience
- HIST 3451 - Introduction to African History
- HIST 3460 - Modern Latin American History
- HIST 3470 - Intro to East Asia: Since 1800
- HIST 3480 - Introduction to European History
- HIST 3483 - Introduction to Modern South Asia
- RLST 2660 - World Religions

Thematic Concentrations

Students must take a minimum of four upper-division courses in each of three of the following five concentrations, for a total of 36 semester hours (12 hours in each concentration). Please note that the concentration in international commerce requires five courses rather than four, for a total of 39 semester hours. The list below does not include all the international courses applicable to the major, only the ones frequently taught. It is expected to change as departments develop new courses and hire new faculty in different areas.

Language, Culture and Literature

Modern languages: any upper-division courses in the Department of Modern Languages except Methods of Teaching French/German/Spanish. We have not listed the courses individually because there are so many upper-division courses on world literature and culture available in modern languages.

- ANTH 3121 - Language, Culture, and Communication
- PHIL 4650 - Differing Concepts of God
- RLST 4010 - Comparative Religious Systems

International Relations and Comparative Politics

- ANTH 4180 - The Nature of Power
- HIST 3121 - The World at War, 1914-1945
- HIST 4032 - Globalization in World History Since 1945
- HIST 4220 - U.S. Foreign Policy Since 1912
- HIST 4412 - Mexico and the United States: People and Politics on the Border
- HIST 4471 - The Second World War
- HIST 4475 - The Vietnam War
- *PSCI 3022 - Introduction to Comparative Politics
- *PSCI 3042 - Introduction to International Relations
- PSCI 4057 - Religion and Politics
- PSCI 4105 - Comparative Politics: Europe
- PSCI 4146 - Indigenous Politics
- PSCI 4156 - The Arab-Israeli Peace Process
- PSCI 4185 - Corruption in the U.S. and Abroad
- PSCI 4216 - International Politics: Human Rights
- PSCI 4225 - Democracy and Democratization
- PSCI 4226 - The United Nations in World Affairs
- PSCI 4236 - American Foreign Policy
- PSCI 4266 - International Law

- PSCI 4286 - International Relations: War or Peace?
- PSCI 4726 - Russian and Chinese Foreign Policy
- PSCI 4736 - The Middle East in World Affairs
- PSCI 4807 - Political Violence
- PSCI 4995 - Travel Study

*If not taken to fulfill the introductory major requirements.

Economics, Development and Environment

Note: Students in this concentration must take the following course as one of their **three** Introductory courses.

- ECON 2012 - Principles of Economics: Macroeconomics

Students in this concentration must take the following Economics, Development and Environment course:

- ECON 2022 - Principles of Economics: Microeconomics

Students in this concentration must take **three** of the following Economics, Development and Environment courses:

- ANTH 4010 - Medical Anthropology: Global Health
- ANTH 4070 - Culture of Development and Globalization
- ANTH 4170 - Culture and the Environment
- ANTH 4390 - Laboratory Methods in Archaeology
- ECON 4081 - Intermediate Macroeconomic Theory
- ECON 4230 - Law and Economics
- ECON 4410 - International Trade
- ECON 4420 - International Finance
- ECON 4540 - Environmental Economics
- ECON 4770 - Economic Development--Theory and Problems
- GEOG 3300 - Population and Resources in the World Environment
- GEOG 3411 - Globalization and Regional Development
- GEOG 3430 - Geography of Tourism
- GEOG 4265 - Sustainability in Resources Management
- INTB 3000 - Global Perspectives
- PSCI 4085 - Comparative Public Policy
- PSCI 4126 - Introduction to International Political Economy
- PSCI 4235 - Politics and Markets in Latin America
- PSCI 4248 - Gender, Globalization and Development
- PSCI 4326 - Advanced International Political Economy: Globalization

- PSCI 4365 - Global Ecological Crises
- PSCI 4555 - International Women's Resistance

International Commerce

Students must meet Business School entrance requirements for the International Commerce concentration, with a 3.0 GPA overall or in the last 24 hours. ECON 2012 and ECON 2022 are prerequisites for most of these courses.

Note: The first **three** courses are prerequisites for MGMT 4400 and MKTG 4200. Also, this concentration requires 15 hours and not 12.

- ACCT 2220 - Managerial Accounting and Professional Issues (Prerequisite: MATH 1070 or MATH 1110 and sophomore standing)
- *MGMT 3000 - Managing Individuals and Teams
- *MKTG 3000 - Principles of Marketing
- *MGMT 4400 - Environments of International Business
- *MKTG 4200 - International Marketing

*Students must have junior standing to take the 3000-level courses and must be formally admitted to the international studies program to take the 4000-level courses.

Regional Societies and History

- ANTH 4995 - Travel Study
- GEOG 3120 - Geography of Europe
- GEOG 3130 - Central America and the Caribbean
- GEOG 3140 - Geography of South America
- GEOG 3150 - Middle East
- HIST 3350 - Colonial Latin America
- HIST 3500 - African History in Novels and Films
- HIST 3995 - Travel Study
- HIST 4027 - Enlightenment and Revolution
- HIST 4028 - Nations and Classes: 19th Century Europe
- HIST 4029 - Age of Anxiety in Europe
- HIST 4046 - Victorians and Victorianism
- HIST 4051 - Britain and The Empire
- HIST 4062 - Modern France, 1789 to the Present
- HIST 4071 - Modern Germany
- HIST 4074 - Post-War Germany
- HIST 4082 - Reform and Revolution in Russia: The 1860s to 1917
- HIST 4083 - Russia Since 1917

- HIST 4086 - Eastern Europe
- HIST 4303 - Sex and Gender in Modern Britain
- HIST 4411 - Modern Mexico
- HIST 4414 - Nationalism and State Building in Latin America, 1750-1850
- HIST 4415 - Social Revolutions in Latin America
- HIST 4421 - Modern China
- HIST 4451 - Southern Africa
- HIST 4455 - African Struggle for Independence
- HIST 4460 - The Islamic World's Golden Age
- HIST 4461 - The Modern Middle East
- HIST 4621 - Explorers and Exploration
- PSCI 4155 - Political Systems of the Middle East and North Africa

- PSCI 4165 - Islamic Politics and Culture **or**
- RLST 3100 - Islamic Politics and Culture

- PSCI 4505 - Political System of Russia and Its Neighbors
- PSCI 4554 - Chicano and Latino Politics
- PSCI 4615 - Politics and Government of China

- RLST 3400 - Asian Philosophies and Religions **or**
- PHIL 3666 - Asian Philosophies and Religions

- RLST 3500 - Religions of India

- RLST 3660 - Chinese Philosophy and Culture **or**
- PHIL 3981 - Chinese Philosophy and Culture

International Studies Capstone Course

All majors must take a three semester hour seminar focusing on a global issue. The designated capstone courses are:

- HIST 4417 - Commodities and Globalization: Dessert in World History
- PSCI 4126 - Introduction to International Political Economy

MANAGEMENT EMPHASIS - BS IN BUSINESS ADMINISTRATION (WITH OPTIONAL SPECIALIZATION IN MANAGEMENT/INFORMATION SYSTEMS)

Introduction

The management curriculum provides the foundation for careers in supervision and general management in a wide variety of organizations. It develops skills in management practice through an understanding of general management principles, individual and group behavior, organizational change and design and human resources management.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a major](#)

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- Business School Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

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

- MGMT 3010 - Managing People for a Competitive Advantage
- MGMT 4330 - Mastering Management
- MGMT 4350 - Leading Organizational Change
- MGMT 4370 - Organization Design
- MKTG 4050 - Applied Marketing Management

Take **two** of the following courses:

- ENTP 3000 - Principles of Entrepreneurship
- ENTP 3500 - Entrepreneurship Law and Ethics
- Or select **any** 3000 or 4000-level MGMT electives

Management/Information Systems (MGIS) Specialization

Within the management curriculum students can choose to add additional courses in Information Systems to complement their individual interests as well as prior education and work experiences.

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

- ISMG 3500 - Enterprise Data and Content Management
- ISMG 3600 - System Strategy, Architecture and Design
- ISMG 4900 - Project Management and Practice

MARKETING EMPHASIS – BS IN BUSINESS ADMINISTRATION

Introduction

Marketing is concerned with directing the activities of the organization toward the satisfaction of customer wants and needs. This involves understanding customers, identifying those wants and needs that the organization can best serve, guiding the development of specific products or services, planning and implementing ways to take products or services to the market, securing the customer's order and finally, monitoring customer response in order to guide future activities.

In most organizations, marketing is a major functional area that provides a wide variety of career opportunities in such fields as personal selling and sales management, advertising and sales promotion, public relations, marketing research, physical distribution, product management, market management, marketing information systems and retail management. Increasingly, career opportunities exist in service businesses and nonprofit organizations.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here to go to information about declaring a 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 Requirements
- Business School Graduation Requirements

- [Click here for information about Academic Policies](#)

Program Requirements

- MKTG 3100 - Marketing Research
- MKTG 4050 - Applied Marketing Management
- Elective Business course: One 3000 or 4000-level or above Business course.

Take any four 3000 or 4000-level and above MKTG prefixed courses:

- MKTG 3200 - Buyer Behavior
- MKTG 3300 - Social Media in Business
- MKTG 4000 – Advertising
- MKTG 4200 - International Marketing
- MKTG 4220 - Asian Business Development and Marketing
- MKTG 4250 - Sports Marketing
- MKTG 4580 - International Transportation
- MKTG 4700 - Personal Selling and Sales Management
- MKTG 4760 - Customer Relationship Management
- MKTG 4950 - Special Topics

Note: Marketing courses that were used to satisfy the International Business requirement cannot be applied to the Marketing area of emphasis. Students are encouraged to meet with their advisor to discuss which electives can best help them meet their career goals.

MARKETING EMPHASIS - BS IN BUSINESS ADMINISTRATION WITH SPECIALIZATION IN MARKETING/INFORMATION SYSTEMS

Introduction

Marketing is concerned with directing the activities of the organization toward the satisfaction of customer wants and needs. This involves understanding customers, identifying those wants and needs that the organization can best serve, guiding the development of specific products or services, planning and implementing ways to take products or services to the market, securing the customer's order and finally, monitoring customer response in order to guide future activities.

In most organizations, marketing is a major functional area that provides a wide variety of career opportunities in such fields as personal selling and sales management, advertising and sales promotion, public relations, marketing research, physical distribution, product management,

market management, marketing information systems and retail management. Increasingly, career opportunities exist in service businesses and nonprofit organizations.

Marketing/Information Systems (MKIS) Specialization

Within the Marketing curriculum, students can choose to specialize in Information Systems to compliment their individual interests as well as prior education and work experiences.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements
- Business School Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

Take all of the following courses:

- MKTG 3100 - Marketing Research
- MKTG 4050 - Applied Marketing Management

Take two of the following courses:

- MKTG 3200 - Buyer Behavior
- MKTG 4000 – Advertising
- MKTG 4220 - Asian Business Development and Marketing
- MKTG 4700 - Personal Selling and Sales Management
- MKTG 4720 - Internet Marketing
- MKTG 4950 - Special Topics

Note: Marketing courses that were used to satisfy the International Business requirement cannot be applied to the Marketing area of emphasis.

Take one of the following courses:

- ISMG 4760 - Customer Relationship Management
- MKTG 4760 - Customer Relationship Management

Take all of the following Information System courses:

- ISMG 3500 - Enterprise Data and Content Management
- ISMG 3600 - System Strategy, Architecture and Design
- ISMG 4900 - Project Management and Practice

MATHEMATICS - ACTUARIAL SCIENCE OPTION BS

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here](#) to go to information about declaring a 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 Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here](#) for information about Academic Policies

Program Requirements

1. Students must complete a total of at least 36 upper-division semester hours (typically 12 courses).
2. Students must complete at least 15 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 student's grade point average must be at least 2.25 in all Math courses applying to the major.

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 4310 - Introduction to Real Analysis I

Take **all** of the following Actuarial Science courses:

- MATH 3200 - Elementary Differential Equations
- MATH 4650 - Numerical Analysis I
- MATH 4779 - Math Clinic
- MATH 4810 - Probability
- MATH 4820 - Introduction to Mathematical Statistics

Take **one** of the following courses:

- MATH 3301 - Introduction to Operations Research I - Deterministic Systems
- MATH 3302 - Operations Research II
- MATH 4387 - Applied Regression Analysis
- MATH 4409 - Applied Combinatorics
- MATH 4733 - Partial Differential Equations
- MATH 4791 - Continuous Modeling
- MATH 4793 - Discrete Math Modeling
- MATH 4794 - Optimization Modeling

Take **one** of the following courses:

- MATH 4110 - Theory of Numbers
- MATH 4140 - Introduction to Modern Algebra
- MATH 4201 - Topology
- MATH 4220 - Higher Geometry II
- MATH 4320 - Introduction to Real Analysis II
- MATH 4408 - Applied Graph Theory

Take **one** of the following courses:

- MATH 4792 - Probabilistic Modeling
- MATH 5350 - Mathematical Theory of Interest

Take **one** approved Mathematics elective (at least three semester hours) above 3000, excluding 3040, 3511, 4012, 4013, 4014, 4015 and 4830.

MATHEMATICS - APPLIED MATHEMATICS OPTION BS

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here](#) to go to information about declaring a 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 Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here](#) for information about Academic Policies

Program Requirements

1. Students must complete a total of at least 36 upper-division semester hours (typically 12 courses).
2. Students must complete at least 15 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 student's grade point average must be at least 2.25 in all Math courses applying to the major.

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 4310 - Introduction to Real Analysis I

Take **all** of the following Applied Mathematics courses:

- MATH 3200 - Elementary Differential Equations
- MATH 4650 - Numerical Analysis I
- MATH 4779 - Math Clinic

Take **one** of the following courses:

- MATH 3800 - Probability and Statistics for Engineers
- MATH 4820 - Introduction to Mathematical Statistics

Take **one** of the following courses:

- MATH 4110 - Theory of Numbers
- MATH 4140 - Introduction to Modern Algebra
- MATH 4201 - Topology
- MATH 4220 - Higher Geometry II
- MATH 4320 - Introduction to Real Analysis II
- MATH 4408 - Applied Graph Theory

Take **two** of the following courses:

- MATH 3301 - Introduction to Operations Research I - Deterministic Systems
- MATH 3302 - Operations Research II
- MATH 4387 - Applied Regression Analysis
- MATH 4733 - Partial Differential Equations
- MATH 4791 - Continuous Modeling
- MATH 4792 - Probabilistic Modeling
- MATH 4793 - Discrete Math Modeling
- MATH 4794 - Optimization Modeling

Take **two** approved Mathematics electives (at least six semester hours) above 3000, excluding 3040, 3511, 4012, 4013, 4014, 4015 and 4830.

MATHEMATICS - EDUCATION OPTION BS

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here](#) to go to information about declaring a 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 Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here](#) for information about Academic Policies

Program Requirements

1. Students must complete a total of at least 36 upper-division semester hours (typically 12 courses).
2. Students must complete at least 15 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 student's grade point average must be at least 2.25 in all Math courses applying to the major.

Note: Certification by the School of Education & Human Development (SEHD) is required for public school teaching. See the description of Undergraduate Teacher Licensure on the School of Education & Human Development (SEHD) Urban Community Teacher Education program page for more information.

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 4310 - Introduction to Real Analysis I

Take **all** of the following Mathematics Education courses:

- MATH 3210 - Higher Geometry I
- MATH 4010 - History of Mathematics
- MATH 4012 - An Advanced Perspective on Number and Operation
- MATH 4013 - An Inquiry-Based Approach to Geometry
- MATH 4014 - Statistical Knowledge for Teaching
- MATH 4015 - Capstone Course for Secondary Teachers
- MATH 4110 - Theory of Numbers
- MATH 4140 - Introduction to Modern Algebra
- MATH 4409 - Applied Combinatorics

Take **one** of the following courses:

- MATH 3250 - Problem Solving Tools
- MATH 4650 - Numerical Analysis I

Take **one** of the following courses:

- MATH 3800 - Probability and Statistics for Engineers
- MATH 4820 - Introduction to Mathematical Statistics

MATHEMATICS - PROBABILITY AND STATISTICS OPTION BS

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements](#)
- [College of Liberal Arts & Sciences Graduation Requirements](#)
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must complete a total of at least 36 upper-division semester hours (typically 12 courses).
2. Students must complete at least 15 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 student's grade point average must be at least 2.25 in all Math courses applying to the major.

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 4310 - Introduction to Real Analysis I

Take **all** of the following Probability and Statistics courses:

- MATH 3200 - Elementary Differential Equations
- MATH 4650 - Numerical Analysis I
- MATH 4779 - Math Clinic
- MATH 4810 - Probability
- MATH 4820 - Introduction to Mathematical Statistics

Take **one** of the following courses:

- MATH 4387 - Applied Regression Analysis
- MATH 4792 - Probabilistic Modeling

Take **one** of the following courses:

- MATH 4110 - Theory of Numbers
- MATH 4140 - Introduction to Modern Algebra
- MATH 4201 - Topology
- MATH 4220 - Higher Geometry II
- MATH 4320 - Introduction to Real Analysis II
- MATH 4408 - Applied Graph Theory

Take **two** approved Mathematics electives (at least six semester hours) above 3000, excluding 3040, 3511, 4012, 4013, 4014, 4015 and 4830.

MATHEMATICS BS

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here](#) to go to information about declaring a 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 Requirements
- College of Liberal Arts & Sciences Graduation Requirements

- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must complete a total of at least 36 upper-division semester hours (typically 12 courses).
2. Students must complete at least 15 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 student's grade point average must be at least 2.25 in all Math courses applying to the major.

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 4310 - Introduction to Real Analysis I
- MATH 4779 - Math Clinic

Take **one** of the following courses:

- MATH 3250 - Problem Solving Tools
- MATH 4650 - Numerical Analysis I

Take **one** of the following courses:

- MATH 3800 - Probability and Statistics for Engineers
- MATH 4820 - Introduction to Mathematical Statistics

Take **one** of the following courses:

- MATH 4110 - Theory of Numbers
- MATH 4140 - Introduction to Modern Algebra
- MATH 4201 - Topology
- MATH 4220 - Higher Geometry II
- MATH 4320 - Introduction to Real Analysis II
- MATH 4408 - Applied Graph Theory

Take **one** of the following courses:

- MATH 3301 - Introduction to Operations Research I - Deterministic Systems
- MATH 3302 - Operations Research II
- MATH 4387 - Applied Regression Analysis
- MATH 4409 - Applied Combinatorics

- MATH 4733 - Partial Differential Equations
- MATH 4791 - Continuous Modeling
- MATH 4792 - Probabilistic Modeling
- MATH 4793 - Discrete Math Modeling
- MATH 4794 - Optimization Modeling

Take **four** approved Mathematics electives (at least twelve semester hours) above 3000, excluding 3040, 3511, 4012, 4013, 4014, 4015 and 4830.

MECHANICAL ENGINEERING BS

Introduction

The mechanical engineer is concerned with satisfying the needs of society using a combination of material, human and economic resources. Mechanical engineering covers a wide spectrum of activities in the engineering profession. These activities include the conversion and transmission of energy and associated power processes; the kinematic, dynamic, strength and wear considerations, as well as economic aspects of the development, design and use of materials, machines and processes; and the analysis, synthesis and control of entire engineering systems.

The mechanical engineering department seeks to graduate a diverse population of students with bachelor's and master's degrees, enabling them to:

- be employed by a diverse group of industries, research laboratories and educational institutions
- pursue careers in traditional engineering, interdisciplinary areas, research and education
- pursue postgraduate education and advanced degrees

The mechanical engineering curriculum begins with a strong emphasis on mathematics, physics and chemistry. It continues with a concentration in engineering sciences, including solid and fluid mechanics; thermodynamics, heat and mass transport; materials; and systems analysis and control. It concludes with laboratory and design courses that demonstrate the ways in which scientific knowledge is applied in the design and development of useful devices and manufacturing processes.

The mechanical engineering program may be roughly subdivided into two-year groupings. In the first two years, the program emphasizes the fundamentals of mathematics and basic science that are essential for an understanding of most branches of engineering. In the last two years of the program, the curriculum emphasizes engineering science and design and provides technical electives in the following areas:

- thermodynamics
- heat transfer
- fluid mechanics
- solid mechanics
- motorsports engineering
- power
- bioengineering
- dynamics and controls
- computer-aided design and manufacturing
- thermomechanical systems
- composite materials

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a major](#)

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Engineering and Applied Science Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students enrolled prior to fall 2006 may choose either the new core curriculum or the old core curriculum.
2. CVEN 2121 and CVEN 3111 may be substituted for MECH 2023 and MECH 2033 respectively.

3. Not all courses may be offered every semester.
4. Students must maintain a minimum 2.0 GPA in all courses applying to major requirements.
5. Students must maintain a minimum 2.0 GPA in all MECH courses attempted.
6. Students must complete a minimum of 128 semester hours of course work.
7. The last 30 hours must be earned as a degree-seeking student in the College of Engineering and Applied Science at CU Denver.

Take **all** of the following courses in Mechanical Engineering major:

- MECH 1025 - CAD and Graphics for Mechanical Engineering

- MECH 2023 - Statics **or**
- CVEN 2121 - Analytical Mechanics I

- MECH 2033 - Dynamics **or**
- CVEN 3111 - Analytical Mechanics II

- MECH 3010 - Elementary Numerical Methods and Programming
- MECH 3012 - Thermodynamics
- MECH 3021 - Introduction to Fluid Mechanics
- MECH 3022 - Thermodynamics II
- MECH 3023 - System Dynamics I: Vibrations
- MECH 3024 - Introduction to Materials Science
- MECH 3027 - Measurements
- MECH 3028 - Laboratory of Mechanical Measurements
- MECH 3030 - Electric Circuits and Systems
- MECH 3031 - Fluids/Thermal Laboratory
- MECH 3032 - Electric Circuits and Systems Lab
- MECH 3034 - Properties of Engineering Materials
- MECH 3035 - Design of Mechanical Elements
- MECH 3042 - Heat Transfer
- MECH 3043 - Strength of Materials
- MECH 3065 - Intermediate Dynamics
- MECH 3145 - Manufacturing Processes Design
- MECH 4023 - System Dynamics II: Controls
- MECH 4035 - Senior Design I
- MECH 4045 - Senior Design II

Take **12 semester hours** of Technical Electives.

Take **all** of the following Mathematics courses:

- MATH 1401 - Calculus I
- MATH 2411 - Calculus II
- MATH 2421 - Calculus III
- MATH 3195 - Linear Algebra and Differential Equations

Take **all** of the following Science courses:

- CHEM 1130 - Engineering General Chemistry
- PHYS 2311 - General Physics I: Calculus-Based
- PHYS 2321 - General Physics Laboratory I
- PHYS 2331 - General Physics II: Calculus-Based
- PHYS 2341 - General Physics Laboratory II

MUSIC BUSINESS EMPHASIS, AUDITION TRACK, MUSIC BS

Introduction

Please click here to see General Music information.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here to go to information about declaring a major.
- The bachelor of science (BS) in music has a competitive application process. Please refer to the Music and Entertainment Industry Studies Department (MEIS) website for additional guidelines and information at <http://www.ucdenver.edu/academics/colleges/CAM/programs/meis/Pages/index.aspx>.
- Students who wish to pursue the music business emphasis, audition track, are required to pass an entrance audition on their primary instrument or voice as part of the application process and pass varying levels of performance proficiency as part of the curriculum.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements

- College of Arts & Media Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. To earn a BS in music, students must complete music foundation courses, MEIS core courses and requirements from one of the four emphasis areas: performance, singer/songwriter, music business or recording arts.
2. Students must complete each major course with a grade of C (2.0) or better.

Take **all** of the following Music Foundation course groups:

- PMUS 1100 - Music Theory I
- PMUS 1110 - Ear Training and Sight Singing I
- PMUS 1023 - Piano Class I

PMUS 1200 - Music Theory II

- PMUS 1210 - Ear Training and Sight Singing II
- PMUS 1024 - Piano Class II

PMUS 2100 - Music Theory III

- PMUS 2110 - Ear Training and Sight Singing III
- PMUS 1025 - Piano Class III

PMUS 2200 - Jazz Theory

- PMUS 1026 - Piano Class IV

PMUS 3830 - History and Literature of Music I

- PMUS 3831 - History and Literature of Music II
- PMUS____ Music History Elective (3 semester hours)

- PMUS 1____ Applied Instrument/Voice (1 semester hour)
- PMUS 1500 - General Recital
- PMUS____ Ensemble (1 semester hour) *Note:* Students must complete PMUS 1470 - Performance Practice Ensemble during their first or second semester of Applied Instrument/Voice.

- PMUS 1____ Applied Instrument/Voice (1 semester hour)
- PMUS 1500 - General Recital
- PMUS____ Ensemble (1 semester hour)

- PMUS 2____ Applied Instrument/Voice (1 semester hour)

- PMUS 1500 - General Recital
- PMUS____ Ensemble (1 semester hour)

- PMUS 2____ Applied Instrument/Voice (1 semester hour)
- PMUS 1500 - General Recital
- PMUS____ Ensemble (1 semester hour)

- PMUS____ Ensemble (1 semester hour)
- PMUS____ Ensemble (1 semester hour)

Take **all** of the following MEIS Core courses:

- MUSC 2700 - Introduction to Music Business
- MUSC 2540 - Audio Production I
- MUSC 2560 - Audio Production II

Take **all** of the following Music Business Emphasis courses:

- MUSC 3210 - Music and Entertainment Marketing
- MUSC 3220 - Artist Management
- MUSC 3690 - Concert Promotion, Tour, and Venue Management
- MUSC 3700 - Music and Entertainment Business in the Digital Age
- MUSC 3710 - CAM Records
- MUSC 3720 - Law and the Music Industry
- MUSC 3755 - Music Publishing
- MUSC 4740 - Music Business Analysis
- MUSC 4890 - Music Business Senior Seminar

Take **three** semester hours of Music Business electives.

MUSIC BUSINESS EMPHASIS, NON-AUDITION TRACK, MUSIC BS

Introduction

Please click here to see General Music Information.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here to go to information about declaring a major.

- The bachelor of science (BS) in music has a competitive application process. Please refer to the Music and Entertainment Industry Studies Department (MEIS) website for additional guidelines and information at <http://www.ucdenver.edu/academics/colleges/CAM/programs/meis/Pages/index.aspx>.
- Students who wish to pursue the music business emphasis, non-audition track, are required to complete the Non-Audition Application Form as part of the application process. Students will be assessed for varying levels of performance proficiency as part of the curriculum.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Arts & Media Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. To earn a BS in music, students must complete music foundation courses, MEIS core courses and requirements from one of the four emphasis areas: performance, singer/songwriter, music business or recording arts.
2. Students must complete each major course with a grade of C (2.0) or better.

Take **all** of the following Music Foundation course groups:

- PMUS 1100 - Music Theory I
- PMUS 1110 - Ear Training and Sight Singing I
- PMUS 1023 - Piano Class I

PMUS 1200 - Music Theory II

- PMUS 1210 - Ear Training and Sight Singing II
- PMUS 1024 - Piano Class II

PMUS 3830 - History and Literature of Music I

- PMUS 3831 - History and Literature of Music II
- PMUS ____ Music History Elective (3 semester hours)

- PMUS 18__ Applied Instrument/Voice, Non-Juried (1 semester hour)
- PMUS 1500 - General Recital

- PMUS 18__ Applied Instrument/Voice, Non-Juried (1 semester hour)
- PMUS 1500 - General Recital

Take **all** of the following Music Foundation courses:

- PMUS 1310 - Sight Reading and Improvisation
- PMUS 2310 - Introduction to Songwriting
- PMUS ____ Ensemble (1 semester hour)
- PMUS ____ Ensemble (1 semester hour)
- PMUS Electives in Performance (3 semester hours)

Take **two** of the following Music Foundation courses:

- PMUS 1025 - Piano Class III
- PMUS 1026 - Piano Class IV
- PMUS 1040 - Class Guitar
- PMUS 1041 - Class Guitar II
- PMUS 1050 - Voice Class I
- PMUS 1060 - Voice Class II

Take **one** of the following Music Foundation courses:

- PMUS 2200 - Jazz Theory
- PMUS 3310 - Intermediate Songwriting
- PMUS 2220 - Commercial Electronic Music Composition

Take **all** of the following MEIS Core courses:

- MUSC 2700 - Introduction to Music Business
- MUSC 2540 - Audio Production I
- MUSC 2560 - Audio Production II

Take **all** of the following Music Business Emphasis courses:

- MUSC 3210 - Music and Entertainment Marketing
- MUSC 3220 - Artist Management
- MUSC 3690 - Concert Promotion, Tour, and Venue Management
- MUSC 3700 - Music and Entertainment Business in the Digital Age
- MUSC 3710 - CAM Records
- MUSC 3720 - Law and the Music Industry
- MUSC 3755 - Music Publishing
- MUSC 4740 - Music Business Analysis
- MUSC 4890 - Music Business Senior Seminar

Take **six** semester hours of Music Business Emphasis electives.

PAINTING/DRAWING EMPHASIS, FINE ARTS BFA

Introduction

Please click [here](#) to see General Visual Arts information.

The painting and drawing emphasis takes a contemporary approach that works to integrate painterly and drawing concerns with focused artistic practice and developing critical dialogue. As a studio discipline, painting and drawing is as rich in visual arts history as it is charged with contemporary innovation. Painting and drawing as a studio practice encourages a multi-faceted dialogue within this continuum. Students are introduced to a variety of techniques and ideas, exposed to several art-historical and contemporary practices, and are challenged to develop a studio process that involves both formal and conceptual impact. Painting and drawing classes are interdisciplinary in that they allow the use of multiple materials and/or techniques in the production of a successful art piece or body of work. Students come away with a strong studio skill base, an engaged conceptual framework, and an ability to take part in the exciting discourse of contemporary painting and drawing.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click [here](#) to go to information about declaring a major.
- Students who are applying for entrance into the painting and drawing emphasis are required to submit a portfolio of 10 images in digital format, a written statement and unofficial transcript(s) from CU Denver and all previous post-secondary educational institutions. The painting and drawing emphasis only accepts applications once a year. Students who meet the following requirements can apply. Upon acceptance students will be able to register for upper-division courses in painting and drawing

ELIGIBILITY

University of Colorado Denver Students

The student has completed, or is in the process of completing, the following courses:

- FINE 1100 - Drawing I
- FINE 1400 - Two Dimensional Design
- FINE 1500 - Three-Dimensional Design
- FINE 2155 - Introduction to Digital Photography
- FINE 2030 - Life Drawing

- FINE 2600 - Art History Survey I
- FINE 2610 - Art History Survey II

A minimum cumulative fine arts/art history GPA of 2.75

Transfer Students

The student has completed and is transferring a minimum of 24 credit hours from a previous institution.

Student has completed, or is in the process of completing, the equivalents of the following courses:

- FINE 1100 - Drawing I
- FINE 1400 - Two Dimensional Design
- FINE 1500 - Three-Dimensional Design
- FINE 2030 - Life Drawing
- FINE 2600 - Art History Survey I

A minimum cumulative fine arts/art history GPA of 2.75

APPLICATION PORTFOLIO REQUIREMENTS

Students applying to the painting and drawing emphasis submit a portfolio of 10 images in digital format, a written statement and unofficial transcript(s) from CU Denver and all previous post-secondary educational institutions. Application materials must be uploaded to SlideRoom.com by **November 1, 2014, 5:00 pm** (Mountain Time). Applications are only accepted online and must be formatted to the specifications listed below. There is a \$20 fee to apply.

Portfolio of Images

The portfolio must include a minimum of 10 digital images of creative work (but no more than 15). Submit six or more images of artworks done in foundation studio courses and from FINE 2030 Life Drawing. Also provide two or more artworks that demonstrate an understanding of value and color. Additional examples (up to five) may include design, drawing, painting, mixed media, installation and/or printmaking.

All images should be formatted as JPEGs. **Limit file size to 1 megabyte.** File names must be numbered, include the student's last name, and then an underscore, and a brief title.

File Name Examples:

- 1_lastname_figuredrawing.jpeg
- 2_lastname_still-lifedrawing.jpeg

Note: For each image uploaded to SlideRoom, the applicant must provide the following information: title, year, media and size, and a brief explanation of the artwork.

Written Statement

A written statement must be uploaded as a PDF file with the portfolio on SlideRoom. In the essay, the student should address the following in no more than one page in length (400-500 words).

- Why do you want to study painting and drawing and what goals and expectations do you have regarding a career as a studio artist?
- What are your creative strengths, and what areas need further development?
- What other accomplishments would you like the committee to know about, such as Dean's List, GPA, internships, art-related extracurricular activities or relevant professional experience?

Course Transcripts

These may be official or unofficial transcripts from CU Denver and previous post-secondary institutions.

THE EVALUATION PROCESS

- A committee of painting and drawing faculty members reviews the application materials. Acceptance into the painting and drawing emphasis is based on the portfolio images, written statement and GPA.
- If not admitted into the painting and drawing emphasis, a student has the choice of attempting the review process again the following year or applying to another emphasis. Students are encouraged to schedule a meeting with the area head of painting and drawing to learn ways to improve their portfolios for future submissions.

The application is evaluated on the following criteria:

- **Presentation** - The portfolio should be well crafted and well organized in content and presentation.
- **Technical Skill** - The portfolio should demonstrate strong proficiency in drawing, composition, design and color.
- **Creativity** – The portfolio should demonstrate creative choices in content and aesthetics.
- **Conceptual Skills** - The portfolio and written statements should reflect analytical thinking and conceptual exploration of the foundations of drawing and design.
- **Written Statement** - The statement should outline academic and artistic goals, addressing any potential strengths and weaknesses.
- **Academic Performance** - The grades must reflect a commitment to learning and growth.
- All required documentation included (images, written statement and transcripts).

QUESTIONS

Please contact CAMadvising@ucdenver.edu for emphasis and portfolio information, or contact painting/drawing area head Mary K. Connelly at 303-315-1508 or mary.connelly@ucdenver.edu.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Arts & Media Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Each course counting toward the major must be completed with a grade of C (2.0) or better.
2. All upper-division visual arts courses must be taken at CU Denver unless otherwise approved by visual arts faculty.
3. At least 27 semester hours of visual arts credits (at any level) must be taken at CU Denver.
4. At least 24 semester hours of total visual arts courses must be upper-division.
Take **all** of the following Visual Arts Foundation courses:
 - FINE 1100 - Drawing I
 - FINE 1400 - Two Dimensional Design
 - FINE 1500 - Three-Dimensional Design
 - FINE 2155 - Introduction to Digital Photography
 - FINE 2600 - Art History Survey I
 - FINE 2610 - Art History Survey II

Take **all** of the following Painting & Drawing Emphasis courses (entry level):

- FINE 2010 - The Graphic Novel Workshop
- FINE 2030 - Life Drawing
- FINE 2200 - Painting I
- FINE 3030 - The Media of Drawing

Take **all** of the following Painting & Drawing Emphasis courses (available only to students accepted to emphasis via portfolio review):

- FINE 3050 - Figure Painting
- FINE 3200 - Intermediate Painting and Drawing I

- FINE 3210 - Intermediate Painting and Drawing II
- FINE 3240 - Abstract Painting and Drawing
- FINE 3300 - Painting, Drawing and the Printed Image
- FINE 4100 - Painting & Drawing Theory & Practice
- FINE 4200 - Advanced Painting and Drawing I
- FINE 4210 - Advanced Painting/Drawing II

Take **the** following additional Visual Arts course:

- FINE 4990 - Contemporary Art: 1960 to Present

Take **three** semester hours of Pre-20th Century Art History elective. Consult a CAM advisor for approved options.

Take **three** semester hours of upper-division Art History elective.

Take **three** semester hours of Studio Arts elective in an area outside of painting, drawing or illustration.

Take **six** semester hours of Studio Arts electives.

Take **six** semester hours of Visual Arts electives. These may include studio, lecture, internship or art history courses.

Take the following Capstone course:

- FINE 4950 - Studio BFA Thesis

PERFORMANCE EMPHASIS, MUSIC BS

Introduction

Please click here to see General Music information.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here to go to information about declaring a major.
- The bachelor of science (BS) in music has a competitive application process. Please refer to the Music and Entertainment Industry Studies Department (MEIS) website for

additional guidelines and information at

<http://www.ucdenver.edu/academics/colleges/CAM/programs/meis/Pages/index.aspx>.

- Students who wish to pursue the performance emphasis are required to pass an entrance audition on their primary instrument or voice as part of the application process and pass varying levels of performance proficiency as part of the curriculum. Each student must also successfully pass a Sophomore Proficiency on his or her primary instrument or voice in order to maintain performance emphasis status. Each student is also required to successfully complete a Junior Recital in addition to the 2-credit PMUS 4200 Senior Recital Project. Please contact an advisor in the College of Arts & Media at CAMadvising@ucdenver.edu for further information.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Arts & Media Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. To earn a BS in music, students must complete music foundation courses, MEIS core courses and requirements from one of the four emphasis areas: performance, singer/songwriter, music business or recording arts.
2. Students must complete each major course with a grade of C (2.0) or better.

Take **all** of the following Music Foundation course groups:

- PMUS 1100 - Music Theory I
- PMUS 1110 - Ear Training and Sight Singing I
- PMUS 1023 - Piano Class I

- PMUS 1200 - Music Theory II
- PMUS 1210 - Ear Training and Sight Singing II
- PMUS 1024 - Piano Class II

- PMUS 2100 - Music Theory III
- PMUS 2110 - Ear Training and Sight Singing III
- PMUS 1025 - Piano Class III

- PMUS 2200 - Jazz Theory
- PMUS 1026 - Piano Class IV

- PMUS 3830 - History and Literature of Music I
- PMUS 3831 - History and Literature of Music II
- PMUS ____ Music History elective (3 semester hours)

- PMUS 1____ Applied Instrument/Voice (1 semester hour)
- PMUS 1500 - General Recital
- PMUS ____ Ensemble (1 semester hour) *Note: Students must complete PMUS 1470 - Performance Practice Ensemble during their first or second semester of Applied Instrument/Voice.*

- PMUS 1____ Applied Instrument/Voice (1 semester hour)
- PMUS 1500 - General Recital
- PMUS ____ Ensemble (1 semester hour)

- PMUS 2____ Applied Instrument/Voice (1 semester hour)
- PMUS 1500 - General Recital
- PMUS ____ Ensemble (1 semester hour)

- PMUS 2____ Applied Instrument/Voice (1 semester hour)
- PMUS 1500 - General Recital
- PMUS ____ Ensemble (1 semester hour)

Take **all** of the following MEIS Core courses:

- MUSC 2700 - Introduction to Music Business
- MUSC 2540 - Audio Production I
- MUSC 2560 - Audio Production II

Take **one** of the following MEIS Core courses:

- MUSC 3210 - Music and Entertainment Marketing
- MUSC 3220 - Artist Management

Take **all** of the following Performance Emphasis course groups:

- PMUS 3____ Applied Instrument/Voice (2 semester hours)
- PMUS 1500 - General Recital
- PMUS ____ Ensemble (1 semester hour)

- PMUS 3____ Applied Instrument/Voice (2 semester hours)

- PMUS 1500 - General Recital
- PMUS ____ Ensemble (1 semester hour)

- PMUS 4____ Applied Instrument/Voice (2 semester hours)
- PMUS 1500 - General Recital
- PMUS ____ Ensemble (1 semester hour)

- PMUS 4____ Applied Instrument/Voice (2 semester hours)
- PMUS 1500 - General Recital
- PMUS ____ Ensemble (1 semester hour)

Take **one** of the following Performance Emphasis courses:

- PMUS 3300 - Advanced Jazz Improvisation
- PMUS 3330 - Advanced Vocal Improvisation (for Voice students only)

Take **all** of the following Performance Emphasis courses:

- PMUS 3210 - Introduction to Teaching Private Music Lessons
- PMUS 4060 - Music Theory Analysis
- PMUS 4200 - Senior Recital Project

Take **five** semester hours of Music electives. Specific elective courses may be required depending on student's primary instrument. Consult CAM Advising at CAMadvising@ucdenver.edu for more details.

PHILOSOPHY BA

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here](#) to go to information about declaring a 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 Degree Requirements
- CU Denver Core Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. A total of 36 semester hours must be completed for the Philosophy major and at least 18 of which must be taken at CU Denver.
2. A minimum grade of C (2.0) is required in each course.
3. A total of 18 upper-division semester hours are required for the major and no more than 6 hours below the 3000-level may be counted toward the major.

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

- PHIL 3002 - Ancient Greek Philosophy
- PHIL 3022 - Modern Philosophy
(It is recommended, but not required, that PHIL 3002 be taken before PHIL 3022)
- PHIL 3440 - Introduction to Symbolic Logic
- PHIL 4760 - Kant

- Take **one** upper division course in Social/Political philosophy
- Take **one** upper division course in Ethics
- Take **one** upper division course in Continental philosophy
- Take **one** upper division course in American or Analytic philosophy
- Take **one** upper division course with specific focus in the history of philosophy (may be fulfilled by a course in a single figure)
- Take **one** upper division elective (may include courses from previous lists that are not counted toward those requirements)
- Take **two** electives at any level

PHOTOGRAPHY EMPHASIS, FINE ARTS BFA

Introduction

Please [click here](#) to see General Visual Arts information.

Students in the photography emphasis develop skills in traditional and digital photography while refining their creative and conceptual approaches to the medium. The photography curriculum

emphasizes individual artistic development that integrates the history of photography, critical theory and contemporary practice. Through an exploration of photographic techniques, students are given the tools to create visually compelling images that communicate their artistic ideas.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here to go to information about declaring a major.
- The photography course sequence begins in the fall semester. Students who apply for entrance into the photography emphasis must complete a portfolio submission that includes a written statement, a portfolio of images and unofficial transcript(s) from CU Denver and all previous post-secondary educational institutions. Students who meet the requirements and are accepted into the emphasis will be eligible to register for upper-division studio photography courses.

ELIGIBILITY

University of Colorado Denver students and transfer students must have a minimum cumulative GPA of 2.75 in fine art and art history courses. In order to apply to the photography emphasis, students must have completed, or be in the process of completing, the following courses:

- FINE 1100 - Drawing I
- FINE 1150 - Introduction to Darkroom Photography
- FINE 1400 - Two Dimensional Design
- FINE 2155 - Introduction to Digital Photography
- FINE 2600 - Art History Survey I

APPLICATION PORTFOLIO REQUIREMENTS

Properly prepared application submissions must be uploaded to SlideRoom.com by 5:00 P.M. Central Mountain Time on November 1. Applications are only accepted online and must be formatted to the specifications listed here.

It is strongly recommended that students visit the submission website early and begin uploads two weeks before the due date. Late submissions due to technical difficulties on the part of the applicant will not be accepted.

Step 1: Register and create an account in SlideRoom. Please go to the following link to complete this process: <https://ucdvisualarts.slideroom.com>. (Please note that SlideRoom charges a \$20.00 fee to process portfolio submissions.)

Step 2: When prompted answer all questions about the application.

Step 3: Upload documents including the written statement and transcripts from the University of Colorado Denver and all post-secondary institutions.

Step 4: Upload 10 image files of creative work.

Portfolio of Images

- The photography portfolio must include 10 image files of creative work. At least six portfolio images should be photographic, demonstrating the student's understanding of concept, form, composition and technique. The remaining four portfolio pieces may be photographic or they may be examples of design, drawing, painting, mixed media, sculpture, installation and/or printmaking.
- For each portfolio image, the student should write a brief description (150 words or less) that identifies the medium (silver gelatin print, ink jet print, charcoal drawing, etc.) and explains the student's approach to the project.
- Images must be submitted in jpeg format, 12 inches on the longer side, sized at 72 pixels per inch, and saved at the highest setting available (usually 10 or 12). Files should be named with the student's last name, then first name and image title using underscores to separate. Example: Doe_Jane_ImageTitle.jpg.

Written Statement

Written statements should be limited to one page in length (400-500 words) and saved as a .pdf file. Statements should address the following:

- Why do you want to study photography?
- What goals and expectations do you have regarding a career as a photographer?
- What are your creative strengths, and what areas need further development?
- Are there additional accomplishments that you would like the committee to know about (such as Dean's List, GPA, internships, art-related extracurricular activities or relevant professional experience)?

Course Transcripts

These may be official or unofficial transcripts from CU Denver and previous post-secondary institutions.

THE EVALUATION PROCESS

- A committee of photography faculty members reviews the portfolio submissions. Acceptance into the photography emphasis is based on the portfolio images, written statement and GPA.

- If not admitted into the photography emphasis, a student has the choice of attempting the review process again the following year or applying to another emphasis. Students not admitted into the photography emphasis are encouraged to schedule a meeting with the area head of photography to learn ways to improve their portfolios for future submissions.
- Portfolios are evaluated based on quality of presentation, technical skill, creativity, conceptual development and overall aptitude for excelling in the photography emphasis. Additional evaluation is based on the applicant's written statement and GPA in visual arts courses.

The application is evaluated on the following criteria:

- **Presentation** - The portfolio should be well crafted and well organized in content and presentation.
- **Technical Skill** - The portfolio should demonstrate strong knowledge of the fundamental tools of photography including camera functions, analog film development and printing and digital imaging, as well as an understanding of design, form, composition and color.
- **Creativity** – The portfolio should demonstrate creative choices in content and aesthetics.
- **Conceptual Skills** - The portfolio and written statements should reflect analytical thinking and conceptual exploration of the photography medium.
- **Written Statement** - The statement should outline academic and artistic goals, addressing any potential strengths and weaknesses.
- **Academic Performance** - The grades must reflect a commitment to learning and growth.
- All required documentation included (images, written statement and transcripts).

QUESTIONS

Please contact CAMadvising@ucdenver.edu for emphasis and portfolio information, or contact photography area head Carol Golemboski at carol.golemboski@ucdenver.edu.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Arts & Media Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Each course counting toward the major must be completed with a grade of C (2.0) or better.
2. All upper-division visual arts courses must be taken at CU Denver unless otherwise approved by visual arts faculty.
3. At least 27 semester hours of visual arts credits (at any level) must be taken at CU Denver.
4. At least 24 semester hours of total visual arts courses must be upper-division.

Take **all** of the following Visual Arts Foundation courses:

- FINE 1100 - Drawing I
- FINE 1400 - Two Dimensional Design
- FINE 1500 - Three-Dimensional Design
- FINE 2600 - Art History Survey I
- FINE 2610 - Art History Survey II

Take **all** of the following Photography Emphasis courses (entry level):

- FINE 1150 - Introduction to Darkroom Photography
- FINE 2155 - Introduction to Digital Photography

Take **all** of the following Photography Emphasis courses (available only to students accepted to emphasis via portfolio review):

- FINE 3160 - Color and Studio Lighting
- FINE 3161 - The Silver Fine Print
- FINE 3162 - The Digital Fine Print
- FINE 3171 - Concepts and Processes in Photography
- FINE 3172 - Digital Bookmaking
- FINE 3631 - Photography: Theory and Criticism
- FINE 3635 - Photography Now
- FINE 4195 - Advanced Photography I
- FINE 4196 - Advanced Photography II

Take **all** of the following additional Visual Arts courses:

- FINE 3630 - History of Photography
- FINE 4990 - Contemporary Art: 1960 to Present

Take **three** semester hours of Pre-20th Century Art History elective. Consult a CAM advisor for approved options.

Take **three** semester hours of Studio Arts elective in an area outside of photography.

Take **twelve** semester hours of Studio Arts electives.

Take **six** semester of Visual Arts electives. These may include studio, lecture, internship or art history courses.

Take the following Capstone course:

- FINE 4950 - Studio BFA Thesis

PHYSICS - BIOPHYSICS AND MEDICAL PHYSICS OPTION BS

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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

1. Students must declare their intention to major in Physics by the time they have completed 60 semester hours.
2. Students must complete between 46 and 50 credit hours in physics (depending on the track chosen) to receive the degree of Bachelor of Science in Physics.

3. No grade below a C (2.0) can be used to meet the requirements for the major.
4. At least 12 semester hours of the requirements for the major must be completed at CU Denver.

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

- PHYS 2311 - General Physics I: Calculus-Based
- PHYS 2321 - General Physics Laboratory I
- PHYS 2331 - General Physics II: Calculus-Based
- PHYS 2341 - General Physics Laboratory II
- PHYS 2711 - Vibrations and Waves
- PHYS 2811 - Modern Physics I
- PHYS 3120 - Methods of Mathematical Physics
- PHYS 3711 - Junior Laboratory I
- PHYS 3811 - Quantum Mechanics

Take **all** of the following ancillary courses:

- MATH 1401 - Calculus I
- MATH 2411 - Calculus II
- MATH 2421 - Calculus III
- MATH 3195 - Linear Algebra and Differential Equations

Note: The department will accept the following combination of math courses in place of MATH 3195:

- MATH 3191 - Applied Linear Algebra
- MATH 3200 - Elementary Differential Equations

Take **all** of the following Biophysics and Medical Physics track courses:

- PHYS 3251 - Biophysics of the Body
- PHYS 3451 - Biophysics of the Cell

Take **one** of the following courses:

- PHYS 4351 - Bioelectromagnetism (recommended option)
- PHYS 4331 - Principles of Electricity and Magnetism

Take **eight** semester hours of Biophysics electives at the 3000-level or above approved by advisor (including up to 3 semester hours independent study and/or two courses, PHYS 3151 and PHYS 3161, listed below) **or**

The following **four** courses (an option primarily for pre-med physics majors):

- * BIOL 2051 - General Biology I
- * BIOL 2061 - General Biology II
- PHYS 3151 - Biophysics Outlook I
- PHYS 3161 - Biophysics Outlook II

Additionally, take a laboratory:

- PHYS 3721 - Junior Laboratory II **or**

The following two courses (an option primarily for pre-med physics majors):

- * BIOL 2071 - General Biology Laboratory I
- * BIOL 2081 - General Biology Laboratory II

Note: courses marked with an asterisk are generally required for medical school admissions.

Take **one** three semester hour numerical modeling or probability and statistics course approved by advisor.

PHYSICS - PURE AND APPLIED PHYSICS OPTION BS

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here](#) to go to information about declaring a 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

1. Students must declare their intention to major in Physics by the time they have completed 60 semester hours
2. Students must complete between 46 and 50 credit hours in physics (depending on the track chosen) to receive the degree of Bachelor of Science in Physics.
3. No grade below a C (2.0) can be used to meet the requirements for the major.
4. At least 12 semester hours of the requirements for the major must be completed at CU Denver.

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

- PHYS 2311 - General Physics I: Calculus-Based
- PHYS 2321 - General Physics Laboratory I
- PHYS 2331 - General Physics II: Calculus-Based
- PHYS 2341 - General Physics Laboratory II
- PHYS 2711 - Vibrations and Waves
- PHYS 2811 - Modern Physics I
- PHYS 3120 - Methods of Mathematical Physics
- PHYS 3711 - Junior Laboratory I
- PHYS 3811 - Quantum Mechanics

Take **all** of the following ancillary courses:

- MATH 1401 - Calculus I
- MATH 2411 - Calculus II
- MATH 2421 - Calculus III
- MATH 3195 - Linear Algebra and Differential Equations

Note: The department will accept the following combination of math courses in place of MATH 3195:

- MATH 3191 - Applied Linear Algebra
- MATH 3200 - Elementary Differential Equations

Take **all** of the following Pure and Applied Physics track courses:

- PHYS 3211 - Analytical Mechanics
- PHYS 3411 - Thermal Physics
- PHYS 3721 - Junior Laboratory II
- * PHYS 4331 - Principles of Electricity and Magnetism
- PHYS 4711 - Senior Laboratory I

(or a course in computational physics approved by advisor)

* **Note:** Students who must retake PHYS 4331 may fulfill this requirement by obtaining a C or better in:

- PHYS 4351 - Bioelectromagnetism

Take **six** semester hours of physics-related electives at 3000-level or above approved by advisor, including up to 3 semester hours of independent study

POLITICAL SCIENCE - PUBLIC POLICY OPTION, BA

Introduction

This option was designed for students who specifically desire to pursue careers in public policy and/or public administration in the public or nonprofit sectors. This BA track emphasizes the specifically political aspects of public policy processes, settings and is grounded in basic political science theory and familiarity with American, Comparative and International politics. Courses will emphasize key policy issues confronting U.S. local, state and national decision makers and citizens. A focus on politics and the policy-making process will prepare students conceptually and methodologically to move beyond partisan politics to address how leaders can best mobilize resources to achieve constituent goals consistent with the public interest.

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements

- College of Liberal Arts & Sciences Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Must complete a minimum of 36 semester hours in political science, of which at least 21 must be upper-division courses.
2. Fifteen of the 36 hours must be taken from CU Denver faculty.
3. A minimum GPA of 2.0 or better is required for all PSCI courses taken at CU Denver.
4. Two cognate courses (don't count toward the 36 hours) from the list below must be completed.

Take **all** of the following courses:

- PSCI 1001 - Introduction to Political Science: The Quest for Freedom and Justice
- PSCI 1101 - American Political System
- PSCI 3011 - Research Methods

Take **one** of the following 4000-level American Politics courses:

- PSCI 4002 - Topics in Political Science
- PSCI 4014 - Media and Politics
- PSCI 4024 - Legislatures and Legislation
- PSCI 4025 - Local Governance and Globalization
- PSCI 4044 - The Presidency
- PSCI 4094 - Seminar: American Politics
- PSCI 4124 - Denver Politics
- PSCI 4324 - Politics, Public Policy and Leadership
- PSCI 4354 - Environmental Politics
- PSCI 4374 - Public Priorities for the 21st Century
- PSCI 4477 - Constitutional Law I
- PSCI 4487 - Constitutional Law II
- PSCI 4545 - Immigration Politics

Take **one** of the following 4000-level Comparative Politics and International Relations courses:

- PSCI 4085 - Comparative Public Policy
- PSCI 4124 - Denver Politics
- PSCI 4185 - Corruption in the U.S. and Abroad
- PSCI 4226 - The United Nations in World Affairs
- PSCI 4236 - American Foreign Policy
- PSCI 4266 - International Law
- PSCI 4326 - Advanced International Political Economy: Globalization
- PSCI 4645 - Comparative Political Leadership

Take **one** of the following 4000-level Public Policy and Administration courses:

- PSCI 4009 - Politics of the Budgetary Process
- PSCI 4024 - Legislatures and Legislation
- PSCI 4084 - Local Government and Administration
- PSCI 4274 - Conflict Resolution and Public Consent Building
- PSCI 4414 - Organizational Change Agents
- PSCI 4644 - Ethical Responsibilities of Leaders

Take any **two** additional courses from the three fields above, plus take any **one** other upper or lower-division PSCI course.

Take **both** of the following Political Theory courses:

- PSCI 4427 - Law, Politics and Justice
- PSCI 4437 - Coercion and the State

Take **one** of the following courses: (Students with significant pre-existing political or civic engagement experience in the community, or for whom the experiential-learning requirement poses a hardship may petition the chair to waive the experiential-learning requirement; the overall requirement of 36 credit hours for Political Science graduation will still apply.)

- PSCI 3939 - Internship
- PSCI 4934 - CU at the Capitol

Take **both** of the following cognate courses:

- ECON 2012 - Principles of Economics: Macroeconomics
- ECON 2022 - Principles of Economics: Microeconomics

POLITICAL SCIENCE BA

Introduction

Courses are distributed among the primary fields as listed in this section, i.e., American politics, comparative politics, international relations, political theory and public policy and administration.

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a major](#)

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Must complete a minimum of 36 semester hours in political science, of which at least 21 must be upper-division courses.
2. Fifteen of the 36 hours must be taken from CU Denver faculty.
3. A minimum GPA of 2.0 or better is required for all PSCI courses taken at CU Denver.
4. Two cognate courses (don't count toward the 36 hours) from the list below must be completed.

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

- PSCI 1001 - Introduction to Political Science: The Quest for Freedom and Justice
- PSCI 1101 - American Political System

- PSCI 3011 - Research Methods **or**
- PSCI 4011 - GIS in Political Science

Take **two** of the following courses:

- PSCI 4207 - Theories of Social and Political Change
- PSCI 4265 - Social Justice And Globalization
- PSCI 4407 - Early Political Thought
- PSCI 4417 - Modern Political Thought
- PSCI 4427 - Law, Politics and Justice
- PSCI 4437 - Coercion and the State
- PSCI 4457 - American Political Thought

Take **one** of the following 4000-level American Politics courses:

- PSCI 4009 - Politics of the Budgetary Process
- PSCI 4014 - Media and Politics
- PSCI 4024 - Legislatures and Legislation
- PSCI 4034 - Political Parties and Pressure Groups
- PSCI 4044 - The Presidency
- PSCI 4057 - Religion and Politics
- PSCI 4074 - Urban Politics
- PSCI 4084 - Local Government and Administration
- PSCI 4085 - Comparative Public Policy
- PSCI 4094 - Seminar: American Politics
- PSCI 4124 - Denver Politics
- PSCI 4236 - American Foreign Policy
- PSCI 4237 - American National Security
- PSCI 4324 - Politics, Public Policy and Leadership
- PSCI 4330 - U.S. Health Policy
- PSCI 4354 - Environmental Politics
- PSCI 4374 - Public Priorities for the 21st Century
- PSCI 4444 - Contemporary Culture and Politics in America
- PSCI 4457 - American Political Thought
- PSCI 4477 - Constitutional Law I
- PSCI 4487 - Constitutional Law II
- PSCI 4494 - Judicial Politics
- PSCI 4545 - Immigration Politics
- PSCI 4554 - Chicano and Latino Politics
- PSCI 4564 - Gender and Politics
- PSCI 4644 - Ethical Responsibilities of Leaders
- PSCI 4827 - Women and the Law
- PSCI 4837 - Contemporary Issues in Civil Liberties

Take **one** of the following 4000-level Comparative Politics courses:

- PSCI 4057 - Religion and Politics
- PSCI 4074 - Urban Politics
- PSCI 4085 - Comparative Public Policy
- PSCI 4105 - Comparative Politics: Europe
- PSCI 4115 - Third World Politics
- PSCI 4144 - Indigenous Political Systems
- PSCI 4146 - Indigenous Politics
- PSCI 4155 - Political Systems of the Middle East and North Africa
- PSCI 4165 - Islamic Politics and Culture

- PSCI 4176 - Gandhi's Legacy: Non-Violent Resistance Today
- PSCI 4185 - Corruption in the U.S. and Abroad
- PSCI 4195 - Political Systems of Sub-Saharan Africa
- PSCI 4206 - Social Movements, Democracy and Global Politics
- PSCI 4215 - Women's Rights, Human Rights: Global Perspectives
- PSCI 4224 - Dictatorships in 21st Century
- PSCI 4225 - Democracy and Democratization
- PSCI 4235 - Politics and Markets in Latin America
- PSCI 4248 - Gender, Globalization and Development
- PSCI 4265 - Social Justice And Globalization
- PSCI 4365 - Global Ecological Crises
- PSCI 4446 - Advanced Indigenous Peoples' Politics
- PSCI 4505 - Political System of Russia and Its Neighbors
- PSCI 4555 - International Women's Resistance
- PSCI 4605 - Politics and Governments of South Asia
- PSCI 4615 - Politics and Government of China
- PSCI 4807 - Political Violence
- PSCI 4808 - Strategies of Peacebuilding

Take **one** of the following 4000-level International Politics courses:

- PSCI 4126 - Introduction to International Political Economy
- PSCI 4156 - The Arab-Israeli Peace Process
- PSCI 4186 - East Asia in World Affairs
- PSCI 4206 - Social Movements, Democracy and Global Politics
- PSCI 4216 - International Politics: Human Rights
- PSCI 4236 - American Foreign Policy
- PSCI 4237 - American National Security
- PSCI 4266 - International Law
- PSCI 4274 - Conflict Resolution and Public Consent Building
- PSCI 4286 - International Relations: War or Peace?
- PSCI 4326 - Advanced International Political Economy: Globalization
- PSCI 4726 - Russian and Chinese Foreign Policy
- PSCI 4736 - The Middle East in World Affairs

Take **one** of the following courses:

- * PSCI 3914 - The Urban Citizen
- * PSCI 3939 - Internship
- * PSCI 4934 - CU at the Capitol

*Exceptions to the course-work requirement of the Experiential Learning Requirement

In lieu of taking one of the preceding courses, students may complete a substantial experiential learning project in a different PSCI class. The course instructor must certify with a written submission to the departmental undergraduate advisor that the experiential learning project in that course fulfills the departmental experiential learning requirement.

- Students with pre-existing significant political or civic engagement experience in the community or for whom the experiential-learning requirement poses a hardship may petition the chair to waive the requirement
- **Note:** In either of these cases of exception to the Experiential Learning coursework requirement, 36 total credit hours in political science are still required for graduation.

Take **three** Political Science elective courses.

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

- ECON 2012 - Principles of Economics: Macroeconomics
- ECON 2022 - Principles of Economics: Microeconomics
- HIST 1016 - World History to 1500
- HIST 1026 - World History Since 1500
- HIST 1211 - Western Civilization I
- HIST 1212 - Western Civilization II
- HIST 1361 - U.S. History to 1876
- HIST 1362 - U.S. History Since 1876

PSYCHOLOGY BA

Introduction

The College of Liberal Arts and Sciences also offers a Psychology BS degree.

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here](#) to go to information about declaring a 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 Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Psychology BA major requirements include at least 37 and not more than 56 semester hours in psychology.
2. Of these, at least 15 hours must be in upper-division courses taught by CU Denver faculty.
3. No grade below C (2.0) will be accepted toward the major requirements, nor will pass/fail grades.
4. PSYC 3939, Internship/Cooperative Education, does NOT count toward the 37-hour minimum or the 15-hour upper-division requirement, but it does count as elective psychology credit.
5. Topics courses (PSYC 3600): See your advisor to determine if they count as Group A or Group B courses.
6. Refer to the course descriptions for prerequisites.
Take **all** of the following required courses:
 - PSYC 1000 - Introduction to Psychology I
 - PSYC 1005 - Introduction to Psychology II
 - PSYC 2090 - Statistics and Research Methods
 - PSYC 2220 - Biological Basis of Behavior
 - PSYC 3090 - Research Methods in Psychology
 - PSYC 4511 - History of Psychology

Group A: Three Group A courses are required.

Take **one or both** of the following:

- PSYC 3222 - Principles of Learning and Behavior
- PSYC 3144 - Human Cognition

Take **one or two** of the following to reach a total of **three** Group A courses:

- PSYC 3104 - Behavioral Genetics
- PSYC 3254 - Introduction to Animal Behavior

- PSYC 3262 - Health Psychology
- PSYC 3263 - Hormones and Behavior
- PSYC 3265 - Drugs, Brain and Behavior
- PSYC 3724 - Developmental Psychobiology
- PSYC 3810 - Neuropsychology
- PSYC 3822 - Aging, Brain and Behavior
- PSYC 3832 - Neural Basis of Learning
- PSYC 4054 - Behavioral Neuroscience
- PSYC 4164 - Psychology of Perception

Group B: Four Group B courses required.

Take **at least two** of the following courses:

- PSYC 3205 - Human Development I: Child Psychology
- PSYC 3305 - Abnormal Psychology
- PSYC 3415 - Experimental Social Psychology

Take **two** or **three** of the following to reach a total of **four** Group B courses:

- PSYC 3145 - Industrial and Organizational Psychology
- PSYC 3215 - Human Development II: Adolescence and Adulthood
- PSYC 3235 - Human Sexuality
- PSYC 3405 - Family Psychology
- PSYC 3505 - Psychology and the Law
- PSYC 3610 - Psychological Trauma
- PSYC 3611 - Psychology of Women
- PSYC 3612 - Domestic Abuse
- PSYC 3615 - Positive Psychology
- PSYC 4455 - Theories of Personality
- PSYC 4485 - Psychology of Cultural Diversity
- PSYC 4500 - Psychotherapy
- PSYC 4730 - Clinical Psychology: Ethics and Issues

PSYCHOLOGY BS

Introduction

The College of Liberal Arts and Sciences also offers a Psychology BA degree.

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must take at least 24 hours and a maximum of 56 semester hours in psychology that will count toward graduation.
2. Students must take 23-27 credit hours of ancillary course work in Biology and Chemistry.
3. A minimum of 15 upper-division Psychology semester hours must be taken from CU Denver faculty.
4. No grade below C is acceptable toward the major requirements; i.e., psychology, biology or chemistry courses in which a student earns a C- or below will not count toward the major. Pass/fail grades also do not count toward the major requirements.

Note: An experiential learning component is required, and this requirement is often fulfilled through an independent study course (PSYC 4840), which requires a GPA of 2.50, or an internship (PSYC 3939), which requires a GPA of 2.75.

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

- PSYC 1000 - Introduction to Psychology I
- PSYC 1005 - Introduction to Psychology II
- PSYC 2090 - Statistics and Research Methods
- PSYC 2220 - Biological Basis of Behavior
- PSYC 3090 - Research Methods in Psychology
- PSYC 4054 - Behavioral Neuroscience

Take **two** of the following courses:

- PSYC 3104 - Behavioral Genetics
- PSYC 3222 - Principles of Learning and Behavior
- PSYC 3254 - Introduction to Animal Behavior
- PSYC 3263 - Hormones and Behavior
- PSYC 3265 - Drugs, Brain and Behavior
- PSYC 3724 - Developmental Psychobiology
- PSYC 3810 - Neuropsychology
- PSYC 3822 - Aging, Brain and Behavior
- PSYC 4164 - Psychology of Perception

Take **at least one** of the following (all require consultation with BS advisor AND permission of instructor):

- PSYC 3939 - Internship (2.75 GPA required)
 - PSYC 4840 - Independent Study: PSYC (2.5 GPA required)
- Honors Project in Psychology (3.5 GPA required): 3 Semester Hours

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

- BIOL 2051 - General Biology I
- BIOL 2061 - General Biology II
- BIOL 2071 - General Biology Laboratory I
- BIOL 2081 - General Biology Laboratory II
- CHEM 2031 - General Chemistry I
- CHEM 2038 - General Chemistry Laboratory I
- CHEM 2061 - General Chemistry II
- CHEM 2068 - General Chemistry Laboratory II

Take **two** of the following courses:

- BIOL 3225 - Human Physiology
- BIOL 3244 - Human Anatomy
- BIOL 3611 - General Cell Biology
- BIOL 3654 - General Microbiology
- BIOL 3832 - General Genetics
- BIOL 4134 - Human Genetics
- BIOL 4165 - Neurobiology
- CHEM 3810 - Biochemistry

PUBLIC HEALTH BA

Introduction

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.

Director: Karen Lutfey, Professor of Public Health

Office: Administration Building, 280

Telephone: 303-556-8501

Fax: 303-556-8501

E-mail: Karen.Lutfey@ucdenver.edu

[Click here for BS in Public Health](#)

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements](#)
- [College of Liberal Arts & Sciences Graduation Requirements](#)
- [Click here for information about Academic Policies](#)

Program Requirements

1. The Bachelor of Arts in Public Health consists of 43 credit hours in required classes.
2. Each class must be completed with a grade of C (2.0) or higher to count towards the major.

Public Health

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

- PBHL 2001 - Introduction To Public Health
- PBHL 2020 - Introduction to Environmental Health
- PBHL 3001 - Introduction to Epidemiology
- PBHL 3030 - Health Policy
- PBHL 3070 - Perspectives in Global Health
- PBHL 4040 - Social Determinants of Health
- PBHL 4099 - Capstone Experience in Public Health

Quantitative Methods

Take **one** of the following Quantitative Methods courses, or another statistics course that has been approved by the undergraduate program director/advisor in advance:

- ANTH 4050 - Quantitative Methods in Anthropology
- MATH 2830 - Introductory Statistics
- PSYC 3090 - Research Methods in Psychology
- SOCY 3121 - Statistics

Electives

Take **two** PBHL electives from the following list:

- PBHL 3002 - Ethnicity, Health and Social Justice
- PBHL 3010 - Human Sexuality and Public Health
- PBHL 3021 - Fundamentals of Health Promotion
- PBHL 3031 - Health, Human Biology and Behavior
- PBHL 3041 - Health, Culture and Society
- PBHL 3071 - Global Topics In Sexual and Reproductive Health
- PBHL 3200 - Human Migration: Nomads, Sojourners, and Settlers
- PBHL 3440 - Medical Sociology
- PBHL 4020 - Global Health: Comparative Public Health Systems
- PBHL 4031 - Ethnographic Research In Public Health
- PBHL 4060 - Evolutionary Medicine
- PBHL 4080 - Global Health Practice
- PBHL 4090 - Political Economy of Drugs
- PBHL 4110 - Public Health Perspectives On Family Violence
- PBHL 4200 - The Global HIV/AIDS Epidemic
- PBHL 4999 - Topics In Public Health

Take **one** elective from either the PBHL list (above) or the following list:

- ANTH 4010 - Medical Anthropology: Global Health
- ANTH 4080 - Global Health Practice
- ANTH 4290 - Anthropology and Public Health
- ANTH 4600 - Medical Anthropology
- COMM 4500 - Health Communication
- COMM 4550 - Rhetorics of Medicine & Health
- COMM 4620 - Health Risk Communication
- ECON 5660 - Health Economics
- ENVS 1342 - Environment, Society and Sustainability
- ETST 3002 - Ethnicity, Health and Social Justice
- GEOG 3501 - Geography of Health
- GEOG 4230 - Hazard Mitigation and Vulnerability Assessment
- GEOG 4235 - GIS Applications in the Health Sciences
- HEHM 3100 - Introduction to Culture, Society and Medicine
- HIST 4345 - Gender, Science, and Medicine: 1600 to the Present
- HIST 4346 - Medicine and Society: the Ancients to the Present
- PHIL 4242 - Bioethics
- PSCI 4215 - Women's Rights, Human Rights: Global Perspectives
- PSCI 4330 - U.S. Health Policy
- PSYC 3262 - Health Psychology
- PSYC 3265 - Drugs, Brain and Behavior
- PSYC 3305 - Abnormal Psychology
- PSYC 3822 - Aging, Brain and Behavior
- SOCY 3440 - Medical Sociology
- SOCY 3560 - Death and Dying
- SOCY 4110 - Sociology of Health Care
- SOCY 4290 - Aging, Society and Social Policy

Biological Sciences Ancillary Courses

Take **two** of the following Biological Sciences ancillary courses:

- BIOL 1550 - Basic Biology: Ecology and the Diversity of Life **or**
- BIOL 2051 - General Biology I **and**
- BIOL 2071 - General Biology Laboratory I

- BIOL 1560 - Basic Biology: From Cells to Organisms **or**
- ANTH 1303 - Introduction to Biological Anthropology

PUBLIC HEALTH BS

Introduction

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.

Director: Karen Lutfey, Professor of Public Health

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[Click here for BA in Public Health](#)

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Degree Requirements](#)
- [CU Denver Core Requirements](#)
- [College of Liberal Arts & Sciences General Degree Requirements](#)
- [Click here for information about Academic Policies](#)

Program Requirements

1. The Bachelor of Science in Public Health consists of 73 hours in required classes.
2. Each class must be completed with a grade of C (2.0) or higher to count towards the major.

Public Health Required Courses

Take **all** of following required courses:

- PBHL 2001 - Introduction To Public Health
- PBHL 2020 - Introduction to Environmental Health
- PBHL 3001 - Introduction to Epidemiology
- PBHL 3030 - Health Policy
- PBHL 3070 - Perspectives in Global Health
- PBHL 4040 - Social Determinants of Health
- PBHL 4099 - Capstone Experience in Public Health

Quantitative Methods

Take **one** of the following Quantitative Methods courses, OR another statistics course that has been approved by the undergraduate program director/advisor in advance:

- ANTH 4050
- MATH 2830
- PSYC 3090
- SOCY 3121

Electives

Take **one** PBHL elective from the following list:

- PBHL 3002 - Ethnicity, Health and Social Justice
- PBHL 3010 - Human Sexuality and Public Health
- PBHL 3021 - Fundamentals of Health Promotion
- PBHL 3031 - Health, Human Biology and Behavior
- PBHL 3041 - Health, Culture and Society
- PBHL 3071 - Global Topics In Sexual and Reproductive Health
- PBHL 3200 - Human Migration: Nomads, Sojourners, and Settlers
- PBHL 3440 - Medical Sociology
- PBHL 4020 - Global Health: Comparative Public Health Systems
- PBHL 4031 - Ethnographic Research In Public Health
- PBHL 4060 - Evolutionary Medicine
- PBHL 4080 - Global Health Practice
- PBHL 4090 - Political Economy of Drugs
- PBHL 4110 - Public Health Perspectives On Family Violence
- PBHL 4200 - The Global HIV/AIDS Epidemic
- PBHL 4999 - Topics In Public Health

Take **one** elective from either the PBHL list (above), from the following list or another course that has been approved by the undergraduate program director/advisor in advance:

- ANTH 4010 - Medical Anthropology: Global Health
- ANTH 4080 - Global Health Practice
- ANTH 4290 - Anthropology and Public Health
- ANTH 4600 - Medical Anthropology
- ECON 5660 - Health Economics
- GEOG 3501 - Geography of Health
- GEOG 4230 - Hazard Mitigation and Vulnerability Assessment
- GEOG 4235 - GIS Applications in the Health Sciences
- HEHM 3100 - Introduction to Culture, Society and Medicine
- HIST 4345 - Gender, Science, and Medicine: 1600 to the Present
- HIST 4346 - Medicine and Society: the Ancients to the Present
- PHIL 4242 - Bioethics
- PSCI 4215 - Women's Rights, Human Rights: Global Perspectives
- PSCI 4330 - U.S. Health Policy
- PSYC 3262 - Health Psychology
- PSYC 3265 - Drugs, Brain and Behavior
- PSYC 3305 - Abnormal Psychology
- PSYC 3822 - Aging, Brain and Behavior
- SOCY 3440 - Medical Sociology
- SOCY 3560 - Death and Dying
- SOCY 4110 - Sociology of Health Care
- SOCY 4290 - Aging, Society and Social Policy

Take **all** of the following lecture/lab courses:

- BIOL 2051 - General Biology I
- BIOL 2071 - General Biology Laboratory I
- BIOL 2061 - General Biology II
- BIOL 2081 - General Biology Laboratory II

Additional Math and Science Ancillary Courses

Take **all** of the following additional math and science ancillary courses:

- CHEM 2031 - General Chemistry I
- CHEM 2038 - General Chemistry Laboratory I
- CHEM 2061 - General Chemistry II
- CHEM 2068 - General Chemistry Laboratory II
- CHEM 3411 - Organic Chemistry I
- CHEM 3418 - Organic Chemistry Laboratory I

- CHEM 3421 - Organic Chemistry II
- CHEM 3428 - Organic Chemistry Laboratory II
- MATH 1401 - Calculus I
- PHYS 2010 - College Physics I
- PHYS 2030 - College Physics Lab I
- PHYS 2020 - College Physics II
- PHYS 2040 - College Physics Lab II

RECORDING ARTS EMPHASIS, AUDITION TRACK, MUSIC BS

Introduction

Please click here to see General Music information.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here to go to information about declaring a major.
- The bachelor of science (BS) in music has a competitive application process. Please refer to the Music and Entertainment Industry Studies Department (MEIS) website for additional guidelines and information at <http://www.ucdenver.edu/academics/colleges/CAM/programs/meis/Pages/index.aspx>.
- Students who wish to pursue the recording arts emphasis, audition track, are required to pass an entrance audition on their primary instrument or voice as part of the application process, and pass varying levels of performance proficiency as part of the curriculum. Students must be accepted into the recording arts emphasis before being able to take any of the upper-division (3000/4000 level) recording arts course work. Please contact an advisor in the College of Arts & Media at CAMadvising@ucdenver.edu for further information.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements

- College of Arts & Media Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. To earn a BS in music, students must complete music foundation courses, MEIS core courses and requirements from one of the four emphasis areas: performance, singer/songwriter, music business or recording arts.
2. Students must complete each major course with a grade of C (2.0) or better.

Take **all** of the following Music Foundation course groups:

- PMUS 1100 - Music Theory I
- PMUS 1110 - Ear Training and Sight Singing I
- PMUS 1023 - Piano Class I

- PMUS 1200 - Music Theory II
- PMUS 1210 - Ear Training and Sight Singing II
- PMUS 1024 - Piano Class II

- PMUS 2100 - Music Theory III
- PMUS 2110 - Ear Training and Sight Singing III
- PMUS 1025 - Piano Class III

- PMUS 2200 - Jazz Theory
- PMUS 1026 - Piano Class IV

- PMUS 3830 - History and Literature of Music I
- PMUS 3831 - History and Literature of Music II
- PMUS____ Music History Elective (3 semester hours)

- PMUS 1____ Applied Instrument/Voice (1 semester hour)
- PMUS 1500 - General Recital
- PMUS____ Ensemble (1 semester hour) *Note:* Students must complete PMUS 1470 - Performance Practice Ensemble during their first or second semester of Applied Instrument/Voice.

- PMUS 1____ Applied Instrument/Voice (1 semester hour)
- PMUS 1500 - General Recital
- PMUS____ Ensemble (1 semester hour)
- PMUS 2____ Applied Instrument/Voice (1 semester hour)

- PMUS 1500 - General Recital
- PMUS____ Ensemble (1 semester hour)

- PMUS 2____ Applied Instrument/Voice (1 semester hour)
- PMUS 1500 - General Recital
- PMUS____ Ensemble (1 semester hour)

- PMUS____ Ensemble (1 semester hour)
- PMUS____ Ensemble (1 semester hour)

Take **all** of the following MEIS Core courses:

- MUSC 2700 - Introduction to Music Business
- MUSC 2540 - Audio Production I
- MUSC 2560 - Audio Production II

Take **one** of the following MEIS Core courses:

- MUSC 3210 - Music and Entertainment Marketing
- MUSC 3220 - Artist Management

Take the following course. This course must be completed or in progress while applying to the Recording Arts Emphasis:

- PHYS 3620 - Sound and Music

Take **all** of the following Recording Arts Emphasis courses:

- MUSC 3550 - Critical Listening for Recording Arts
- MUSC 4550 - Audio Production III
- MUSC 4560 - Mastering & Advanced Digital Audio
- MUSC 4505 - Audio Post Production I
- MUSC 4580 - Audio Production Seminar I
- MUSC 4581 - Audio Production Seminar II

Take **7 semester hours** of Recording Arts electives.

RECORDING ARTS EMPHASIS, NON-AUDITION TRACK, MUSIC BS

Introduction

Please click here to see General Music information.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here to go to information about declaring a major.
- The bachelor of science (BS) in music has a competitive application process. Please refer to the Music and Entertainment Industry Studies Department (MEIS) website for additional guidelines and information at <http://www.ucdenver.edu/academics/colleges/CAM/programs/meis/Pages/index.aspx>.
- Students who wish to pursue the recording arts emphasis, non-audition track, are required to complete the Non-Audition Application Form as part of the application process. Students will be assessed for varying levels of performance proficiency as part of the curriculum. Students must be accepted into the recording arts emphasis before being able to take any of the upper-division (3000/4000 level) recording arts course work. Please contact an advisor in the College of Arts & Media at CAMadvising@ucdenver.edu for further information.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Arts & Media Graduation Requirements
- Click here for information about Academic Policies

Program Requirements

1. To earn a BS in music, students must complete music foundation courses, MEIS core courses and requirements from one of the four emphasis areas: performance, singer/songwriter, music business or recording arts.
2. Students must complete each major course with a grade of C (2.0) or better.
Take **all** of the following Music Foundation course groups:
 - PMUS 1100 - Music Theory I
 - PMUS 1110 - Ear Training and Sight Singing I
 - PMUS 1023 - Piano Class I
- PMUS 1200 - Music Theory II

- PMUS 1210 - Ear Training and Sight Singing II
- PMUS 1024 - Piano Class II

- PMUS 3830 - History and Literature of Music I
- PMUS 3831 - History and Literature of Music II
- PMUS ____ Music History Elective (3 semester hours)

- PMUS 18__ Applied Instrument/Voice, Non-Juried (1 semester hour)
- PMUS 1500 - General Recital

- PMUS 18__ Applied Instrument/Voice, Non-Juried (1 semester hour)
- PMUS 1500 - General Recital

Take **all** of the following Music Foundation courses:

- PMUS 1310 - Sight Reading and Improvisation
- PMUS 2310 - Introduction to Songwriting
- PMUS ____ Ensemble (1 semester hour)
- PMUS ____ Ensemble (1 semester hour)
- PMUS Electives in Performance (3 semester hours)

Take **two** of the following Music Foundation courses:

- PMUS 1025 - Piano Class III
- PMUS 1026 - Piano Class IV
- PMUS 1040 - Class Guitar
- PMUS 1041 - Class Guitar II
- PMUS 1050 - Voice Class I
- PMUS 1060 - Voice Class II

Take **one** of the following Music Foundation courses:

- PMUS 2200 - Jazz Theory
- PMUS 2220 - Commercial Electronic Music Composition
- PMUS 3310 - Intermediate Songwriting

Take **all** of the following MEIS Core courses:

- MUSC 2700 - Introduction to Music Business
- MUSC 2540 - Audio Production I
- MUSC 2560 - Audio Production II

Take **one** of the following MEIS Core courses:

- MUSC 3210 - Music and Entertainment Marketing
- MUSC 3220 - Artist Management

Take the following course. This course must be completed or in progress while applying to the Recording Arts Emphasis:

- PHYS 3620 - Sound and Music

Take **all** of the following Recording Arts Emphasis courses:

- MUSC 3550 - Critical Listening for Recording Arts
- MUSC 4550 - Audio Production III
- MUSC 4560 - Mastering & Advanced Digital Audio
- MUSC 4505 - Audio Post Production I
- MUSC 4580 - Audio Production Seminar I
- MUSC 4581 - Audio Production Seminar II

Take **nine** semester hours of Recording Arts electives.

RISK MANAGEMENT AND INSURANCE EMPHASIS - BS IN BUSINESS ADMINISTRATION

Introduction

The risk management and insurance area of emphasis in the finance area of emphasis provides students with the fundamental knowledge needed to accurately measure and manage risk.

Recent crisis situations suggest that understanding risk and how to manage it, and ultimately, how risk management can be used to increase firm value, is essential in the current business environment. The RMI emphasis will provide an overall perspective on risk, with a specific focus on insurance products and their use in mitigating risk in business and personal situations. The insurance industry recognizes many high-level certifications as a sign of expertise, and the RMI course work will provide the knowledge base so that students can proceed to acquire certification in their specific choice of insurance specialty.

Potential job opportunities include positions in the insurance industry and those that require a thorough understanding of risk, such as corporate risk officer or risk manager. In addition, students who choose to work in the insurance industry can make a seamless transition into underwriting, ratemaking, and policy approval. The program will be supported by unique internship and special project opportunities in the insurance industry, and is the first program of its kind in the region.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements
- Business School Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students following this emphasis must take FNCE 4370 - International Financial Management as their international studies course.

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

- FNCE 3500 - Management of Business Capital
- RISK 3809 - Introduction to Risk Management
- RISK 3949 - Experiential Learning in RMI Industry
- RISK 4809 - Property & Casualty Insurance
- RISK 4909 - Corporate Risk Management

Take **three** of the following courses:

- FNCE 3600 - Financial Markets and Institutions
- FNCE 3700 - Investment and Portfolio Management
- FNCE 4500 - Corporate Financial Decisions
- RISK 4509 - Global Risk Management

Note: This is a new program and RISK courses are still being developed. Please check with your advisor for new courses.

SINGER/SONGWRITER EMPHASIS, MUSIC BS

Introduction

Please click here to see General Music information.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here to go to information about declaring a major.
- The bachelor of science (BS) in music has a competitive application process. Please refer to the Music and Entertainment Industry Studies Department (MEIS) website for additional guidelines and information at <http://www.ucdenver.edu/academics/colleges/CAM/programs/meis/Pages/index.aspx>.
- Students who wish to pursue the singer/songwriter emphasis are required to pass an audition on their accompanying instrument AND voice as part of the application process, and pass varying levels of performance proficiency as part of the curriculum. Each student must also successfully pass a Sophomore Proficiency in order to maintain singer/songwriter emphasis status. Each student is also required to successfully complete a Junior Recital in addition to the two-credit PMUS 4200 - Senior Recital Project. Please contact an advisor in the College of Arts & Media at CAMadvising@ucdenver.edu for further information.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Arts & Media Graduation Requirements
- Click here for information about Academic Policies

Program Requirements

1. To earn a BS in music, students must complete music foundation courses, MEIS core courses and requirements from one of the four emphasis areas: performance, singer/songwriter, music business or recording arts.

2. Students must complete each major course with a grade of C (2.0) or better.

Take **all** of the following Music Foundation course groups:

- PMUS 1100 - Music Theory I
- PMUS 1110 - Ear Training and Sight Singing I
- PMUS 1023 - Piano Class I

- PMUS 1200 - Music Theory II
- PMUS 1210 - Ear Training and Sight Singing II
- PMUS 1024 - Piano Class II

- PMUS 2100 - Music Theory III
- PMUS 2110 - Ear Training and Sight Singing III
- PMUS 1025 - Piano Class III

- PMUS 4060 - Music Theory Analysis

- PMUS 3830 - History and Literature of Music I
- PMUS 3831 - History and Literature of Music II
- PMUS____ Music History Elective (3 semester hours)

- PMUS 1734 - Applied Voice, Singer/Songwriter
- PMUS 1500 - General Recital
- PMUS____ Ensemble (1 semester hour) *Note:* Students must complete PMUS 1470 - Performance Practice Ensemble during their first or second semester of Applied Music.

- PMUS 1734 - Applied Voice, Singer/Songwriter
- PMUS 1500 - General Recital
- PMUS____ Ensemble (1 semester hour)

- **Either** PMUS 1574 - Applied Guitar, Singer/Songwriter **or**
- PMUS 1644 - Applied Piano, Singer/Songwriter *Note:* Students must complete both semesters of applied instrument lessons on their primary audition instrument.
- PMUS 1500 - General Recital
- PMUS____ Ensemble (1 semester hour)

- **Either** PMUS 1574 - Applied Guitar, Singer/Songwriter **or**
- PMUS 1644 - Applied Piano, Singer/Songwriter *Note:* Students must complete both semesters of applied instrument lessons on their primary audition instrument.
- PMUS 1500 - General Recital
- PMUS____ Ensemble (1 semester hour)

Take **one** of the following Music Foundation courses:

- PMUS 1026 - Piano Class IV (for Piano/Voice students)
- PMUS 2750 - Functional Guitar Skills: Acoustic Guitar Styles (for Guitar/Voice students)
- PMUS 2751 - Functional Guitar Skills: Electric Guitar Styles (for Guitar/Voice students)

Take **all** of the following MEIS Core courses:

- MUSC 2700 - Introduction to Music Business
- MUSC 2540 - Audio Production I
- MUSC 2560 - Audio Production II

Take **one** of the following MEIS Core courses:

- MUSC 3210 - Music and Entertainment Marketing
- MUSC 3220 - Artist Management
- MUSC 3755 - Music Publishing

Take **all** of the following Singer/Songwriter Emphasis course groups:

- PMUS 3772 - Applied Singer/Songwriter
- PMUS 1500 - General Recital
- PMUS____ Ensemble (1 semester hour)

- PMUS 3772 - Applied Singer/Songwriter
- PMUS 1500 - General Recital
- PMUS____ Ensemble (1 semester hour)

- PMUS 4772 - Applied Singer/Songwriter
- PMUS 1500 - General Recital
- PMUS____ Ensemble (1 semester hour)

- PMUS 4772 - Applied Singer/Songwriter
- PMUS 1500 - General Recital
- PMUS____ Ensemble (1 semester hour)

Take **all** of the following Singer/Songwriter Emphasis courses:

- PMUS 3200 - Popular Music Performance Skills
- PMUS 3310 - Intermediate Songwriting
- PMUS 3320 - Popular Music Arranging
- PMUS 4200 - Senior Recital Project
- PMUS 4310 - Advanced Songwriting

SOCIOLOGY BA

Introduction

All prospective majors should contact the department as early in their academic careers as possible for information and for assignment to a major advisor. Transfer or returning students should consult with the department chairperson concerning completion of the core courses.

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.

Program Delivery

- This is an on-campus program.
- This program is also offered online.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. The major requires a total of 34 hours with an average grade of C (2.0) in all courses.
2. At least 16 of the 34 hours must be upper-division (3000-4000 level) courses.
3. The maximum number of hours allowed in sociology is 56.
4. The department requires that at least 16 hours of sociology be taken from CU Denver faculty, including the following courses: SOCY 2001, 3111, 3121, 3150 and 3160.
Take **all** of the following courses:
 - SOCY 1001 - Introduction to Sociology
 - * SOCY 2001 - Inequalities in Social World

- * SOCY 3111 - Research Methods
 - * SOCY 3121 - Statistics
 - * SOCY 3150 - History of Sociological Theory
 - * SOCY 3160 - Contemporary Sociological Theory
- *Must be taken from Downtown Campus faculty**

Take **required** electives:

Choose a minimum of 15 hours and a maximum of 29 hours of electives in sociology, with an average grade of C (2.0) in all courses.

SPANISH, INTERNATIONAL LANGUAGE AND CULTURE FOR THE PROFESSIONS OPTION BA

Introduction

This option in the Spanish major offers career possibilities, both in government and private industry, at home and abroad. Languages are useful in business, industry, commerce, civil service, law, library science, media, science, economics, health and social sciences. Students who follow this course of study could also qualify as teachers of general business subjects in bilingual as well as traditional school systems. (However, students who wish to be certified to teach Spanish in the public schools should consult the department for information concerning the undergraduate language licensure program.)

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click [here](#) to go to information about declaring a major
- International Spanish for the professions is a controlled-enrollment major that takes two years to complete. Interested students should contact the Spanish advisor in the Department of Modern Languages to declare the major. This should be done as early as possible in the student's academic career, but not later than the second semester of the sophomore year.

- To be admitted to major status in Spanish, students must have an overall GPA of C+ (2.3).
- Prerequisites: *(These courses do not count toward the major total of 45 semester hours)*
 - *ECON 2012 - Principles of Economics: Macroeconomics*
 - *ECON 2022 - Principles of Economics: Microeconomics*
 - MATH 1070 - Algebra for Social Sciences and Business
 - **or**
 - MATH 1110 - College Algebra
 - **or**
 - higher level math course
 -
 - SPAN 2110 - Second Year Spanish I
 - **or**
 - SPAN 2120 - Second Year Spanish II

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Liberal Arts & Sciences Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. The minimum grade acceptable in any course applied to a Spanish major or minor is a C (2.0).
2. The GPA in all courses applied to a Spanish major or minor at CU Denver must be 2.5.
3. No courses taken on a pass/fail basis may be credited toward a Spanish major or minor.
4. The BA in Spanish requires 30 semester hours of upper-division course work in Spanish and 6 additional hours in related fields.
5. A minimum of 18 semester hours of Spanish course work for the major, and 9 hours for the minor, must be taken from Spanish faculty at CU Denver.
6. Courses taken at other institutions while a student is enrolled at CU Denver may be applied to the major only with departmental approval before enrollment in those courses.
7. Before enrolling in their final semester in the language, Spanish majors must be evaluated by the faculty in oral and written skills. Students must see their Spanish advisor for specific information.

Take **all** of the following Spanish courses:

- SPAN 3101 - Introduction to the Study of Literature
- SPAN 3700 - Spanish for International Business I
- SPAN 3710 - Spanish for International Business II
- SPAN 3782 - Introduction to Translation I **or**
- SPAN 3792 - Introduction to Translation II

Take **two** of the following language skills and theory courses:

- SPAN 3010 - Spanish Composition I
- SPAN 3020 - Spanish Composition II
- SPAN 3030 - Spanish Oral Proficiency
- SPAN 3050 - Advanced Spanish Grammar
- SPAN 3060 - Hispanic Phonetics: Theory and Practice

Take **one** of the following courses.

- SPAN 3213 - Contemporary Latin American Culture and Institutions
- SPAN 3223 - Contemporary Spanish Culture and Institutions

Take **one** of the following courses:

- SPAN 3212 - Spanish American Culture and Civilization
- SPAN 3213 - Contemporary Latin American Culture and Institutions (if not taken for the above requirement)
- SPAN 3221 - Culture and Civilization of Spain I
- SPAN 3222 - Culture and Civilization of Spain II
- SPAN 3223 - Contemporary Spanish Culture and Institutions (if not taken for the above requirement)
- SPAN 3225 - Special Topics In Hispanic Culture
- SPAN 3230 - Ibero-American Cultures through Film

Take **two** Spanish electives at the 4000-level.

Take **all** of the following Business courses:

- ACCT 2200 - Financial Accounting and Financial Statement Analysis
- MGMT 1000 - Introduction to Business
- MGMT 3000 - Managing Individuals and Teams
- MGMT 4400 - Environments of International Business
- MKTG 3000 - Principles of Marketing

SPANISH, LANGUAGE, LITERATURE AND CULTURE OPTION BA

Introduction

The Spanish program studies the language, linguistics, literature, culture and civilization of Spain, Spanish America and the Spanish-speaking areas of the United States.

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.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here](#) to go to information about declaring a major
- To be admitted to major status in Spanish, students must have an overall GPA of C+ (2.3).

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- [CU Denver General Graduation Requirements](#)
- [CU Denver Core Requirements](#)
- [College of Liberal Arts & Sciences Graduation Requirements](#)
- [Click here](#) for information about Academic Policies

Program Requirements

1. The minimum grade acceptable in any course applied to a Spanish major or minor is a C (2.0).
2. The GPA in all courses applied to a Spanish major at CU Denver must be 2.5.
3. No courses taken on a pass/fail basis may be credited toward a Spanish major or minor.
4. The BA in Spanish requires 30 semester hours of upper-division course work in Spanish and 6 additional hours in related fields.
5. A minimum of 18 semester hours of Spanish course work for the major, and 9 hours for the minor, must be taken from Spanish faculty at CU Denver.

6. Courses taken at other institutions while a student is enrolled at CU Denver may be applied to the major only with departmental approval before enrollment in those courses.
7. Before enrolling in their final semester in the language, Spanish majors must be evaluated by the faculty in oral and written skills. Students must see their Spanish advisor for specific information.
8. Students majoring in Spanish for the BA degree must complete 30 semester hours of upper-division course work, at least 12 of which must be at the 4000-level. All course work applied to the 30 semester hour minimum must be taught in Spanish.
Take the following **required** course:
 - SPAN 3101 - Introduction to the Study of Literature

Take **at least one** course on the literature of Spain.

Take **at least one** course on the literature of Spanish America.

Take the following **required** language skills and theory course:

- SPAN 3060 - Hispanic Phonetics: Theory and Practice

Take **two** of the following Culture and Civilizations of Spain or Spanish America courses:

- SPAN 3212 - Spanish American Culture and Civilization
- SPAN 3213 - Contemporary Latin American Culture and Institutions
- SPAN 3221 - Culture and Civilization of Spain I
- SPAN 3222 - Culture and Civilization of Spain II
- SPAN 3223 - Contemporary Spanish Culture and Institutions
- SPAN 3225 - Special Topics In Hispanic Culture
- SPAN 3230 - Ibero-American Cultures through Film
- SPAN 3270 - Bilingual Communities: Spanish as a Language of Contact
- SPAN 4330 - Modern Culture of Spain through Film and Narrative

Take **two** Spanish electives at the 4000-level.

Take **two** courses from the following related fields of study:

- ANTH 3121 - Language, Culture, and Communication
- ANTH 4320 - Archaeology of Mexico and Central America
- ENGL 3160 - Language Theory
- ENGL 3798 - International Perspectives in Literature and Film
- ENGL 4601 - Principles and Practices of Second Language Acquisition
- ENGL 4460 - Contemporary World Literature
- ETST 3108 - Chicano/a and Latino/a History

- ETST 3350 - Colonial Latin America
- ETST 3408 - Social Psychology of Latinos/as
- ETST 3838 - History of the Mexican American in Colorado
- ETST 4616 - Selected Topics: Chicanos/as and Latinos/as
- ETST 4768 - Chicano/Chicana Narrative and Social History
- FREN 3--- Any upper-division course in French
- FREN 4--- Any upper-division course in French
- GEOG 3130 - Central America and the Caribbean
- GEOG 3140 - Geography of South America
- GRMN 3--- Any upper-division course in German
- GRMN 4--- Any upper-division course in German
- HIST 3345 - Immigration and Ethnicity in American History
- HIST 3350 - Colonial Latin America
- HIST 3365 - Aztlan in the United States: Chicano History from 1821
- HIST 3460 - Modern Latin American History
- HIST 4411 - Modern Mexico
- HIST 4412 - Mexico and the United States: People and Politics on the Border
- HIST 4415 - Social Revolutions in Latin America
- HIST 4417 - Commodities and Globalization: Dessert in World History
- MLNG 4690 - Methods of Teaching Modern Languages
- MLNG 4691 - Methods of Teaching Modern Languages II
- PSCI 4235 - Politics and Markets in Latin America
- PSCI 4545 - Immigration Politics
- PSCI 4554 - Chicano and Latino Politics
- Upper-division courses in another language

SPORTS MANAGEMENT EMPHASIS - BS IN BUSINESS ADMINISTRATION

Introduction

The Sports Management emphasis offers students the opportunity to prepare for a competitive career in the sports industry. This program was developed with industry partners who are in need of qualified leaders in the field. Sports firms are currently hiring at the entry level and promoting from within. The Sports Management emphasis will provide you with the knowledge and skills you need to begin your career in the exciting field of sports.

The program includes faculty who are active researchers in the field, prominent guest speakers, and the opportunity to participate in exciting internships with local leaders in the industry. Some companies where students have interned include Broncos Football Club, Kroenke Sports and Entertainment, United States Olympic Committee and Anschutz Entertainment group.

Students completing the Sports Management emphasis are also eligible to participate in the London Calling study abroad program. This unique opportunity provides students with a firsthand look at the global sports management field through behind-the-scenes visits to key sports and entertainment organizations and venues in London. The two-week elective includes visits to the UK's top sports facilities, including Arsenal FC, O2 Arena, Wimbledon, 2012 Olympic committee and more.

Students enrolled in the program will learn about diverse, cross-functional areas of the sports industry, including:

Sports industry trends & growth opportunities

Sports media trends & new media

Stadium financing & development

Naming rights & sponsorships

Sports specific marketing plans

Sports pricing & fan loyalty

Negotiating contracts with athletes

Team valuations

Labor law and collective bargaining agreements

Pro team and college athletics management

Money flow in teams - managing revenue streams

Outdoor sports industry - marketing & management

Community relations and event planning

Olympics bid process and finances

Program Delivery

This is an on-campus program.

Declaring This Major

[Click here](#) to go to information about declaring a 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 Requirements
- Business School Graduation Requirements

- [Click here for information about Academic Policies](#)

Program Requirements

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

- MGMT 4230 - Sports Management
- MGMT 4832 - Law & Negotiation in the Sports and Entertainment Industry

- MKTG 3100 - Marketing Research **or**
- MKTG 4000 - Advertising

- MKTG 4250 - Sports Marketing

Take **three** of the following courses:

- ENTP 3000 - Principles of Entrepreneurship
- MGMT 4834 - Global Sports & Entertainment Management
- MKTG 4050 - Applied Marketing Management
- Any 3000 or 4000-level MGMT course

STUDIO ART EMPHASIS, FINE ARTS BA

Introduction

Please click here to see General Visual Arts information.

In this general studio art emphasis, students take directed (lower through intermediate-level) courses in photography, transmedia sculpture, painting and drawing, along with gaining a basis in art history and digital imaging.

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a major.](#)
- Consult an advisor in the College of Arts & Media at CAMadvising@ucdenver.edu for information about this emphasis.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Arts & Media Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Each course counting toward the major must be completed with a grade of C (2.0) or better.
2. All upper-division visual arts courses must be taken at CU Denver unless approved otherwise by visual arts faculty.
3. At least 21 semester hours of visual arts credits (at any level) must be taken at CU Denver.
4. At least 18 semester hours of total visual arts courses must be upper-division.

Take **all** of the following Visual Arts Foundation courses:

- FINE 1100 - Drawing I
- FINE 1400 - Two Dimensional Design
- FINE 1500 - Three-Dimensional Design
- FINE 2600 - Art History Survey I
- FINE 2610 - Art History Survey II

Take **all** of the following lower-division Studio courses:

- FINE 1150 - Introduction to Darkroom Photography
- FINE 2010 - The Graphic Novel Workshop
- FINE 2030 - Life Drawing
- FINE 2200 - Painting I
- FINE 2155 - Introduction to Digital Photography
- FINE 2500 - Bronze Casting
- FINE 2510 - Wood and Metal Sculpture

Take **all** of the following upper-division Studio courses:

- FINE 3030 - The Media of Drawing
- FINE 3161 - The Silver Fine Print
- FINE 3162 - The Digital Fine Print
- FINE 3172 - Digital Bookmaking
- FINE 3240 - Abstract Painting and Drawing

- FINE 3300 - Painting, Drawing and the Printed Image
- FINE 3500 - Installation Art
- FINE 3510 - Mold Design & Casting

Take **all** of the following additional required Visual Arts courses:

- FINE 3400 - Introduction to Web Design and Digital Imaging
- FINE 4990 - Contemporary Art: 1960 to Present

Take **three** semester hours of Pre-20th Century Art History elective. Consult a CAM advisor for approved options.

Take **six** semester hours of Visual Arts electives.

TEACHING, LEARNING & DEVELOPMENT, EARLY CHILDHOOD EDUCATION BA

Introduction

The School of Education & Human Development (SEHD) offers a number of exciting and innovative undergraduate programs that prepare professionals to work with children, families and communities. SEHD prepares highly successful teachers within an innovative, rigorous and highly supported teacher education program. CU Denver prepares teachers to have deep content knowledge and a strong sense of connection to children and families in diverse communities; and, we provide our students with teaching tools drawn from cutting-edge research in teaching and learning.

Program Delivery

- This is an on-campus program with a variety of delivery options for many of our courses including hybrid, evening, weekend, and online courses.

Declaring This Major

- Click [here](#) to go to information about declaring a major
- To declare this major, you may choose BA- Education on your application to CU Denver for new freshmen and transfers, or if you are currently a CU Denver student please contact the Undergraduate Advisor to set up an appointment to discuss the process.

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 Requirements
- School of Education and Human Development Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must complete a total of 123 semester hours for the TLED – Early Childhood Education Track
2. Students must take the Praxis II Exam during their Junior year to complete licensure requirements.
3. Application to the Senior professional year is required.
4. Students must complete and maintain a 2.75 minimum grade point average in courses counting toward Major requirements.
5. Students must complete and maintain a 3.0 minimum grade point average in Licensure coursework to complete licensure requirements. Please see an advisor for more information on this requirement.
6. Transfer courses must be approved by faculty and/or advisor to apply to the major.

Take **thirty-six** semester hours from the following Teaching, Learning & Development major courses:

***Note:** New courses are being created on an ongoing basis for this major. Please see an advisor for updates to this list.*

- CLDE 4030 - Language Development and Acquisition
- CLDE 4825 - Techniques in Teaching English as a Second Language
- ECED 2931 - ECE Field Experience I
- EDFN 1000 - Equality, Rights & Education
- EPSY 3050 - Children's Thinking and Assessment
-
- HDFR 2110 - Child Ecology **or**
- PSYC 3205 - Human Development I: Child Psychology
-
- LCRT 3710 - Primary Literacy: Pre-Third Grade
- LCRT 4720 - Writing Development and Instruction
- MATH 3040 - Mathematics for Elementary Teachers
- SPED 4300 - Collaborating In Schools and Communities
- SPED 4400 - Universal Design for Learning (UDL)
- TLED 2000 - Technology for Educators
- UEDU 4000 - Elementary Literacy Instruction and Assessment
- UEDU 4010 - Social Foundations and Cultural Diversity in Urban Education

- UEDU 4020 - Co-developing Culturally Responsive Classroom Communities

Take **forty-four** semester hours from the following Early Childhood Education licensure courses (courses marked with an asterisk are ECE Field Experiences):

***Note:** New courses are being created on an ongoing basis for this major. Please see an advisor for updates to this list.*

- ECED 2931 - ECE Field Experience I
- ECED 4000 - ECE as a Profession
- ECED 4010 - Social Studies & Creative Arts
- ECED 4020 - Science for P-2 Classrooms
- ECED 4030 - Nutrition, Health, and Safety
- ECED 4060 - Working with Families, Professionals, and Communities
- ECED 4070 - Development and Education of Infant and Toddlers
- ECED 4102 - Developmentally Appropriate Curriculum Methods and Techniques
- ECED 4200 - Assessment for Early Childhood Classrooms
- ECED 4202 - Classroom Management to Promote Prosocial Behavior
- ECED 4300 - Exceptional Learners in the Early Childhood Classroom
- ECED 4910 - Student Teaching: Infant Toddler
- ECED 4912 - Student Teaching: Preschool
- ECED 4914 - Student Teaching: Primary K-3

Take **nine** semester hours of Early Childhood Education electives. Please see an advisor from the School of Education and Human Development for a list of pre-approved courses.

TEACHING, LEARNING & DEVELOPMENT, ELEMENTARY EDUCATION BA

Introduction

The School of Education & Human Development (SEHD) offers a number of exciting and innovative undergraduate programs that prepare professionals to work with children, families and communities. SEHD prepares highly successful teachers within an innovative, rigorous and highly supported teacher education program. CU Denver prepares teachers to have deep content knowledge and a strong sense of connection to children and families in diverse communities; and, we provide our students with teaching tools drawn from cutting-edge research in teaching and learning.

Program Delivery

- This is an on-campus program with a variety of delivery options for many of our courses including hybrid, evening, weekend, and online courses.

Declaring This Major

- Click here to go to information about declaring a major
- To declare this major, you may choose BA- Education on your application to CU Denver for new freshmen and transfers, or if you are currently a CU Denver student please contact the Undergraduate Advisor to set up an appointment to discuss the process.

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 Requirements
- School of Education and Human Development Graduation Requirements
- Click here for information about Academic Policies

Program Requirements

1. Students must complete a total of 123 semester hours for the TLED – Elementary Education Track
2. Students must take the Praxis II Exam during their Junior year to complete licensure requirements.
3. Application to the Senior professional year is required.
4. Students must complete and maintain a 2.75 minimum grade point average in courses counting toward Major requirements.
5. Students must complete and maintain a 3.0 minimum grade point average in Licensure coursework to complete licensure requirements. Please see an advisor for more information on this requirement.
6. Transfer courses must be approved by faculty and/or advisor to apply to the major.

Take **thirty-six** semester hours from the following Teaching, Learning & Development major courses.

Note: New courses are being created on an ongoing basis for this major. Please see an advisor for updates to this list.

- CLDE 4030 - Language Development and Acquisition
- CLDE 4160 - Historical, Legal & Cultural Foundations For The Educator
- CLDE 4825 - Techniques in Teaching English as a Second Language
- EDFN 1000 - Equality, Rights & Education

- EPSY 3050 - Children's Thinking and Assessment
-
- HDFR 2110 - Child Ecology **or**
- PSYC 3205 - Human Development I: Child Psychology
- LCRT 3710 - Primary Literacy: Pre-Third Grade
- LCRT 4720 - Writing Development and Instruction
- MATH 3040 - Mathematics for Elementary Teachers
- SPED 4300 - Collaborating In Schools and Communities
- SPED 4400 - Universal Design for Learning (UDL)
- TLED 2000 - Technology for Educators
- UEDU 4000 - Elementary Literacy Instruction and Assessment
- UEDU 4010 - Social Foundations and Cultural Diversity in Urban Education
- UEDU 4020 - Co-developing Culturally Responsive Classroom Communities

Take **forty-four** semester hours from the following Elementary Education licensure courses (courses marked with an asterisk are ELEM Field Experiences):

Note: New courses are being created on an ongoing basis for this major. Please see an advisor for updates to this list.

- CLDE 4160 - Historical, Legal & Cultural Foundations For The Educator
- EPSY 3050 - Children's Thinking and Assessment
- TLED 2050 - Current Topics in Teaching, Learning & Development *
- SPED 4030 - Understanding Students in Urban Contexts
- UEDU 4001 - Social Studies through Childrens' Literature & Writing
- UEDU 4002 - Math Instr & Assmt
- UEDU 4003 - Teaching Elementary Mathematics
- UEDU 4004 - Elementary Science Methods
- UEDU 4040 - Exploring Diversity in Content and Pedagogy I
- UEDU 4050 - Exploring Diversity in Content and Pedagogy II
- UEDU 4930 - Early Internship & Seminar *
- UEDU 4931 - Internship & Lrng Comm I *
- UEDU 4932 - Internship & Lrng Comm II *
- UEDU 4933 - Internship & Lrng Comm III *

Take **nine** semester hours of Elementary Education electives. Please see an advisor from the School of Education and Human Development for a list of pre-approved courses.

TEACHING, LEARNING & DEVELOPMENT, HUMAN DEVELOPMENT AND FAMILY RELATIONS BA

Introduction

The School of Education & Human Development (SEHD) offers a number of exciting and innovative undergraduate programs that prepare professionals to work with children, families and communities. SEHD prepares highly successful teachers within an innovative, rigorous and highly supported teacher education program. CU Denver prepares teachers to have deep content knowledge and a strong sense of connection to children and families in diverse communities; and, we provide our students with teaching tools drawn from cutting-edge research in teaching and learning.

Program Delivery

- This is an on-campus program with a variety of delivery options for many of our courses including hybrid, evening, weekend, and online courses.

Declaring This Major

- Click here to go to information about declaring a major
- To declare this major, you may choose BA- Education on your application to CU Denver for new freshmen and transfers, or if you are currently a CU Denver student please contact the Undergraduate Advisor to set up an appointment to discuss the process.

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 Requirements
- School of Education and Human Development Graduation Requirements
- Click here for information about Academic Policies

Program Requirements

1. Students must complete a total of 126 semester hours for the TLED – Human Development and Family Relations Track
2. Students must maintain a 2.0 minimum grade point average in courses counting toward Major requirements.
3. Transfer courses must be approved by faculty and/or advisor to apply to the major.

Take all of the following TLED Human Development and Family Relations major courses:

Note: New courses are being created on an ongoing basis for this major. Please see an advisor for updates to this list.

- CLDE 4030 - Language Development and Acquisition
- EDFN 1000 - Equality, Rights & Education
- HDFR 1010 - Life Span Development in Ecological Settings

- HDFR 2000 - Introduction to Family and Community Services
- HDFR 2200 - Love, Family and Human Development
- HDFR 4000 - Human Sexuality
- UEDU 4010 - Social Foundations and Cultural Diversity in Urban Education

Take **one** of the following Human Development and Family Relations courses:

Note: New courses are being created on an ongoing basis for this major. Please see an advisor for updates to this list.

- EPSY 3050 - Children's Thinking and Assessment
- HDFR 1000 - Global Human Development & Learning
- HDFR 2100 - Families in Global Perspectives
- HDFR 2110 - Child Ecology
- HDFR 3100 - Adolescent Ecology
- HDFR 4200 - Adult Ecology

Take **thirty** semester hours from at least one of the following Human Development and Family Relations concentration areas:

- Bilingual (Spanish) Family and Community Services
- Ecology of Human Development and Learning
- Educational Foundations and Social Justice
- Leadership and Community Based Organizations
- Pre-Higher Education and Student Affairs
- Pre-Individual, Couple and Family Counseling

Take **three** semester hours of Human Development and Family Relations electives. Please see an advisor from the School of Education and Human Development for a list of pre-approved courses.

TEACHING, LEARNING & DEVELOPMENT, SPECIAL EDUCATION BA

Introduction

The School of Education & Human Development (SEHD) offers a number of exciting and innovative undergraduate programs that prepare professionals to work with children, families and communities. SEHD prepares highly successful teachers within an innovative, rigorous and highly supported teacher education program. CU Denver prepares teachers to have deep content knowledge and a strong sense of connection to children and families in diverse communities;

and, we provide our students with teaching tools drawn from cutting-edge research in teaching and learning.

Program Delivery

- This is an on-campus program with a variety of delivery options for many of our courses including hybrid, evening, weekend, and online courses.

Declaring This Major

- Click here to go to information about declaring a major
- To declare this major, you may choose BA- Education on your application to CU Denver for new freshmen and transfers, or if you are currently a CU Denver student please contact the Undergraduate Advisor to set up an appointment to discuss the process.

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 Undergraduate Core Requirements
- School of Education and Human Development Graduation Requirements
- Click here for information about Academic Policies

Program Requirements

1. Students must complete a total of 123 semester hours for the TLED – Special Education Track
2. Students must take the Praxis II Exam during their Junior year to complete licensure requirements.
3. Application to the Senior professional year is required.
4. Students must complete and maintain a 2.75 minimum grade point average in courses counting toward Major requirements.
5. Students must complete and maintain a 3.0 minimum grade point average in Licensure coursework to complete licensure requirements. Please see an advisor for more information on this requirement.
6. Transfer courses must be approved by faculty and/or advisor to apply to the major.

Take **thirty-six** semester hours from the following Teaching, Learning & Development major courses:

Note: New courses are being created on an ongoing basis for this major. Please see an advisor for updates to this list.

- CLDE 4030 - Language Development and Acquisition
- CLDE 4160 - Historical, Legal & Cultural Foundations For The Educator
- CLDE 4825 - Techniques in Teaching English as a Second Language
- EDFN 1000 - Equality, Rights & Education
- EPSY 3050 - Children's Thinking and Assessment
-
- HDFR 2110 - Child Ecology **or**
- PSYC 3205 - Human Development I: Child Psychology

- LCRT 3710 - Primary Literacy: Pre-Third Grade
- LCRT 4720 - Writing Development and Instruction
- MATH 3040 - Mathematics for Elementary Teachers
- SPED 4300 - Collaborating In Schools and Communities
- SPED 4400 - Universal Design for Learning (UDL)
- TLED 2000 - Technology for Educators
- TLED 2050 - Current Topics in Teaching, Learning & Development
- UEDU 4000 - Elementary Literacy Instruction and Assessment
- UEDU 4010 - Social Foundations and Cultural Diversity in Urban Education
- UEDU 4020 - Co-developing Culturally Responsive Classroom Communities

Take **forty-four** semester hours from the following Special Education licensure courses (courses marked with an asterick are SPED Field Experiences):

Note: New courses are being created on an ongoing basis for this major. Please see an advisor for updates to this list.

- CLDE 4160 - Historical, Legal & Cultural Foundations For The Educator
- TLED 2050 - Current Topics in Teaching, Learning & Development
- EPSY 3050 - Children's Thinking and Assessment
- SPED 4030 - Understanding Students in Urban Contexts
- UEDU 4001 - Social Studies through Childrens' Literature & Writing
- UEDU 4002 - Math Instr & Assmt
- UEDU 4003 - Teaching Elementary Mathematics
- UEDU 4004 - Elementary Science Methods
- UEDU 4040 - Exploring Diversity in Content and Pedagogy I
- UEDU 4050 - Exploring Diversity in Content and Pedagogy II
- UEDU 4930 - Early Internship & Seminar *
- UEDU 4931 - Internship & Lrng Comm I *
- UEDU 4932 - Internship & Lrng Comm II *

- UEDU 4933 - Internship & Lrng Comm III *

Take nine semester hours of Special Education electives. Please see an advisor from the School of Education and Human Development for a list of pre-approved courses.

TRANSMEDIA SCULPTURE EMPHASIS, FINE ARTS BFA

Introduction

Please click here to see General Visual Arts information.

The transmedia sculpture emphasis encompasses 21st Century digital practice with 5000 year old metal casting process. Students learn how to use a full range of equipment and methods in art making – from working with metals, wood, casting and mold making to performance, live media and interactive digital work.

Graduating students will develop a portfolio of work appropriate for exhibition, admission to graduate schools, residencies and post graduate art programs, as well as fabrication experience that will enable them to work in art fabrication and design.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here to go to information about declaring a major.
- Consult an advisor in the College of Arts & Media at CAMadvising@ucdenver.edu for information about the emphasis.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- CU Denver Core Requirements
- College of Arts & Media Graduation Requirements
- Click here for information about Academic Policies

Program Requirements

1. Each course counting toward the major must be completed with a grade of C (2.0) or better.
2. All upper-division visual arts courses must be taken at CU Denver unless approved otherwise by visual arts faculty.
3. At least 27 semester hours of visual arts credits (at any level) must be taken at CU Denver.
4. At least 24 semester hours of total visual arts courses must be upper-division.
Take **all** of the following Visual Arts Foundation courses:
 - FINE 1100 - Drawing I
 - FINE 1400 - Two Dimensional Design
 - FINE 1500 - Three-Dimensional Design
 - FINE 2155 - Introduction to Digital Photography
 - FINE 2600 - Art History Survey I
 - FINE 2610 - Art History Survey II

Take **one** of the following Transmedia Sculpture Emphasis courses (entry-level):

- FINE 2405 - Introduction to Digital Design
- FINE 2500 - Bronze Casting

Take the following Transmedia Sculpture Emphasis course (entry-level):

- FINE 2510 - Wood and Metal Sculpture

Take **all** of the following Transmedia Sculpture Emphasis courses (completion of all above courses highly recommended before continuing emphasis):

- FINE 3500 - Installation Art
- FINE 3505 - Environmental Art
- FINE 3510 - Mold Design & Casting
- FINE 3525 - Modeling for Manufacture
- FINE 3530 - Electronic Art
- FINE 3550 - Iron Casting
- FINE 4500 - Electronic Performance
- FINE 4505 - Sculptural Rendering
- FINE 4510 - Advanced Sculpture

Take **all** of the following additional Visual Arts courses:

- FINE 3405 - Introduction to Digital Video
- FINE 4990 - Contemporary Art: 1960 to Present

Take **three** semester hours of Pre-20th Century Art History elective. Consult a CAM advisor for approved options.

Take **three** semester hours of upper-division Art History elective.

Take **nine** semester hours of Studio Arts electives.

Take **six** semester hours of Visual Arts electives. These may include studio, lecture, internship or art history courses.

Take the following Capstone course:

- FINE 4950 - Studio BFA Thesis

Undergraduate Minors

ANTHROPOLOGY MINOR

Introduction

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.

Program Delivery

This is an on-campus program.

Declaring This Minor

Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. A minimum of 18 semester hours in anthropology must be completed with an average of C (2.0) or better.
2. Nine of the 18 hours must be upper division.
3. Nine hours must be taken from CU Denver faculty. **Note: All upper division core courses must be taken from CU Denver faculty in order to count for specific requirements. Upper division courses from other schools will only count as electives:**

Take at least **three** of the following courses:

- ANTH 1302 - Introduction to Archaeology
- ANTH 1303 - Introduction to Biological Anthropology
- ANTH 2102 - Culture and the Human Experience
- ANTH 3101 - Foundations of Cultural Anthropology
- ANTH 3301 - World Prehistory
- ANTH 3512 - Human Evolution

Take **7-9 semester hours** of Anthropology electives.

ART HISTORY MINOR

Introduction

Please click [here](#) to see General Visual Arts information.

The art history minor familiarizes students with the principal traditions of art history and includes a selection of lecture courses in advanced studies. This program provides a strong introduction to historical developments while developing analytical skills in research, writing, and visual culture.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- To declare a CAM minor, please see the College of Arts & Media's Office of Advising and Student Services in Arts Building, 177. Consult an advisor in the College of Arts & Media at CAMadvising@ucdenver.edu for more information.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students may transfer up to 6 semester hours of non-CU Denver courses toward a College of Arts & Media minor. All other courses must be taken at CU Denver.
2. Each course must be completed with a grade of C (2.0) or better.
3. Students may use up to 6 semester hours to fulfill both major and minor requirements; the remaining semester hours for the minor must be taken in addition to the major requirements.

Take **both** of the following Art History Minor courses:

- FINE 2600 - Art History Survey I
- FINE 2610 - Art History Survey II

Take **three** semester hours of Studio Arts elective.

Take **nine** semester hours of upper-division Art History electives.

ASTROPHYSICS MINOR

Introduction

Astrophysics is an important and well-represented subdiscipline of physics. It includes the study of the solar system, galactic and extra-galactic astrophysics, as well as cosmology. A minor in this field combines a theoretical approach with observational analysis. There is also opportunity to do research in this field.

While the Department of Physics offers minors in both physics and astrophysics, it is not possible to receive minors in both fields. A physics minor is not an option for physics majors.

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. The astrophysics minor requires a total of 17 semester hours, in which no grade below a C (2.0) may be used to meet the requirements for the minor.
2. At least 6 semester hours taken for the minor must be completed at the Denver Campus.
3. Requirements for the minor in astrophysics may be used to fulfill the requirements of the major in physics.
4. However, a student majoring in physics who wants to minor in astrophysics needs to take 15 semester hours in astrophysics that do not overlap with the major.

Take the following **required** course:

- PHYS 1052 - General Astronomy I

Take **either** of the following sequences:

- PHYS 2010 - College Physics I
 - PHYS 2020 - College Physics II
 - PHYS 2030 - College Physics Lab I
 - PHYS 2040 - College Physics Lab II
- or**
- PHYS 2311 - General Physics I: Calculus-Based
 - PHYS 2321 - General Physics Laboratory I
 - PHYS 2331 - General Physics II: Calculus-Based
 - PHYS 2341 - General Physics Laboratory II

Take **one** of the following courses:

- PHYS 3040 - Modern Cosmology

- PHYS 3050 - General Astronomy II
- PHYS 3082 - Energy and the Environment
- PHYS 3411 - Thermal Physics
- * PHYS 3840 - Independent Study: PHYS
- PHYS 3939 - Internship
- PHYS 4510 - Optics
- PHYS 4550 - Astrophysics
- * PHYS 4840 - Independent Study: PHYS
- * PHYS 4920 - Advanced Undergraduate Seminar
- * PHYS 4931 - Internship in Applied Physics
- * PHYS 4980 - Advanced Physics Topics

*Topics in these classes vary, as do the number of credits which can be earned. See departmental advisor for approval.

BIOLOGY MINOR

Introduction

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must complete all biology core requirements (20-23 hours), of which a minimum of 9 hours must be completed in residence at CU Denver.
2. All biology courses applied to the undergraduate biology minor must be completed within 10 years of graduation.
3. A GPA of 2.0 must be attained in BIOL coursework.
4. Biology and ancillary courses must be completed with a letter grade of C- (1.7) or higher.

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

- BIOL 2051 - General Biology I **or**
- BIOL 2095 - Honors General Biology I

- BIOL 2071 - General Biology Laboratory I **or**
- BIOL 2096 - Honors General Biology Lab I

- BIOL 2061 - General Biology II **or**
- BIOL 2097 - Honors General Biology II

- BIOL 2081 - General Biology Laboratory II **or**
- BIOL 2098 - Honors General Biology Lab II

- BIOL 3411 - Principles of Ecology
- BIOL 3611 - General Cell Biology
- BIOL 3832 - General Genetics

- CHEM 2031 - General Chemistry I **or**
- CHEM 2081 - Honors General Chemistry I

- CHEM 2038 - General Chemistry Laboratory I **or**
- CHEM 2088 - Honors General Chemistry I Laboratory

- CHEM 2061 - General Chemistry II **or**
- CHEM 2091 - Honors General Chemistry II

- CHEM 2068 - General Chemistry Laboratory II **or**
- CHEM 2098 - Honors General Chemistry II Laboratory

Take **one** of the following courses:

- BIOL 3225 - Human Physiology
- BIOL 3244 - Human Anatomy
- BIOL 3413 - Ecology Laboratory

- BIOL 3612 - Cell Biology Laboratory
- BIOL 3654 - General Microbiology
- BIOL 4125 - Molecular Biology Laboratory
- BIOL 4335 - Plant Science
- BIOL 4345 - Flora of Colorado
- BIOL 4640 - Mammalogy
- BIOL 4644 - Advanced Human Anatomy Laboratory
- BIOL 4910 - Field Studies

BUSINESS ADMINISTRATION MINOR

Introduction

Business minors can give you an edge in your career.

By adding a business minor to a liberal arts, arts and media, architecture, or engineering degree you will gain an edge in the job market. The business minor allows you to focus on a specific area of business that fits your career goals.

The Business School offers all undergraduate students at CU Denver the opportunity to add a minor in business administration.

Program Delivery

This is an on-campus program.

Declaring This Minor

As a CU Denver Undergraduate student, you need a 2.0 GPA to be accepted for a business minor.

Prerequisites:

- ISMG 2050 - Introduction to Business Problem Solving
- ECON 2022 - Principles of Economics: Microeconomics

- MATH 1070 - Algebra for Social Sciences and Business **or**
- MATH 1110 - College Algebra **and** MATH 1080 - Polynomial Calculus

- BANA 2010 - Business Statistics **or** a statistics class approved by the Business School

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Up to 6 hours of the 18 required business courses may be taken at another institution. Twelve of these 18 hours must be taken while in residence at the Denver campus. Transfer credit will be granted on the same basis that transfer credit is granted for courses taken by business majors.
2. If the student has already taken the equivalent of one or more of these courses, other higher-level business courses may be substituted with Business School approval.

Take **all** of the following courses:

- ACCT 2200 - Financial Accounting and Financial Statement Analysis
- BLAW 3000 - Legal and Ethical Environments of Business I
- FNCE 3000 - Principles of Finance
- MKTG 3000 - Principles of Marketing
- MGMT 1000 - Introduction to Business
- MGMT 3000 - Managing Individuals and Teams

CHEMISTRY MINOR

Introduction

The objective of the chemistry minor is to provide broad introductory course work and laboratory experience to science majors without the more technical mathematical and chemical prerequisites required of the chemistry major. The chemistry minor is open to all CLAS students and should prove beneficial for science majors, pre-professional health science majors and students seeking science education certification.

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- To register your minor in chemistry, please visit the CLAS advising office in NC 4002. After establishing your minor status, you are encouraged to meet with the chemistry minor advisor, Dr. Pricilla Burrow.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. A minimum of 20 semester hours of chemistry courses, including at least 10 at the upper division level.
2. Upper-division course work must include three of the six subdisciplines that comprise chemistry: analytical, biochemistry, inorganic, organic, physical and environmental chemistry.
3. A minimum 2.0 GPA for chemistry courses taken at CU Denver.
4. All chemistry minor courses must be taken for a letter grade rather than with the pass/fail grading option.
5. No grade below C- (1.7) may be applied towards a minor in chemistry.
6. To satisfy the department residency requirement, a minimum of 7 upper-division hours of chemistry must be taken at the Denver campus.

Take courses from **three** of the following six subdisciplines. Choose from the following suggested courses, or other electives approved by your Chemistry Minor advisor:

Analytical

- CHEM 3111 - Analytical Chemistry
- CHEM 3118 - Analytical Chemistry Laboratory

Biochemistry

- CHEM 3810 - Biochemistry

Organic

- CHEM 3411 - Organic Chemistry I **or**
- CHEM 3481 - Honors Organic Chemistry I

- CHEM 3418 - Organic Chemistry Laboratory I **or**
- CHEM 3488 - Honors Organic Chemistry Laboratory I

- CHEM 3421 - Organic Chemistry II **or**
- CHEM 3491 - Honors Organic Chemistry II

- CHEM 3428 - Organic Chemistry Laboratory II **or**
- CHEM 3498 - Honors Organic Chemistry Laboratory II

Inorganic

- CHEM 3011 - Inorganic Chemistry

Physical

- Course selections to be announced

Environmental

- CHEM 4700 - Environmental Chemistry

CHINESE STUDIES MINOR

Introduction

This innovative program offers specialized study of China through course work in the related disciplines of language, anthropology, history, geography, literature, political science and business. China's economic and political presence is increasingly prominent in the United States. According to a recent national survey, Chinese is the fastest-growing foreign language in American colleges and universities. CU Denver is uniquely positioned to make use of its location as the cultural, economic and political center of the Rocky Mountain region and of its diverse, well-trained and highly qualified faculty to offer a course of interdisciplinary studies related to China.

The increasing prominence of China in world affairs has made knowledge of Chinese language and cultures a valuable asset in numerous fields. Today, career opportunities abound for Chinese studies graduates in government, international business, banking and financial services, law, medicine, journalism and graduate study in sinology. The breadth of the program's course offerings, coupled with the resources of the faculty, ensures that its graduates will be especially well prepared for any of these professional pursuits.

The program in Chinese studies offers a host of study abroad opportunities throughout the academic year and every summer. CU Denver has on-going programs at the China Agricultural University in Beijing. Study abroad programs of two weeks to one year in length may be

arranged, and program faculty can help students enroll in intensive Chinese language programs. Students pursuing the minor in Chinese language and area studies are encouraged to complete the program with a period of residence and study in a Chinese-speaking region.

Program Director: Dr. Kuan-Yi Rose Chang

Advisor: Dr. Kuan-Yi Rose Chang, CLAS, Campus Box 144, NC 5014

Tel: 303-556-2434

Fax: 303-556-4861

Email: kuan-yi.chang@ucdenver.edu

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. The minor requires a total of 21 semester hours.
2. A minimum of 15 semester hours must be taken from Denver campus faculty.
3. All courses must be completed with a grade of C (2.0) or better.
Take the **following** required course:
 - * CHIN 1000 - China and the Chinese*CHIN 1000 should be taken toward the beginning of the minor.

Take **at least one** of the following language courses:

- CHIN 1010 - Beginning Chinese I
- CHIN 1020 - Beginning Chinese II
- CHIN 2110 - Second Year Chinese I
- CHIN 2120 - Second Year Chinese II

Take an additional **thirteen to fifteen** hours from the following courses, or any course approved in advance by the Chinese Studies Program Director. Students are encouraged to contact the program advisor to devise a study plan:

- ANTH 4000 - Special Topics in Anthropology
- CHIN 3200 - Contemporary Chinese Society and Culture
- FINE 4750 - Arts of China
- GEOG 3160 - Geography of China
- HIST 3470 - Intro to East Asia: Since 1800
- HIST 4420 - Traditional China: China to 1600
- HIST 4421 - Modern China
- HIST 4422 - Lvng thr Mao's China: Life, Mat. Cult, Movies, 1949-76
- PSCI 4186 - East Asia in World Affairs
- PSCI 4615 - Politics and Government of China
- PSCI 4726 - Russian and Chinese Foreign Policy
- PHIL 3666 - Asian Philosophies and Religions
- PHIL 3981 - Chinese Philosophy and Culture

China-related travel study, taken under the following course numbers:

- ANTH 4995 - Travel Study
- CHIN 3995 - Travel Study
- COMM 4995 - Travel Study
- PSCI 4995 - Travel Study

COMMUNICATION MINOR

Introduction

The minor in communication is designed to provide students who are not communication majors with knowledge and skills in communication that are useful in any discipline or profession.

Knowledge in any area of study, whether in business, politics, biology or sociology, means little unless it can be communicated effectively. The minor in communication is designed to provide students who are not communication majors with knowledge and skills in communication that are useful in any discipline or profession.

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.

Program Delivery

This is an on-campus program.

Declaring This Minor

Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

Take **all** of the following Communication courses:

- COMM 1011 - Fundamentals of Communication
- COMM 1021 - Introduction To Media Studies
- COMM 2020 - Communication, Citizenship, and Social Justice

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

- COMM 1001 - Presentational Speaking
- COMM 2050 - Business and Professional Speaking

Note: In addition to the four courses specified above, students must take two upper-division courses (3000 level or above) to be selected with the aid of the undergraduate advisor in communication.

COMPUTER SCIENCE MINOR

Introduction

The Department of Computer Science and Engineering offers a minor in computer science. The requirements for the minor are listed below.

Program Delivery

This is an on-campus program.

Declaring This Minor

The student must file a minor declaration form with the Engineering Student Services office in North Classroom, 2605. For more information or an advising appointment, contact the Department of Computer Science and Engineering in the Lawrence Street Center, 8th floor, or by phone at 303-315-1411.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Any undergraduate student currently enrolled in a CU Denver degree program with a major other than computer science and engineering may earn a minor in computer science. This includes students from the College of Engineering and Applied Science, the College of Liberal Arts and Sciences, the Business School, the College of Arts & Media and the School of Public Affairs.
2. A student must fulfill all prerequisites for the courses he/she selects. See the catalog course descriptions for prerequisite information for each course.
3. All computer science courses 3000-level and above must be taken at the Denver campus.
4. At the time of graduation, the student must have a CU Denver cumulative GPA of 2.0 and must have a 2.0 GPA for the eight classes taken for the minor.
5. All courses taken for the minor must be completed with a grade of C- or better.

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

- MATH 1401 - Calculus I

- MATH 2411 - Calculus II
- CSCI 1410 - Fundamentals of Computing
- CSCI 1411 - Fundamentals of Computing Laboratory
- CSCI 2312 - Intermediate Programming
- CSCI 2421 - Data Structures and Program Design
- CSCI 2511 - Discrete Structures

Take **three** additional computer science courses at the 3000-level or higher with the approval of an undergraduate advisor

CREATIVE WRITING MINOR

Introduction

The creative writing minor gives students the opportunity to complement their area of major study with experience writing and reading poetry or fiction.

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must complete a total of 15 hours.
2. Only courses completed with a grade of C (2.0) or better may be counted toward the minor.
3. Students must take ENGL 1020 before beginning the minor.
4. Courses in a minor cannot be counted toward the English major or English Writing major.

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

- ENGL 2154 - Introduction to Creative Writing
- ENGL 2450 - Introduction to Literature

Take **one** of the following courses:

- ENGL 3020 - Poetry Workshop
- ENGL 3050 - Fiction Workshop

Take **one** of the following courses:

- ENGL 4025 - Advanced Poetry Workshop
- ENGL 4055 - Advanced Fiction Workshop
- ENGL 3___ Writing Workshop (3000-level not previously taken)

Students who have taken ENGL 3020, take **one** of the following Poetry courses:

- ENGL 4160 - Poetics
- ENGL 4166 - History of American Poetry
- ENGL 4320 - History of Poetry in English
- ENGL 4800 - Special Topics in Creative Writing (poetry emphasis)

Students who have taken ENGL 3050, take **one** of the following Fiction courses:

- ENGL 4200 - History of the English Novel I
- ENGL 4210 - History of the English Novel II
- ENGL 4230 - The American Novel
- ENGL 4236 - The American Short Story
- ENGL 4800 - Special Topics in Creative Writing (fiction emphasis)

CRIMINAL JUSTICE MINOR

Introduction

A minor in criminal justice will provide students with foundational knowledge of criminology and criminal justice. Students majoring in sociology, psychology, political science, and related fields are likely to interact with the criminal justice system in their careers and would benefit from the addition of the CJ minor to their degree plan.

Program Delivery

- This is an on-campus and online program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. A minor in Criminal Justice requires 18 semester hours of course work.
2. A maximum of 9 transfer credits may be applied to the minor.
3. Electives must be taken from outside the student's major.

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

- CRJU 1000 - Criminal Justice: An Overview
- CRJU 2041 - Crime Theory and Causes

Take **one** of the following courses:

- CRJU 4042 - Corrections
- CRJU 4043 - Law Enforcement
- CRJU 4044 - Courts and Judicial Process

Take **three** additional upper-division elective courses in Criminal Justice or ancillary fields.

DEMOGRAPHY MINOR

Introduction

Demography is the scientific study of human populations. It is an interdisciplinary field that examines the causes and consequences of health and mortality, population aging, migration, fertility, maternal and child health, interactions between human populations and the environment and population growth and decline.

Students working toward a minor in demography within the Department of Health and Behavioral Sciences (HBS) will acquire focused training in theories and methods of demography. The minor will help students develop important skills in critical thinking and quantitative reasoning, and will prepare them for graduate-level training in demography or related fields and for jobs requiring an understanding of population dynamics. Demographers are frequently employed in occupations including academia, risk assessment, marketing, consulting, non-profits and various local, state and federal government agencies.

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. All students must complete a minimum of 18 credits drawn from the approved course list (see below).
2. Although students may count courses taken for other majors or minors toward the requirements for the demography minor, they must still take at least 18 credits that count exclusively toward the demography minor.
3. All undergraduate CU Denver students are eligible to take this minor.
4. Students must achieve a C (2.0) or above in all the courses for them to be counted toward the minor.
5. A minimum of 15 credit hours, at least 12 of which must be upper division courses, must be taken in residence at CU Denver.

Note: Students should check for prerequisites when enrolling in courses.

- SOCY 4220 - Population Change and Analysis

Quantitative Methods - take at least **one** of the following; additional courses may not be counted toward the minor:

- MATH 2830 - Introductory Statistics
- PBHL 3001 - Introduction to Epidemiology

Strong Demographic Themes - take at least **one** of the following; more may be counted toward the minor:

- ANTH 4260 - Human Reproductive Ecology
- PBHL 3071 - Global Topics In Sexual and Reproductive Health
- PBHL 4020 - Global Health: Comparative Public Health Systems
- PBHL 4040 - Social Determinants of Health
- SOCY 3520 - Topics in Sociology (when offered as Medical Sociology topic)
- SOCY 4440 - Social Inequality
- ECON 3100 - Economics of Race and Gender
- ECON 3400 - Economics of Sex and Drugs
- GEOG 1602 - Introduction to Urban Studies
- GEOG 3300 - Population and Resources in the World Environment
- GEOG 3501 - Geography of Health
- PBHL 3002 - Ethnicity, Health and Social Justice
- PBHL 3031 - Health, Human Biology and Behavior
-
- PBHL 3200 - Human Migration: Nomads, Sojourners, and Settlers **or**

- ANTH 3200 - Human Migration: Nomads, Sojourners, and Settlers
- PBHL 4200 - The Global HIV/AIDS Epidemic **or**
- HBSC 5200 - The Global HIV/AIDS Epidemic
- PSCI 4545 - Immigration Politics
- SOCY 3700 - Sociology of the Family
- SOCY 4772 - Advanced Topics in Sociology (when offered as Crime and Inequality over the Life course topic)

DIGITAL DESIGN MINOR

Introduction

Please click here to see General Visual Arts information.

Digital design integrates aesthetic, creative and critical thought with expertise in advanced electronic media. Configured as an interdisciplinary arts and design laboratory, digital design offers a hands-on education combining new art technologies and design concepts in a concentrated theoretical framework that promotes an understanding of the cultural impact and uses of digital technologies. Through this interdisciplinary approach combining arts and communication, digital design strives to produce artists and designers who will use technology in innovative ways in both commercial and artistic spheres.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Students who are applying for entrance into the digital design minor are required to submit a designed portfolio and transcript(s) from CU Denver and all previous post-secondary educational institutions. For specific application details, see <http://designucd.com/index.php/portfolio/>. The digital design course sequence starts in fall semester. Students who meet the following requirements can apply. Upon acceptance students can register for upper-division digital design courses.

ELIGIBILITY

The student has completed, or is in the process of completing, the following foundation studio courses with a grade of C (2.0) or better in each:

- FINE 2405 - Introduction to Digital Design (offered Fall-only at CU Denver)

- FINE 2415 - Typography Studio (offered Fall-only at CU Denver)

APPLICATION PORTFOLIO REQUIREMENTS

To properly prepare your application, refer to <http://designucd.com/index.php/portfolio/> for detailed instructions. Applications are due by 5 p.m. on December 1 or on the following business day if the deadline falls on a weekend or holiday.

Applications are only accepted online via the portfolio service SlideRoom and must be formatted to the specifications listed on <http://designucd.com/index.php/portfolio/>. The portfolio samples should consist of images (JPGs) and embedded video. Written work should be integrated into the submission. It is VERY important for students to visit the submission page early and begin uploads two weeks before the due date. Late submissions due to technical difficulties on the part of the applicant will NOT be accepted.

Portfolio of Images

The portfolio must include 13-17 electronic examples of the student's creative work, consisting of a Design Project (including a writing sample) and works from FINE 2405 Introduction to Digital Design and FINE 2415 Typography. Two to five additional creative works may also be included within the maximum of 17 works altogether.

Course Transcripts

These may be official or unofficial transcripts from CU Denver and previous post-secondary institutions.

EVALUATION PROCESS

- A committee of design faculty members reviews the portfolio and grades. For acceptance, the committee looks for an understanding of 2D design, writing and presentation skills.
- If not admitted into the digital design minor, a student has the choice of attempting the review process again the following year or applying to another minor. Students not admitted into the digital design minor are encouraged to schedule a meeting with a digital design faculty member to learn of ways to improve portfolios for future submissions.

Broad criteria for the portfolio evaluation are as follows:

- **Process Research and Analysis** – Does the portfolio demonstrate an ability to compile relevant information by identifying resources necessary to formulate a deeper understanding of context(s)?
- **Design Principles** – Does the portfolio demonstrate awareness of design principles through various means of technical production and successful color experimentation?

- **Visual Literacy** - Does the portfolio reflect sensitivity to design concepts and visual logic, and does it demonstrate fundamental understanding of composition? Does the work communicate effectively?
- **Use of Imagery** – Does the portfolio demonstrate a student's potential ability to create and develop visual form in response to communication problems?
- **Expressive Typography** – Does the portfolio demonstrate a burgeoning awareness of the importance of risk-taking while solving typographic design problems?
- **Generating and Selecting Ideas** – Does the portfolio demonstrate the student's ability to generate multiple solutions to artistic problems and utilize process to select the most effective solutions?
- **Technical Skill** - Does the portfolio reflect a strong knowledge of tools and materials and an aptitude for digital design skills?
- **Conceptual Skills** - Do the portfolio and writing sample demonstrate analytical thinking as it applies to visual art and design? Is there a developing conceptual exploration of the digital medium?
- **Writing Sample** - Does the writing demonstrate the student's critical thinking skills regarding the work and ability to address an assignment in a notable way?
- **Presentation** - Is the portfolio well-crafted and well organized in content and presentation? Are all of the required components included?
- **Academic Performance** - Do the student's grades reflect a commitment to learning and growth?

QUESTIONS

Please contact CAMadvising@ucdenver.edu for minor and portfolio information, or contact digital design area head Brian DeLevie at brian.delevie@ucdenver.edu.

Those applying to the minor (and not the digital design emphasis) are not required to complete the following course or its college-level equivalents:

- FINE 1400 - Two Dimensional Design

However, students must show equivalent studio work in their application portfolios.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. All courses for this minor must be taken at CU Denver unless approved otherwise by the digital design faculty advisor.
2. Each course must be completed with a grade of C (2.0) or better.
3. Students may use up to 6 semester hours to fulfill both major and minor requirements; the remaining semester hours for the minor must be taken in addition to major requirements.

Take **all** of the following Digital Design Minor courses (entry level):

- FINE 2405 - Introduction to Digital Design
- FINE 2415 - Typography Studio
- FINE 4600 - History of Modern Design:Industrial Revolution-Present

Take **all** of the following Digital Design Minor courses (available only to students accepted to minor via portfolio review):

- FINE 3414 - Motion Design I
- FINE 3415 - Design Studio I
- FINE 3424 - Interactive Media
- FINE 3434 - 3D Motion Design

ECONOMICS MINOR

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students minoring in economics must complete a minimum of 15 semester hours in economics.
2. At least three upper-division courses must be completed at CU Denver only the equivalent of ECON 2012 and ECON 2022 can be transferred in from other institutions and no grade below C- will count toward fulfillment of the minor requirements.
3. At least two upper-division courses must not overlap with courses required in the student's major program.

Take the following **required** courses:

- ECON 2012 - Principles of Economics: Macroeconomics
 - ECON 2022 - Principles of Economics: Microeconomics
- and**
- Three upper-division electives in economics: **9 semester hours** (ECON 3100 - Economics of Race and Gender is acceptable)

ENVIRONMENTAL SCIENCES MINOR

Introduction

The environmental sciences minor offers students exposure to the breadth of environmental issues. Students may emphasize the natural/physical sciences, the social sciences and humanities or structure their own mixed emphasis.

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. All work submitted for an environmental sciences minor must have a grade of *C* (2.0) or above.
2. The lecture/laboratory sequence can be part of the requirements for the major, but not in the student's major department (i.e., a biology major cannot use the general biology sequence, but could use the general chemistry sequence, which is also required for the biology major).
3. Students must take a minimum of 9 hours of the upper-division courses at the Downtown Campus.
4. If the student plans to go on to the MS in Environmental Sciences program, he/she should choose courses other than CHEM 4700. This is a core course in the MS in Environmental Sciences program.
5. Many of the upper-division courses have prerequisites; the student must check the catalog for prerequisite requirements for these courses.
6. The four upper-division elective courses for the Environmental Sciences minor cannot be from the student's major discipline, even if the particular course is not counted toward the major.

Take **two** of the following lecture/laboratory courses (see Minor Requirements, note 2, above):

- BIOL 2051 - General Biology I **and**
- BIOL 2071 - General Biology Laboratory I

- BIOL 2061 - General Biology II **and**
- BIOL 2081 - General Biology Laboratory II

- CHEM 2031 - General Chemistry I **and**
- CHEM 2038 - General Chemistry Laboratory I

- CHEM 2061 - General Chemistry II **and**
- CHEM 2068 - General Chemistry Laboratory II

- ENVS 1042 - Introduction to Environmental Sciences
- GEOL 1072 - Physical Geology: Surface Processes
- GEOL 1082 - Physical Geology: Internal Processes

- PHYS 2010 - College Physics I **and**
- PHYS 2030 - College Physics Lab I

- PHYS 2020 - College Physics II **and**
- PHYS 2040 - College Physics Lab II

Take **three** of the following courses outside of the student's major discipline (see Minor Requirements, notes 5 and 6, above):

- ANTH 4010 - Medical Anthropology: Global Health
- BIOL 3411 - Principles of Ecology
- CHEM 4700 - Environmental Chemistry (see Minor Requirements, note 4, above)
- ECON 4540 - Environmental Economics

- ENVS 3082 - Energy and the Environment **or**
- PHYS 3082 - Energy and the Environment

- GEOG 3232 - Weather and Climate
- GEOG 3240 - Colorado Climates
- GEOG 4020 - Earth Environments and Human Impacts
- GEOG 4060 - Remote Sensing I: Introduction to Environmental Remote Sensing
- GEOG 4080 - Introduction to GIS
- GEOG 4090 - Environmental Modeling with Geographic Information Systems

- GEOG 4220 - Environmental Impact Assessment
- GEOG 4230 - Hazard Mitigation and Vulnerability Assessment
- GEOG 4240 - Geomorphology
- GEOG 4265 - Sustainability in Resources Management
- GEOG 4270 - Glacial Geomorphology
- GEOG 4335 - Contemporary Environmental Issues
- GEOG 4350 - Environment and Society in the American Past
- GEOG 4420 - The Politics of Nature
- GEOL 4030 - Environmental Geology
- PSCI 4354 - Environmental Politics

ETHICS MINOR

Introduction

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. A total of 15 semester hours is required for an ethics minor, with a minimum grade of C (2.0) in each course.
2. For those students who major in philosophy and minor in ethics, no course can satisfy the requirements for both. For example, if a student takes PHIL 4150, Twentieth Century Ethics, it cannot satisfy the requirement in the major for a course in 19th or 20th century philosophy.

Take the following **required** course:

- PHIL 1020 - Introduction to Ethical Reasoning

Take **four** of the following courses:

- PHIL 3150 - History of Ethics
- PHIL 3200 - Social and Political Philosophy
- PHIL 3250 - Business Ethics
- PHIL 3280 - War and Morality
- PHIL 3500 - Ideology and Culture: Racism and Sexism
- PHIL 3939 - Internship
- PHIL 4150 - Twentieth Century Ethics
- PHIL 4242 - Bioethics
- PHIL 4250 - Environmental Ethics

ETHNIC STUDIES MINOR

Introduction

The minor in ethnic studies offers students the opportunity to enhance and broaden the body of knowledge acquired in their chosen majors and to apply it in a variety of careers involving intercultural relations.

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students are required to complete 18 semester hours (6 courses) in ethnic studies with a grade of *C* or better.
2. These hours are to be taken with CU Denver faculty (any exception needs to be approved by the ethnic studies advisor).
3. At least 9 of the required 18 hours must be in courses numbered 3000 or above.
Take the following **required** course:
 - ETST 2000 - Introduction to Ethnic Studies

Take **four** upper- or lower-division ETST courses from the following four focal U.S. racial/ethnic groups:

- Asian-Americans
- African-Americans
- American Indians
- Chicanos/as and Latinos/as

Take **one** ETST elective course of your choice.

FILM STUDIES MINOR

Introduction

The film studies minor offers students the opportunity to gain an informed understanding of the sophisticated medium of film, its language and history. Courses cover critical writing about cinema, creative screenwriting, the evolution of Hollywood movies, international cinema and film in its cultural context. The film studies minor makes a valuable complement to a range of undergraduate majors.

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must complete a total of 15 hours for the film studies minor.
2. Only courses completed with a grade of C (2.0) or better may be counted toward the minor.
3. None of the required 15 hours may be taken Pass/Fail.
4. A minimum of 9 hours must be taken with CU Denver faculty.
5. Students are also advised to fulfill the liberal arts and sciences core curriculum writing requirements before enrolling in upper-division topics in film courses.
6. No more than two online film studies courses can be counted toward the minor.

7. Courses in a minor cannot be counted toward the English major or English Writing major; consult an English advisor for substitutions.

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

- ENGL 2250 - Introduction to Film
- ENGL 2450 - Introduction to Literature

Take **one** of the following courses:

- ENGL 3070 - Film History I
- ENGL 3080 - Film History II

Take **two** additional courses:

- ENGL 2415 - Introduction to Movie Writing
- ENGL 3070 - Film History I (if not taken above)
- ENGL 3080 - Film History II (if not taken above)
- ENGL 3075 - Film Genres *
- ENGL 3085 - Film Directors *
- ENGL 3200 - From Literature to Film
- ENGL 3300 - Topics in Film *
- ENGL 4420 - Film Theory and Criticism
- ENGL 4770 - Topics in English: Film and Literature (film topics only) *

*Courses are repeatable if taken as a different genre/director/topic.

FRENCH MINOR

Introduction

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students minoring in French must complete 15 semester hours of upper-division courses taught in French (courses numbered 3000 and above).
2. The minor in French must include at least one language skills class, chosen from the classes listed below.

Take **one** of the following courses:

- FREN 3010 - French Phonetics and Pronunciation
- FREN 3020 - Oral Practice
- FREN 3050 - Advanced Grammar and Composition
- FREN 3060 - Advanced French Language Skills

Take **four** additional upper-division French courses taught in French.

GEOGRAPHY MINOR

Introduction

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must complete 15 semester hours in geography, including at least 6 semester hours of upper-division courses.
2. Students must achieve a grade of *C* (2.0) or above on required courses.
3. At least 9 semester hours of upper-division geography courses must be completed at CU Denver.

GEOLOGY MINOR

Introduction

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. At least two of the upper-division requirements must be completed at CU Denver.
2. Transfer students who have earned the equivalent of all these courses elsewhere must complete a minimum of two of the required upper-division courses at CU Denver.
3. No grade below a *C* (2.0) will be counted toward the minor requirements.

Take the following **required** courses:

- GEOL 1072 - Physical Geology: Surface Processes
- GEOL 1082 - Physical Geology: Internal Processes

Take **two** of the following courses:

- GEOL 3011 - Mineralogy
- GEOL 3032 - Geology of Colorado
- GEOL 3421 - Sedimentation and Stratigraphy
- GEOL 4020 - Earth Environments and Human Impacts
- GEOL 4030 - Environmental Geology
- GEOL 4240 - Geomorphology
- GEOL 4270 - Glacial Geomorphology
- GEOL 4280 - Environmental Hydrology

Note: Any upper division courses applied to the geography major, option 5, cannot also be applied to the geology minor.

GERMAN STUDIES MINOR

Introduction

The German Studies minor uses an interdisciplinary approach to learning language that also provides the opportunity to discover the culture of the speakers of German, which can include course work from outside the department. Students improve their German language skills as well as develop cultural knowledge in fields such as history, political science, philosophy, the arts and any of the multiple fields to which the German culture has so richly contributed.

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students minoring in German Studies must maintain a minimum overall GPA of 2.3, and a GPA of 2.5 in courses applied to the German Studies minor.
2. The minimum grade acceptable in any course applied to the German Studies minor is a C (2.0).
3. No courses taken on a pass/fail basis may be credited toward the German Studies minor.
4. Course Substitutions: With prior consent from a CU Denver German faculty advisor, students may apply substitute course work to fulfill the required areas of study. This would include, for example, courses taken outside the department, transfer credit, study

abroad course work, etc. Please consult with a CU Denver German faculty advisor to receive permission for course substitution. GRMN 1010 and GRMN 1020 can NOT be applied toward this minor.

5. The German Studies minor requires 6 semester hours of upper-division course work.
6. A minimum of 12 semester hours must be taken from German faculty at CU Denver.
7. Courses taken at other institutions while a student is enrolled at CU Denver may be applied to the minor only with departmental approval before enrollment in those courses.
8. Students who have completed course work through an approved exchange program must also complete a residency requirement of a minimum of 6 credits of upper-division German courses.
9. This residency requirement must include at least 3 semester hours of language skills courses at CU Denver.
10. No portion of these 18 credits may be applied to satisfy the requirement of any specific program outside the German Studies minor (such as satisfying core curriculum requirements) other than the total number of credits required for an undergraduate degree.
11. Students may apply up to 6 semester credits toward the German minor from UCD courses outside the department provided that the content of the course work is pertinent to the study of German language and/or culture (such as courses in history, political science, philosophy, etc.). Students must receive prior approval from a German faculty advisor to apply credits from outside the department toward the German minor.
12. Students enrolled in a degree program, and who complete the Certificate in Applied German Language Skills, satisfy the requirements for a German Studies minor and can earn both upon graduation.

Take **6 semester-hours** of Language Proficiency courses.

Skills courses are those taught in German with the goal of improving the student's abilities in spoken and written German.

Any courses taught in German at the 3000 level or higher may be applied toward language proficiency (example courses: GRMN 3030, GRMN 3050, GRMN 3060). Only courses taught in German may apply toward the language proficiency minimum.

Take **3 semester-hours** of required courses in German Culture.

Culture courses are those whose primary content focuses on the aspects of German society, current and/or historical issues. Students may complete this component in any language of instruction. (Examples of such courses include GRMN 1000, GRMN 3200, and may include courses outside the department.)

Take **9 semester-hours** of electives.

These credits may be chosen from any course offerings with a GRMN prefix (such as GRMN 3200) and may also include GRMN 1000, GRMN 2110 and GRMN 2150 with permission from a German faculty advisor. Please note that GRMN 1010 and GRMN 1020 can NOT be applied toward the German minor.

HEALTH HUMANITIES MINOR

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see you advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students declaring a minor in HEHM must have at least a 2.5 overall GPA.
2. No grade lower than a C will count towards the minor.
3. At least 12 credits for the minor must be taken with CU Denver faculty.
4. Students may count ONE relevant transfer course toward their elective requirements for the minor.

Take the following **required** course:

- HEHM 3100 - Introduction to Culture, Society and Medicine

Take **three** elective courses. The following list is not exhaustive and continues to be updated. One elective course can be a service learning course or independent study approved by an HEHM advisor. Electives must come from at least two different disciplines and must be at the 3000 or 4000-level.

- ANTH 4600 - Medical Anthropology
- COMM 4500 - Health Communication
- ETST 3002 - Ethnicity, Health and Social Justice
- GEOG 3501 - Geography of Health
- GEOG 4235 - GIS Applications in the Health Sciences
- GEOG 4710 - Disasters, Climate Change, and Health
- HIST 4307 - History of Sexuality
- HIST 4503 - Topics in History of Science
- PBHL 3030 - Health Policy
- PBHL 3070 - Perspectives in Global Health
- PBHL 3041 - Health, Culture and Society
- PBHL 4040 - Social Determinants of Health
- PHIL 4242 - Bioethics
- PSCI 4330 - U.S. Health Policy
- PSYC 3262 - Health Psychology
- SOCY 3440 - Medical Sociology
- * COMM 4550 - Rhetorics of Medicine & Health
- * ENGL 4290 - Rhetoric and the Body
- * HIST 4345 - Gender, Science, and Medicine: 1600 to the Present
- * HIST 4346 - Medicine and Society: the Ancients to the Present

Take **one** capstone course, identified by an asterisk* in the above list. These courses incorporate substantial original writing or research projects designed to promote broad reflection about the role of culture, society, and ethics in medicine. Students should choose these courses at the culmination of their minor course work.

HISTORY MINOR

Introduction

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students interested in a minor in history are required to complete 18 hours of course work.
2. At least 12 semester hours must be completed at CU Denver.
3. No grade below a *C* (2.0) will count toward the minor.
4. Students minoring in history must take at least 9 credit hours of upper division (3000- and 4000-level) courses.

Take the following **required** course:

- HIST 3031 - Theory and Practice of History: An Introduction to the Major

Take a minimum of 3 semester hours in **each** of the following areas:

- United States
- Europe
- World.

At least 6 semester hours of these electives must be upper-division history courses.

HUMAN DEVELOPMENT AND FAMILY RELATIONS MINOR

Introduction

The Human Development and Family Relations (HDFR) minor is designed to give students an understanding of culturally and linguistically diverse family systems. It provides students with a

family systems and ecological systems theories foundation of families and how they interact with community and educational contexts. Please contact the advisor for the course list.

Program Delivery

- This is an on-campus program with a variety of delivery options for many of our courses including hybrid, evening, weekend, and online courses.

Declaring This Minor

- If you are currently a CU Denver student please contact the Undergraduate Advisor in the School of Education and Human Development to set up an appointment to discuss the process.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. To complete a minor in HDFR, a student will need to complete 15 semester hours of HDFR courses with a minimum grade of C (2.0).
2. Of those HDFR courses at least 9 credits must be completed at the University of Colorado Denver.
3. Transfer courses must be approved by faculty and/or advisor to apply to the minor.

Take **fifteen** semester hours of HDFR courses. Please contact the advisor for the course list.

INTERNATIONAL STUDIES MINOR

Introduction

As the globe becomes increasingly connected, students gravitate towards classes that provide the interdisciplinary skills and international awareness required for success in the 21st century. The International Studies minor at CU Denver offers students a unique opportunity to create an individually-tailored and relevant minor based upon a spectrum of Liberal Arts classes.

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. This minor requires a total of 18 semester hours.
2. All coursework must be graded at a C or above to be accepted.
3. At least 9 hours must be taken on the student's home campus (whether the ICB or Auraria).

Take **one** introductory class from Economics, Political Science or History:

- ECON 2012 - Principles of Economics: Macroeconomics
- ECON 2022 - Principles of Economics: Microeconomics
- PSCI 3022 - Introduction to Comparative Politics
- PSCI 3042 - Introduction to International Relations
- HIST 3451 - Introduction to African History
- HIST 3460 - Modern Latin American History
- HIST 3470 - Intro to East Asia: Since 1800
- HIST 3480 - Introduction to European History
- HIST 3483 - Introduction to Modern South Asia
- HIST 4032 - Globalization in World History Since 1945

Take **four** of the following suggested elective courses using the following guidelines:

1. Students cannot take more than two upper-division classes from the same department.
2. Extra introductory classes will be accepted as minor elective classes, but a minimum of 3 credits must be upper-division.

3. Courses in addition to those listed below may be accepted with the approval of the appropriate campus advisor (whether at the ICB or Auraria).

- ANTH 3121 - Language, Culture, and Communication
- ANTH 3142 - Cultural Diversity in the Modern World
- ANTH 4070 - Culture of Development and Globalization
- COMM 4270 - Intercultural Communication
- ECON 3100 - Economics of Race and Gender
- ECON 3400 - Economics of Sex and Drugs
- ECON 4410 - International Trade
- ECON 4420 - International Finance
- ECON 4530 - Economics of Natural Resources
- ECON 4540 - Environmental Economics
- ECON 4770 - Economic Development--Theory and Problems
- GEOG 3300 - Population and Resources in the World Environment
- GEOG 3411 - Globalization and Regional Development
- GEOG 3430 - Geography of Tourism
- GEOG 4265 - Sustainability in Resources Management
- HIST 4220 - U.S. Foreign Policy Since 1912
- HIST 4411 - Modern Mexico
- HIST 4421 - Modern China
- HIST 4451 - Southern Africa
- HIST 4455 - African Struggle for Independence
- HIST 4460 - The Islamic World's Golden Age
- HIST 4461 - The Modern Middle East
- PSCI 4057 - Religion and Politics
- PSCI 4105 - Comparative Politics: Europe
- PSCI 4126 - Introduction to International Political Economy
- PSCI 4146 - Indigenous Politics
- PSCI 4165 - Islamic Politics and Culture
- PSCI 4186 - East Asia in World Affairs
- PSCI 4225 - Democracy and Democratization
- PSCI 4226 - The United Nations in World Affairs
- PSCI 4235 - Politics and Markets in Latin America
- PSCI 4236 - American Foreign Policy
- PSCI 4248 - Gender, Globalization and Development
- PSCI 4265 - Social Justice And Globalization
- PSCI 4266 - International Law
- PSCI 4286 - International Relations: War or Peace?
- PSCI 4736 - The Middle East in World Affairs

- RLST 3100 - Islamic Politics and Culture
- RLST 3400 - Asian Philosophies and Religions
- RLST 3500 - Religions of India
- RLST 3660 - Chinese Philosophy and Culture
- RLST 4010 - Comparative Religious Systems
- RLST 4500 - Religion and Politics
- SOCY 3710 - Sociology of Global Issues

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

- HIST 4417 - Commodities and Globalization: Dessert in World History
- PSCI 4216 - International Politics: Human Rights

LAW STUDIES MINOR

Introduction

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- To apply for this minor, students must complete and submit a major/minor change declaration form to the CLAS Advising Office in North Classroom, 4002.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. A total of 18 semester hours must be completed for the law studies minor.
2. The courses must be taken in residence at CU Denver.
3. A minimum grade of C is required in each course and students must maintain a GPA of 3.0 in courses taken toward the minor.
4. Every course taken for the minor must be upper division.
5. Courses taken for the minor cannot serve to fulfill requirements of the of the undergraduate core, and students should check with their major department to determine whether courses counted toward the law studies minor can fulfill major requirements.

Take the following Foundation course:

- HUMN 3250 - Introduction to Law Studies

Take **one** of the following United States Constitutional Thought courses:

- HIST 3231 - Famous U.S. Trials
- PSCI 4477 - Constitutional Law I
- PSCI 4487 - Constitutional Law II

Take **two** of the following Communication Issues in the Law courses:

- COMM 4680 - Mass Media Law And Policy
- COMM 4681 - Communication Issues in Trial Court Practices and Processes
- COMM 4750 - Legal Reasoning and Writing

Take **one** of the following Philosophical Perspectives of Law courses:

- ECON 4230 - Law and Economics
- PHIL 4260 - Philosophy of Law
- PSCI 4427 - Law, Politics and Justice

Take **one** of the following Law and Society courses:

- CRJU 4430 - Law and Society
- HIST 4308 - Crime, Policing, and Justice in American History
- SOCY 4700 - Sociology of Law

LITERATURE MINOR

Introduction

This program is designed for students who are interested in the study of English literature but who have elected to major in another area. The recommended series of courses allows students to become acquainted with some of the methods of literary study and with a number of the most important literary works.

The literature minor allows students to complement their area of major study with systematic experience in literature.

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students minoring in literature must complete a total of 15 hours (excluding ENGL 1010, 1020, 2030).
2. None of the required 15 hours may be taken pass/fail.
3. Only courses completed with a grade of C (2.0) or better may be counted toward the minor.
4. A minimum of 9 upper-division hours of work in the minor must be taken with CU Denver English faculty.
5. Courses in a minor cannot be counted toward the English major or English Writing major.

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

- ENGL 2450 - Introduction to Literature
- ENGL 3001 - Critical Writing

Take any **three** upper-division courses from the English major, Literature Option area requirements:

Historical Survey

- ENGL 4080 - History of English Language
- ENGL 4166 - History of American Poetry
- ENGL 4200 - History of the English Novel I
- ENGL 4210 - History of the English Novel II
- ENGL 4230 - The American Novel
- ENGL 4236 - The American Short Story
- ENGL 4300 - History of British Drama
- ENGL 4320 - History of Poetry in English
- ENGL 4350 - History of American Drama

Old English, Medieval Language and Literature

- ENGL 4400 - Old English I
- ENGL 4500 - Medieval Literature
- ENGL 4510 - Whores and Saints: Medieval Women
- ENGL 4730 - Chaucer

Renaissance, Restoration and 18th Century British Literature

- ENGL 3661 - Shakespeare
- ENGL 4520 - English Renaissance
- ENGL 4530 - Milton
- ENGL 4540 - Restoration and the 18th Century

Eighteenth- and Nineteenth-Century British Literature

- ENGL 4200 - History of the English Novel I
- ENGL 4210 - History of the English Novel II
- ENGL 4560 - English Romanticism
- ENGL 4580 - The Victorian Age

American Literature

- ENGL 3700 - American Literature to the Civil War
- ENGL 3750 - American Literature after the Civil War
- ENGL 4166 - History of American Poetry
- ENGL 4230 - The American Novel
- ENGL 4236 - The American Short Story
- ENGL 4350 - History of American Drama

Modern and Contemporary Literature

- ENGL 3450 - Twentieth Century Women Writers
- ENGL 3480 - Modern Drama

- ENGL 4250 - Twentieth Century Fiction
- ENGL 4460 - Contemporary World Literature
- ENGL 4600 - Modernism

MATHEMATICS MINOR

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Minimum of 21 semester hours.
2. At least 6 of the upper-division semester hours must be taken at CU Denver.
3. Students must receive a grade of C or better in order for the course to be counted toward the minor requirements.

Take **all** of the following Mathematics courses:

- MATH 1401 - Calculus I
- MATH 2411 - Calculus II
- MATH 2421 - Calculus III

Take **three** approved upper-division MATH courses (three or more semester hours each, above 3000, excluding MATH 3040, 4012, 4013, 4014 and 4015).

PHILOSOPHY MINOR

Introduction

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. A total of 15 semester hours is required for the minor in philosophy, with a minimum grade of C (2.0) in each course.

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

- PHIL 1012 - Introduction to Philosophy: Relationship of the Individual to the World
- PHIL 3002 - Ancient Greek Philosophy
- PHIL 3022 - Modern Philosophy

(It is recommended but not required that PHIL 3002 be taken before PHIL 3022.)

Take **two** additional philosophy courses, one of which must be at the upper-division level.

Religious Studies courses cannot be used to fulfill the requirements for the minor.

PHOTOGRAPHY MINOR

Introduction

Please click [here](#) to see General Visual Arts information.

Students in the photography minor develop skills in traditional and digital photography while refining their creative and conceptual approaches to the medium. The photography curriculum emphasizes individual artistic development that integrates the history of photography, critical theory and contemporary practice. Through an exploration of photographic techniques, students are given the tools to create visually compelling images that communicate their artistic ideas.

Program Delivery

- This is an on-campus program.

Declaring This Minor

Students who apply for entrance into the photography minor must complete a portfolio submission that includes a written statement, a portfolio of images, and unofficial transcript(s) from CU Denver and all previous post-secondary educational institutions. Students who meet the following requirements and are accepted into the minor will be eligible to register for upper-division studio photography courses.

ELIGIBILITY

University of Colorado Denver students and transfer students must have a minimum cumulative GPA of 2.75 in fine art and art history courses. In order to apply to the photography minor, students must have completed, or be in the process of completing, the following courses:

- FINE 1150 - Introduction to Darkroom Photography
- FINE 2155 - Introduction to Digital Photography

APPLICATION PORTFOLIO REQUIREMENTS

Properly prepared application submissions must be uploaded to Slideroom.com by 5:00 P.M. Central Mountain Time on November 1. Applications are only accepted online and must be formatted to the specifications listed here.

It is strongly recommended that students visit the submission website early and begin uploads two weeks before the due date. Late submissions due to technical difficulties on the part of the applicant will not be accepted.

Step 1: Register and create an account in Slideroom. Please go to the following link to complete this process: <https://ucdvisualarts.slideroom.com>. (Please note that SlideRoom charges a \$20.00 fee to process portfolio submissions).

Step 2: When prompted answer all questions about the application.

Step 3: Upload documents including the written statement and transcripts from the University of Colorado Denver and all post-secondary institutions.

Step 4: Upload 10 image files of creative work.

Portfolio of Images

- The photography portfolio must include 10 image files of creative work. At least six portfolio images should be photographic, demonstrating the student's understanding of concept, form, composition and technique. The remaining four portfolio pieces may be photographic or they may be examples of design, drawing, painting, mixed media, sculpture, installation and/or printmaking.
- For each portfolio image, the student should write a brief description (150 words or less) that identifies the medium (silver gelatin print, ink jet print, charcoal drawing, etc.) and explains the student's approach to the project.
- Images must be submitted in jpeg format, 12 inches on the longer side, sized at 72 pixels per inch, and saved at the highest setting available (usually 10 or 12). Files should be named with the student's last name, then first name and image title using underscores to separate. Example: Doe_Jane_ImageTitle.jpg.

Written Statement

Written statements should be limited to one page in length (400-500 words) and saved as a .pdf file. Statements should address the following:

- Why do you want to study photography?
- What are your creative strengths, and what areas need further development?
- Are there additional accomplishments that you would like the committee to know about (such as Dean's List, GPA, internships, art-related extracurricular activities or relevant professional experience)?

Course Transcripts

These may be official or unofficial transcripts from CU Denver and previous post-secondary institutions.

THE EVALUATION PROCESS

- A committee of photography faculty members reviews the portfolio submissions. Acceptance into the photography minor is based on the portfolio images, written statement and GPA.
- If not admitted into the photography minor, a student has the choice of attempting the review process again the following year or applying to another minor. Students not admitted into the photography minor are encouraged to schedule a meeting with the area head of photography to learn ways to improve their portfolios for future submissions.

Portfolios are evaluated based on quality of presentation, technical skill, creativity, conceptual development and overall aptitude for excelling in the photography minor. Additional evaluation is based on the applicant's written statement and GPA in visual arts courses.

The application is evaluated on the following criteria:

- **Presentation** - The portfolio should be well crafted and well organized in content and presentation.
- **Technical Skill** - The portfolio should demonstrate strong knowledge of the fundamental tools of photography including camera functions, analog film development and printing, and digital imaging, as well as an understanding of design, form, composition and color.
- **Creativity** – The portfolio should demonstrate creative choices in content and aesthetics.
- **Conceptual Skills** - The portfolio and written statements should reflect analytical thinking and conceptual exploration of the photography medium.
- **Written Statement** - The statement should outline academic and artistic goals, addressing any potential strengths and weaknesses.
- **Academic Performance** - The grades must reflect a commitment to learning and growth.
- All required documentation included (images, written statement and transcripts.)

QUESTIONS

Please contact CAMadvising@ucdenver.edu for minor and portfolio information, or contact photography area head Carol Golemboski at carol.golemboski@ucdenver.edu.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students may transfer up to 6 semester hours of non-CU Denver courses toward a College of Arts & Media minor. All other courses must be taken at CU Denver.
2. Each course must be completed with a grade of C (2.0) or better.
3. Students may use up to 6 semester hours to fulfill both major and minor requirements; the remaining semester hours for the minor must be taken in addition to the major requirements.

Take **all** of the following Photography Minor courses (entry level):

- FINE 1150 - Introduction to Darkroom Photography
- FINE 2155 - Introduction to Digital Photography
- FINE 3630 - History of Photography

Take **three** of the following Photography Minor courses (available only to students accepted to minor via portfolio review):

- FINE 3135 - Historic Photographic Processes in Italy
- FINE 3160 - Color and Studio Lighting
- FINE 3161 - The Silver Fine Print
- FINE 3162 - The Digital Fine Print
- FINE 3171 - Concepts and Processes in Photography
- FINE 3172 - Digital Bookmaking
- FINE 3175 - Creative Commercial Applications

PHYSICS MINOR

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. A total of 16 semester hours is required for a minor in physics.
2. No grade below a C (2.0) can be used to meet the requirements for the minor.
3. At least 6 semester hours of the requirements for the minor must be completed at CU Denver.

Take **either one** of the following sequences:

- PHYS 2010 - College Physics I
 - PHYS 2020 - College Physics II
 - PHYS 2030 - College Physics Lab I
 - PHYS 2040 - College Physics Lab II
- or**
- PHYS 2311 - General Physics I: Calculus-Based
 - PHYS 2321 - General Physics Laboratory I
 - PHYS 2331 - General Physics II: Calculus-Based
 - PHYS 2341 - General Physics Laboratory II

Take **six** semester hours of electives; 3 at the 2000-level or above and 3 at the 3000-level or above.

POLITICAL SCIENCE MINOR

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. At least 9 of the 15 hours required for this minor must be taken from CU Denver faculty.

Take **one** of the following courses:

- PSCI 1001 - Introduction to Political Science: The Quest for Freedom and Justice
- PSCI 1101 - American Political System

Take **four** of the following 4000-level American Politics courses:

- PSCI 4009 - Politics of the Budgetary Process
- PSCI 4014 - Media and Politics
- PSCI 4024 - Legislatures and Legislation
- PSCI 4034 - Political Parties and Pressure Groups
- PSCI 4044 - The Presidency
- PSCI 4057 - Religion and Politics
- PSCI 4074 - Urban Politics
- PSCI 4084 - Local Government and Administration
- PSCI 4085 - Comparative Public Policy
- PSCI 4094 - Seminar: American Politics
- PSCI 4124 - Denver Politics
- PSCI 4236 - American Foreign Policy
- PSCI 4237 - American National Security
- PSCI 4324 - Politics, Public Policy and Leadership
- PSCI 4330 - U.S. Health Policy
- PSCI 4354 - Environmental Politics
- PSCI 4374 - Public Priorities for the 21st Century

- PSCI 4444 - Contemporary Culture and Politics in America
- PSCI 4457 - American Political Thought
- PSCI 4477 - Constitutional Law I
- PSCI 4487 - Constitutional Law II
- PSCI 4494 - Judicial Politics
- PSCI 4545 - Immigration Politics
- PSCI 4554 - Chicano and Latino Politics
- PSCI 4564 - Gender and Politics
- PSCI 4644 - Ethical Responsibilities of Leaders
- PSCI 4827 - Women and the Law
- PSCI 4837 - Contemporary Issues in Civil Liberties

Take **one** of the following 4000-level Comparative Politics courses:

- PSCI 4057 - Religion and Politics
- PSCI 4074 - Urban Politics
- PSCI 4085 - Comparative Public Policy
- PSCI 4105 - Comparative Politics: Europe
- PSCI 4115 - Third World Politics
- PSCI 4144 - Indigenous Political Systems
- PSCI 4146 - Indigenous Politics
- PSCI 4155 - Political Systems of the Middle East and North Africa
- PSCI 4165 - Islamic Politics and Culture
- PSCI 4176 - Gandhi's Legacy: Non-Violent Resistance Today
- PSCI 4185 - Corruption in the U.S. and Abroad
- PSCI 4195 - Political Systems of Sub-Saharan Africa
- PSCI 4206 - Social Movements, Democracy and Global Politics
- PSCI 4215 - Women's Rights, Human Rights: Global Perspectives
- PSCI 4224 - Dictatorships in 21st Century
- PSCI 4225 - Democracy and Democratization
- PSCI 4235 - Politics and Markets in Latin America
- PSCI 4248 - Gender, Globalization and Development
- PSCI 4265 - Social Justice And Globalization
- PSCI 4365 - Global Ecological Crises
- PSCI 4446 - Advanced Indigenous Peoples' Politics
- PSCI 4505 - Political System of Russia and Its Neighbors
- PSCI 4555 - International Women's Resistance
- PSCI 4605 - Politics and Governments of South Asia
- PSCI 4615 - Politics and Government of China
- PSCI 4807 - Political Violence
- PSCI 4808 - Strategies of Peacebuilding

Take **one** of the following 4000-level International Politics courses:

- PSCI 4126 - Introduction to International Political Economy
- PSCI 4156 - The Arab-Israeli Peace Process
- PSCI 4186 - East Asia in World Affairs
- PSCI 4206 - Social Movements, Democracy and Global Politics
- PSCI 4216 - International Politics: Human Rights
- PSCI 4236 - American Foreign Policy
- PSCI 4237 - American National Security
- PSCI 4266 - International Law
- PSCI 4274 - Conflict Resolution and Public Consent Building
- PSCI 4286 - International Relations: War or Peace?
- PSCI 4326 - Advanced International Political Economy: Globalization
- PSCI 4726 - Russian and Chinese Foreign Policy
- PSCI 4736 - The Middle East in World Affairs

Take **one** of the following 4000-level Political Theory courses:

- PSCI 4207 - Theories of Social and Political Change
- PSCI 4265 - Social Justice And Globalization
- PSCI 4407 - Early Political Thought
- PSCI 4417 - Modern Political Thought
- PSCI 4427 - Law, Politics and Justice
- PSCI 4437 - Coercion and the State
- PSCI 4457 - American Political Thought

PSYCHOLOGY MINOR

Introduction

Further information about the department may be obtained from department advisors or by calling 303-556-8565.

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. A minor in psychology requires the completion of 15 semester hours with a grade of C (2.0) or better in each course.
2. At least 6 of the upper-division semester hours must be taken from CU Denver faculty.
3. Because the minor is optional, there are no substitutions allowed to these requirements.

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

- PSYC 1000 - Introduction to Psychology I
- PSYC 1005 - Introduction to Psychology II

Take **one** of the following courses:

- PSYC 3222 - Principles of Learning and Behavior
- PSYC 3144 - Human Cognition

Take **one** of the following courses:

- PSYC 3205 - Human Development I: Child Psychology
- PSYC 3305 - Abnormal Psychology
- PSYC 3415 - Experimental Social Psychology

Take the following required capstone course:

- PSYC 4511 - History of Psychology (Prereq: 12 credit hours in psychology)

PUBLIC HEALTH MINOR

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. A minimum of 24 semester hours are required, of which 12 must be upper-division and taken from CU Denver faculty.
 2. Students must achieve no less than a *C* (2.0) in each course applied toward minor requirements.
 3. Up to 6 credit hours completed toward a major or minor in another department may be counted toward the minor in public health.
- PBHL 3010 - Human Sexuality and Public Health

Take **at least two** of the following courses. All four may be taken in lieu of two of the elective courses listed below.

- PBHL 2020 - Introduction to Environmental Health
- PBHL 3030 - Health Policy
- PBHL 3070 - Perspectives in Global Health
- PBHL 4040 - Social Determinants of Health

Take **one** of the following courses:

- ANTH 1303 - Introduction to Biological Anthropology
- BIOL 1550 - Basic Biology: Ecology and the Diversity of Life
- BIOL 1560 - Basic Biology: From Cells to Organisms
- PBHL 3021 - Fundamentals of Health Promotion
- PBHL 3031 - Health, Human Biology and Behavior
- PBHL 3041 - Health, Culture and Society
- PBHL 3071 - Global Topics In Sexual and Reproductive Health
- PBHL 4080 - Global Health Practice
- PBHL 4200 - The Global HIV/AIDS Epidemic
- ANTH 4090 - Political Economy of Drugs
- ANTH 4260 - Human Reproductive Ecology
- COMM 4500 - Health Communication
- COMM 4620 - Health Risk Communication
- GEOG 4235 - GIS Applications in the Health Sciences
- PSYC 3235 - Human Sexuality
- PSYC 3262 - Health Psychology
- SOCY 3520 - Topics in Sociology (when Medical Sociology is the topic)

RELIGIOUS STUDIES MINOR

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Eighteen semester hours, at least 9 of which must be upper division and at least 9 semester hours taken with CU Denver faculty.
2. A minimum cumulative GPA of 2.0 for all CU Denver courses taken in the minor is required, with no individual course grade lower than a C (2.0).

Required Course

Take the following required course:

- RLST 1610 - Introduction to Religious Studies

Western Religion

Take **one** course from the following approved list:

- RLST 2660 - World Religions *

- RLST 2700 - The Bible as Literature **or**
- ENGL 2520 - The Bible as Literature

- RLST 3000 - Judaism, Christianity and Islam: Affinity and Difference
- RLST 3060 - History of Early Christianity
- RLST 3740 - Biblical Traditions: Old Testament
- RLST 3760 - Biblical Studies: New Testament
- RLST 3770 - Archaeological Discoveries Relating to the Bible

- RLST 4070 - Western Religious Thought **or**
- PHIL 4710 - Western Religious Thought

- RLST 4400 - Differing Concepts of God * **or**
- PHIL 4650 - Differing Concepts of God *

- RLST 4440 - Concepts of the Soul * **or**

- PHIL 4470 - Concepts of the Soul *
- RLST 4460 - Death and Concepts of Afterlife *

* Fulfills requirement for either Eastern or Western religion, but not both simultaneously

Eastern Religion

Take **one** course from the following approved list:

- RLST 2660 - World Religions *
- RLST 3400 - Asian Philosophies and Religions **or**
- PHIL 3666 - Asian Philosophies and Religions
- RLST 3500 - Religions of India
- RLST 3660 - Chinese Philosophy and Culture **or**
- PHIL 3981 - Chinese Philosophy and Culture
- RLST 4080 - Eastern Religious Thought **or**
- PHIL 4720 - Eastern Religious Thought
- RLST 4160 - Mysticism
- RLST 4400 - Differing Concepts of God * **or**
- PHIL 4650 - Differing Concepts of God *
- RLST 4440 - Concepts of the Soul * **or**
- PHIL 4470 - Concepts of the Soul *
- RLST 4460 - Death and Concepts of Afterlife *

* Fulfills requirement for either Eastern or Western religion, but not both simultaneously

Elective courses

Take **three** courses from the following list. Other courses, such as certain special topics, art history courses featuring religious themes and others may count toward the minor at the discretion of the course instructor and the director.

- RLST 2660 - World Religions

- RLST 2680 - The American Indian Experience **or**
- ETST 2606 - The American Indian Experience

- RLST 2700 - The Bible as Literature **or**
- ENGL 2520 - The Bible as Literature

- RLST 3000 - Judaism, Christianity and Islam: Affinity and Difference
- RLST 3060 - History of Early Christianity
- RLST 3080 - Reformation Europe

- RLST 3100 - Islamic Politics and Culture **or**
- PSCI 4165 - Islamic Politics and Culture

- RLST 3300 - Shamanic Traditions

- RLST 3400 - Asian Philosophies and Religions **or**
- PHIL 3666 - Asian Philosophies and Religions

- RLST 3500 - Religions of India

- RLST 3660 - Chinese Philosophy and Culture **or**
- PHIL 3981 - Chinese Philosophy and Culture

- RLST 3720 - Religious Narratives **or**
- ENGL 3520 - Religious Narratives

- RLST 3740 - Biblical Traditions: Old Testament
- RLST 3760 - Biblical Studies: New Testament
- RLST 3770 - Archaeological Discoveries Relating to the Bible
- RLST 4000 - Religion and Cultural Diversity
- RLST 4010 - Comparative Religious Systems

- RLST 4020 - Sociology of Religion **or**

- SOCY 4610 - Sociology of Religion
- RLST 4040 - Psychology of Religion
- RLST 4060 - Philosophy of Religion **or**
- PHIL 4600 - Philosophy of Religion
- RLST 4070 - Western Religious Thought **or**
- PHIL 4710 - Western Religious Thought
- RLST 4080 - Eastern Religious Thought **or**
- PHIL 4720 - Eastern Religious Thought
- RLST 4100 - Special Topics in Religion
- RLST 4160 - Mysticism
- RLST 4300 - Myth and Symbol
- RLST 4320 - Spirituality in the Modern World
- RLST 4340 - The Hero's Journey
- RLST 4360 - Freudian and Jungian Perspectives in Dream Analysis
- RLST 4400 - Differing Concepts of God **or**
- PHIL 4650 - Differing Concepts of God
- RLST 4420 - Goddess Traditions **or**
- WGST 4420 - Goddess Traditions
- RLST 4440 - Concepts of the Soul **or**
- PHIL 4470 - Concepts of the Soul
- RLST 4460 - Death and Concepts of Afterlife
- RLST 4480 - Perspectives on Good and Evil **or**
- PHIL 4480 - Perspectives on Good and Evil
- RLST 4500 - Religion and Politics **or**
- PSCI 4057 - Religion and Politics
- RLST 4710 - Women and Religion **or**
- WGST 4710 - Women and Religion

- RLST 4730 - Whores and Saints: Medieval Women **or**
- ENGL 4510 - Whores and Saints: Medieval Women **or**
- WGST 4510 - Whores and Saints: Medieval Women

- RLST 4840 - Independent Study: RLST

RISK MANAGEMENT AND INSURANCE MINOR

Introduction

Students in other undergraduate schools and colleges at CU Denver wishing to complete the Risk Management and Insurance minor need to complete the course work described below.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. To declare the RMI minor, students must have a 3.0 GPA, either cumulative or from their last 24 completed semester hours.
2. Students must maintain or exceed a 2.0 GPA to graduate with the minor.
3. Up to 6 of the 18 semester hours required for the minor may be completed at another institution.
4. Students must have declared the Risk Management and Insurance minor to register for any of the courses or petition separately to take each of these courses.

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

- FNCE 3000 - Principles of Finance
- FNCE 3500 - Management of Business Capital
- * FNCE 3809 - Introduction to Risk Management
- * FNCE 4809 - Property & Casualty Insurance

Take **two** of the following courses:

- FNCE 3700 - Investment and Portfolio Management
- FNCE 4909 - Corporate Risk Management *this can only be taken if you also take FNCE 3700
- * FNCE 4129 - Practical Enterprise Risk Mgmt
- * RISK 4409 - Employee Benefits and Workforce Risk Management
- * RISK 4509 - Global Risk Management

Take **all** of the following courses:

- ACCT 2200 - Financial Accounting and Financial Statement Analysis
- *** BANA 2010 - Business Statistics
- ECON 2012 - Principles of Economics: Macroeconomics
- ECON 2022 - Principles of Economics: Microeconomics
- ISMG 2050 - Introduction to Business Problem Solving

- ** MATH 1070 - Algebra for Social Sciences and Business **or**
- ** MATH 1110 - College Algebra

- ** MATH 1080 - Polynomial Calculus

* These courses are offered with a fixed tuition rate of \$1100 per course (in-state), \$2000 per course (WUE) and \$2600 per course (non-resident). The courses are not eligible for COF.

**Upper-division Math courses may be substituted for these courses.

***Upper-division statistics courses such as ECON 3811 or MATH 3800 may be substituted for this course.

SOCIAL JUSTICE MINOR

Introduction

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. The minor consists of 18 semester hours.
2. Coursework includes a required introductory class (with either a social science or humanities focus).
3. The minor includes an experiential learning component of 3 semester hours.
4. Upper-division course work is to be determined by individual students in consultation with the Social Justice minor director. At least two disciplines must be represented.
5. A 3-semester-hour capstone seminar that will provide opportunity for further reflection on the experiential learning projects and student group projects is required.

Take **one** of the following courses:

- SJUS 2000 - Democratic Participation and Social Justice
- SJUS 2010 - Social Justice: Theories, Narratives, and Technologies

Take a **3-semester-hour internship** in any discipline of the social sciences or humanities, involving community work and including a reflective component and public dissemination or report.

Take **three** courses from those listed below. This is a sample list of upper-division courses, but other courses may be considered.

- ANTH 3142 - Cultural Diversity in the Modern World
- ANTH 4070 - Culture of Development and Globalization

- COMM 2000 - Persuasion
- COMM 4022 - Critical Analysis of Communication
- COMM 4260 - Communication and Conflict
- ENGL 3795 - Race and Ethnicity in American Literature
- ENGL 4280 - Proposal and Grant Writing
- ETST 3108 - Chicano/a and Latino/a History
- ETST 3274 - Power, Poverty, Culture
- ETST 3396 - History of the American Indian
- ETST 3704 - Culture, Racism and Alienation
- GEOG 3411 - Globalization and Regional Development
- GEOG 4335 - Contemporary Environmental Issues
- GEOG 4640 - Urban Geography: Denver and the U.S.
- HIST 3345 - Immigration and Ethnicity in American History
- HIST 4217 - Consumer Culture
- HIST 4219 - Depression, Affluence and Anxiety: U.S. History, 1929 to the Present
- PHIL 3200 - Social and Political Philosophy
- PHIL 3280 - War and Morality
- PHIL 3500 - Ideology and Culture: Racism and Sexism

- PHIL 4920 - Philosophy of Media and Technology **or**
- PHIL 5920 - Philosophy of Media and Technology

- PSCI 3034 - Race, Gender, Law and Public Policy
- PSCI 4025 - Local Governance and Globalization
- PSCI 4207 - Theories of Social and Political Change
- RLST 4000 - Religion and Cultural Diversity
- SOCY 3001 - Urban Sociology
- SOCY 3030 - Social Change
- SOCY 4440 - Social Inequality

Take a **3-semester-hour** capstone seminar.

SOCIOLOGY MINOR

Introduction

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. For an undergraduate minor in sociology, a minimum of 15 semester hours in sociology must be completed with a grade of C or better.
2. Nine of these hours must be taken from CU Denver faculty.
Take the following **required** course:
 - SOCY 1001 - Introduction to Sociology

Take **one** of the following courses:

- SOCY 3150 - History of Sociological Theory
- SOCY 3160 - Contemporary Sociological Theory

Take **nine** credit hours of additional Sociology courses.

SPANISH MINOR

Introduction

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students minoring in Spanish for the BA degree must complete 15 semester hours of upper-division Spanish courses (courses numbered 3000 and higher).
2. All course work must be taught in Spanish.

Take **one** of the following courses:

- SPAN 3270 - Bilingual Communities: Spanish as a Language of Contact
- SPAN 3212 - Spanish American Culture and Civilization
- SPAN 3213 - Contemporary Latin American Culture and Institutions
- SPAN 3221 - Culture and Civilization of Spain I
- SPAN 3222 - Culture and Civilization of Spain II
- SPAN 3223 - Contemporary Spanish Culture and Institutions
- SPAN 3230 - Ibero-American Cultures through Film
- SPAN 4330 - Modern Culture of Spain through Film and Narrative

Take **four** additional upper-division Spanish courses.

STUDIO ART MINOR

Introduction

Please click [here](#) to see General Visual Arts information.

This general minor in studio art offers students the opportunity to explore one or multiple areas of studio art (e.g., photography, transmedia sculpture, painting/drawing) along with an introduction to art history.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- To declare a CAM minor, please see the College of Arts & Media's Office of Advising and Student Services in Arts Building, 177. Consult an advisor in the College of Arts & Media at CAMadvising@ucdenver.edu for more information.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here](#) for information about Academic Policies

Program Requirements

1. Students may transfer up to 6 semester hours of non-CU Denver courses toward a College of Arts & Media minor. All other courses must be taken at CU Denver.
2. Each course must be completed with a grade of C (2.0) or better.
3. Students may use up to 6 semester hours to fulfill both major and minor requirements; the remaining semester hours for the minor must be taken in addition to the major requirements.

Take **two** of the following Studio Art Minor courses:

- FINE 1100 - Drawing I
- FINE 1150 - Introduction to Darkroom Photography
- FINE 1400 - Two Dimensional Design
- FINE 1500 - Three-Dimensional Design

- FINE 2155 - Introduction to Digital Photography
- FINE 2200 - Painting I
- FINE 3500 - Installation Art

Take **six** semester hours of Studio Arts electives.

Take **three** semester hours of upper-division Studio Arts elective.

Take **three** semester hours Art History elective.

SUSTAINABILITY MINOR

Introduction

The sustainability minor is interdisciplinary, drawing on the expertise across CLAS departments: anthropology, biology, chemistry, communication, economics, environmental sciences, geography, geology, history, economics, philosophy, physics and political science. The core courses are taught by faculty from natural sciences and social sciences, who will present theories and concepts from both empirical and humanistic perspectives. The teaching faculty change each term so that faculty from any given CLAS department will rotate through the core courses every 3-4 years.

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

The minor is comprised of 18 credit hours, distributed as follows:

1. Two core courses that introduce students to the systems theories that document how living things affect and are affected by their environments.
2. Three electives chosen from an approved list of CLAS courses.
3. A capstone course in sustainability, which focuses on social change within specific communities and groups.

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

- SUST 3010 - The Non-Sustainable Past
- SUST 3011 - Toward a Sustainable Future

Take **three** from the following list of courses:

Anthropology

- ANTH 3006 - Sustainable Development and Equity
- ANTH 3210 - Urban Food Systems and Sustainability
- * ANTH 4010 - Medical Anthropology: Global Health
- * ANTH 4030 - Ethnobiology
- * ANTH 4070 - Culture of Development and Globalization
- * ANTH 4080 - Global Health Practice
- * ANTH 4090 - Political Economy of Drugs
- * ANTH 4170 - Culture and the Environment
- * ANTH 4450 - Development and Conservation: Contemporary Issues
- * ANTH 4460 - Development and Conservation: Theory and Practice
- * ANTH 4560 - Human Ecology
- ANTH 6063 - Qualitative Research Design and Methods

Integrative Biology

- BIOL 3330 - Plant Diversity

- BIOL 3411 - Principles of Ecology
- BIOL 3654 - General Microbiology
- BIOL 4052 - Advanced Ecology
- BIOL 4154 - Conservation Biology
- BIOL 4415 - Microbial Ecology
- BIOL 4416 - Aquatic Ecology
- BIOL 4474 - Ecological Methods
- BIOL 4910 - Field Studies
- BIOL 4974 - Evolution

Business

- MGMT 4950 - Special Topics in Management (when offered as Business and Sustainability)
- MKTG 4950 - Special Topics (when offered as Nonprofit and Social Marketing)

Chemistry

- * CHEM 4700 - Environmental Chemistry
- CHEM 5710 - Air Pollution Chemistry
- CHEM 5720 - Atmospheric Sampling and Analysis

Communication

- * COMM 4282 - Environmental Communication
- * COMM 4410 - Science Writing
- * COMM 4710 - Topics in Communication

Economics

- * ECON 4530 - Economics of Natural Resources
- * ECON 4540 - Environmental Economics
- ECON 4770 - Economic Development--Theory and Problems
- ECON 5530 - Economics of Natural Resources
- ECON 5540 - Environmental Economics

Environmental Science

- ENVS 1042 - Introduction to Environmental Sciences
- ENVS 1342 - Environment, Society and Sustainability
- ENVS 5010 - Landscape Geochemistry
- ENVS 5020 - Earth Environments and Human Impacts
- ENVS 5030 - Environmental Geology
- ENVS 5600 - Applied Statistics for the Natural Sciences

Geography

- GEOG 3300 - Population and Resources in the World Environment
- * GEOG 4060 - Remote Sensing I: Introduction to Environmental Remote Sensing
- * GEOG 4080 - Introduction to GIS
- * GEOG 4090 - Environmental Modeling with Geographic Information Systems
- GEOG 4220 - Environmental Impact Assessment
- * GEOG 4230 - Hazard Mitigation and Vulnerability Assessment
- GEOG 4260 - Natural Resource Planning and Management
- * GEOG 4265 - Sustainability in Resources Management
- * GEOG 4335 - Contemporary Environmental Issues
- * GEOG 4350 - Environment and Society in the American Past
- GEOG 4420 - The Politics of Nature
- GEOG 4440 - Science, Policy and the Environment
- GEOG 4680 - Urban Sustainability: Perspectives and Practice
- GEOG 4710 - Disasters, Climate Change, and Health

Geology

- GEOL 4030 - Environmental Geology

History

- HIST 3366 - Environmental History of North America
- HIST 4240 - National Parks History

Physics

- PHYS 3082 - Energy and the Environment

Philosophy

- PHIL 2510 - Philosophy of Nature
- PHIL 4250 - Environmental Ethics

Political Science

- PSCI 4354 - Environmental Politics
- PSCI 4365 - Global Ecological Crises
- PSCI 5276 - Conflicts and Rights in International Law
- PSCI 5468 - Research Methods in Political Science

Public Health

- PBHL 2020 - Introduction to Environmental Health

Take the following **capstone** course:

- SUST 4960 - Capstone in Sustainability

Note: * Graduate-level cross-lists may be used, with prior approval from the Sustainability advisor.

THEATRE, FILM AND TELEVISION MINOR

Introduction

Please click here to see General Theatre, Film and Video Production information.

Program Delivery

This is an on-campus program.

Declaring This Minor

- To declare a CAM minor, please see the College of Arts & Media's Office of Advising and Student Services in Arts Building, 177. Consult an advisor in the College of Arts & Media at CAMadvising@ucdenver.edu for more information.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver Graduation Requirements
- Click here for information about Academic Policies

Program Requirements

1. Students may transfer up to 6 semester hours of non-CU Denver courses toward a minor. All other courses must be taken at CU Denver.
2. Each course must be completed with a grade of *C* (2.0) or better.
3. Students may use up to 6 semester hours to fulfill both major and minor requirements; the remaining semester hours for the minor must be taken in addition to the major requirements.

Take **all** of the following Theatre, Film and Television Minor courses:

- FITV 1200 - Aesthetics of Television
- THTR 1001 - Introduction to Theatre & Arts in the Community

Take **two** of the following Theatre, Film and Television Minor courses, chosen in consultation with a Theatre, Film and Video Production (TFVP) faculty advisor:

- FITV 3200 - History of Film to 1937
- FITV 3300 - History of Film from 1938
- THTR 3610 - Performance: Theory/History/Criticism I
- THTR 3620 - Performance: Theory/History/Criticism II

Take **twelve** semester hours of Theatre, Film and Television Minor Electives, chosen in consultation with a TFVP faculty advisor.

TRANSMEDIA SCULPTURE MINOR

Introduction

Please click [here](#) to see General Visual Arts information.

The transmedia sculpture minor provides experiences that span digital practice, traditional metal casting, wood work and fabrication processes. Students learn how to use a wide variety of equipment that encompass the breadth of sculpture today, from metal, wood and assembled sculpture, to installation and performance work, to live media and interactive digital work.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- To declare a CAM minor, please see the College of Arts & Media's Office of Advising and Student Services in Arts Building, 177. Consult an advisor in the College of Arts & Media at CAMadvising@ucdenver.edu for more information.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students may transfer up to 6 semester hours of non-CU Denver courses toward a College of Arts & Media minor. All other courses must be taken at CU Denver.
2. Each course must be completed with a grade of C (2.0) or better.
3. Students may use up to 6 semester hours to fulfill both major and minor requirements; the remaining semester hours for the minor must be taken in addition to the major requirements.

Take **all** of the following Transmedia Sculpture Minor courses:

- FINE 1500 - Three-Dimensional Design
- FINE 2500 - Bronze Casting
- FINE 2510 - Wood and Metal Sculpture

Take **three** of the following Transmedia and Sculpture Minor courses:

- FINE 3500 - Installation Art
- FINE 3510 - Mold Design & Casting
- FINE 4500 - Electronic Performance
- FINE 4510 - Advanced Sculpture

Take **three** semester hours of Art History elective.

URBAN AND REGIONAL PLANNING MINOR

Introduction

The undergraduate planning minor in the Department of Geography and Environmental Sciences provides non-geography undergraduate students the opportunity to pursue studies in the professional field of planning. Geography majors can pursue the urban studies option, so this minor would not be available to these majors.

Geography and urban and regional planning share a common concern for the spatial configuration of the places that we inhabit and enjoy. In recognition of this close association, there is currently an articulation agreement between the Department of Geography and

Environmental Sciences and the College of Architecture and Planning that provides students with a mechanism for acceleration through the Master of Urban and Regional Planning (MURP) degree program, if accepted into that graduate program. Those students completing the requirements for an undergraduate planning minor may also be eligible to pursue an accelerated MURP degree. (Please see the Graduate Catalog for more information on this graduate program.)

All core courses are offered on a yearly basis.

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students must complete three core requirements and two electives, totaling 15 semester hours.
2. 12 semester hours of upper-division courses are required.
3. Although the three core courses may be taken in any order, it is advisable to begin with GEOG 1602, since this course familiarize students with many key concepts used in other classes.
4. All undergraduate students, **except** geography majors, are eligible for this minor.
5. Students must achieve a grade of *C* (2.0) or higher in required courses.

6. All upper-division courses must be completed at CU Denver and a minimum of 9 semester hours must be completed in CLAS (geography) to satisfy residency requirements.

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

- GEOG 1602 - Introduction to Urban Studies
- GEOG 4640 - Urban Geography: Denver and the U.S.
- GEOG 4680 - Urban Sustainability: Perspectives and Practice

Take **two** of the following courses:

- GEOG 4000 - Planning Methods I
- GEOG 4060 - Remote Sensing I: Introduction to Environmental Remote Sensing
- GEOG 4080 - Introduction to GIS
- GEOG 4085 - GIS Applications for the Urban Environment
- GEOG 4090 - Environmental Modeling with Geographic Information Systems
- GEOG 4095 - Deploying GIS Functionality on the Web
- GEOG 4230 - Hazard Mitigation and Vulnerability Assessment
- GEOG 4235 - GIS Applications in the Health Sciences
- GEOG 4400 - Regional Economic Development
- GEOG 4450 - Urban Food and Agriculture: Perspectives and Research
- GEOG 4630 - Transportation Planning I: Transport Network Analysis
- GEOG 4990 - Special Topics

VISUAL COMMUNICATION OF SCIENCE MINOR

Introduction

Please click [here](#) to see General Visual Arts information.

The minor in visual communication of science enhances science/biology/medical students' ability to communicate science visually. Students who complete the minor will have a general understanding of design research, design principles, typography, storytelling, interpretation and creative problem solving. They will be comfortable with software tools for computer based design such as Adobe Photoshop and Adobe Illustrator, have a wide ranging skill set that can be applied toward communicating science with various tools, and be competent in the production and delivery of clear, thoughtful, well designed presentations of scientific research and subject matter.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- To declare a CAM minor, please see the College of Arts & Media's Office of Advising and Student Services in Arts Building, 177. Consult an advisor in the College of Arts & Media at CAMadvising@ucdenver.edu for more information.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. All courses for this minor must be taken at CU Denver unless approved otherwise by the digital design faculty advisor.
2. Each course must be completed with a grade of C (2.0) or better.
3. Students may use up to 6 semester hours to fulfill both major and minor requirements; the remaining semester hours for the minor must be taken in addition to the major requirements.

Take **all** of the following Visual Communication of Science Minor courses:

- FINE 1400 - Two Dimensional Design
- FINE 2405 - Introduction to Digital Design
- FINE 2415 - Typography Studio
- FINE 2428 - Introduction to Scientific Media Design

After completing the above four courses, complete **all** of the following Visual Communication of Science Minor courses:

- FINE 4446 - Visualization & Infographics
- FINE 4447 - Presenting Science

WOMEN'S AND GENDER STUDIES MINOR

Introduction

The women's and gender studies minor gives students the opportunity to explore gender issues in the humanities and social sciences.

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Completion of 18 semester hours in WGST courses with a grade of *C* or better.
2. At least 12 semester hours must be taken with CU Denver faculty.
3. All courses for the minor must be approved by a WGST advisor.
4. Students are strongly urged to take at least one course that focuses on women's and gender issues in international perspective.
5. An internship working in the community around issues related to women and gender. Working with a WGST advisor and the CU Denver Experiential Learning Center (ELC), students will choose an internship related to their interests in WGST. Through the ELC, students sign up for their internship under WGST 3939. Students will be required to complete a critical writing component comprising an ongoing log about the internship experience and an 8-10 page final paper discussing the interrelationships between the

practical internship experience and the theoretical/scholarly insights of women's and gender studies. Students may also choose to use WGST 2900, Smart Girl Leadership Training, in lieu of their internship and must follow the requirements of that course and practicum. Students must have taken WGST 1050 before enrolling for their internship.

Take the following **required** course:

- WGST 1050 - Introduction to Women's and Gender Studies

Take **12-semester-hours** of WGST-related courses at the 3000-level or above. Eligible courses include, but are not limited to:

Humanities

- ENGL 3450 - Twentieth Century Women Writers
 - ENGL 4510 - Whores and Saints: Medieval Women
 - FREN 4510 - French Women Writers
 - HIST 3343 - Women in U.S. History
 - HIST 4230 - Women in the West
 - HIST 4303 - Sex and Gender in Modern Britain
 - HIST 4307 - History of Sexuality
 - HIST 4345 - Gender, Science, and Medicine: 1600 to the Present
 - PHIL 3500 - Ideology and Culture: Racism and Sexism
 - PHIL 4933 - Philosophy of Eros
 - RLST 4420 - Goddess Traditions
-
- WGST 4306 - Survey of Feminist Thought **or**
 - ENGL 4306 - Survey of Feminist Thought **or**
 - HIST 4306 - Survey of Feminist Thought

Social Sciences

- ANTH 4200 - Gender in Cross-Cultural Perspective
- ANTH 4260 - Human Reproductive Ecology
- COMM 3275 - Family Communication
- COMM 4020 - Feminist Perspectives on Communication
- COMM 4045 - Female-Male Friendships
- COMM 4265 - Gender and Communication
- COMM 4268 - Communication and Diversity in U.S. History
- ECON 3100 - Economics of Race and Gender
- ECON 3400 - Economics of Sex and Drugs
- PSCI 3034 - Race, Gender, Law and Public Policy
- PSCI 3035 - Political Movements: Race and Gender

- PSCI 4215 - Women's Rights, Human Rights: Global Perspectives
- PSCI 4248 - Gender, Globalization and Development
- PSCI 4555 - International Women's Resistance
- PSCI 4564 - Gender and Politics
- PSCI 4827 - Women and the Law
- PSYC 3235 - Human Sexuality
- PSYC 3405 - Family Psychology
- PSYC 3611 - Psychology of Women
- PSYC 3612 - Domestic Abuse
- SOCY 3010 - Sociology of Human Sexuality
- SOCY 3080 - Sex and Gender
- SOCY 3700 - Sociology of the Family
- SOCY 4120 - Popular Culture and the American Family

Take **one** of the following courses:

- WGST 3939 - Internship
- WGST 2900 - Smart Girl Leadership Training and Practicum

WRITING MINOR

Introduction

The writing minor allows students to complement their area of major study with systematic experience in writing.

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.

Program Delivery

- This is an on-campus program.

Declaring This Minor

- Please see your advisor.

General Requirements

To earn a degree, students must satisfy all requirements in each of the areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements
- [Click here for information about Academic Policies](#)

Program Requirements

1. Students minoring in writing must complete a total of 15 hours (excluding ENGL 1010, 1020, 2030).
2. None of the required 15 hours may be taken pass/fail.
3. Only courses completed with a grade of C (2.0) or better may be counted toward the minor.
4. A minimum of 9 upper-division hours of work in the minor must be taken with CU Denver English faculty.
5. Courses in a minor cannot be counted toward the English Major or English Writing major.

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

- ENGL 2060 - Introduction to Writing Studies
- ENGL 3084 - Multimedia Composition

Take **one** of the following courses:

- ENGL 3160 - Language Theory
- ENGL 4080 - History of English Language

Take **one** of the following courses:

- ENGL 3154 - Technical Writing
- ENGL 3170 - Business Writing
- ENGL 4190 - Special Topics in Rhetoric and Writing (non-repeatable)

Take **one** 3000-level or 4000-level ENGL course.

Dual Degree Programs

CHEMISTRY BS/MS

Introduction

Program Delivery

This is an on-campus program.

Declaring This Major

- It is important that students declare a major as early as possible in order to receive proper advising toward departmental requirements.

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 Degree Requirements
- CU Denver Core Requirements
- College of Liberal Arts & Sciences General Degree Requirements

Program Requirements

1. The student must apply and be accepted for participation in the BS/MS program prior to completion of the BS degree and be advised by both the undergraduate and graduate advisors.
2. Up to 9 semester hours of graduate-level course work may be taken as an undergraduate and applied toward the MS degree. This course work may not be applied toward the BS degree or ACS certification requirements for the BS degree.
3. Up to 3 semester hours of independent study (research) may be applied toward the graduate degree if that research is expanded and continued for a portion of the master's thesis research. This requires approval of the student's graduate research advisor in chemistry, the chemistry graduate program director and the CLAS associate dean for graduate studies.
4. The chemistry department will waive the requirement for qualifying examinations in each area of chemistry for which the student has completed the undergraduate sequence of courses and laboratories at the Downtown Campus with grades of B or better for each course.
5. The student must apply for and be admitted to the graduate program in chemistry beginning the semester immediately following completion of the BS degree in chemistry at the Downtown Campus.

6. This program allows undergraduate students who have begun their research as undergraduates to complete up to 12 semester hours (with approval of the graduate dean) toward the 30 semester hours required for a Plan I MS degree in chemistry while they are still completing their BS degree.

CRIMINAL JUSTICE BA/MCJ

ECONOMICS BA/MATHEMATICS BS DUAL DEGREE

Introduction

A solid training in the mathematical and statistical sciences is fundamental to optimally prepare economics students for graduate school. A dual degree in economics and mathematics will substantially increase program quality and career prospects for our students, as well as enhance the reputation of the economics program at CU Denver. Similarly, a solid training in quantitative and qualitative economic principles offers significant benefits to mathematics majors who seek industrial and/or consulting positions.

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

Program Delivery

- This is an on-campus program.

Declaring This Major

- [Click here to go to information about declaring a 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 Requirements](#)
- [College of Liberal Arts & Sciences Graduation Requirements](#)
- [Click here for information about Academic Policies](#)

Program Requirements

1. No pass/fail grades may count toward the dual degree.
2. The minimum grade for all economics classes taken at CU Denver and applied toward the major is C- (one D- grade is allowed for one economics elective).
3. A minimum GPA of 2.5 is required for all CU Denver economics classes applied to the major.
4. The minimum grade for all mathematics classes taken at CU Denver and applied toward the major is C-.
5. A minimum GPA of 2.25 is required for all CU Denver mathematics classes applied to the major.
6. In addition to the CLAS residence requirements, the Economics Department requires that all courses other than Econ 2012 and Econ 2022 require written department approval to be transferred in as satisfying major requirements.
7. Additionally, the Mathematics Department requires that at least 15 upper division Mathematics credits must be taken at CU Denver. The Economics Department requires that Graduating seniors must submit the three best papers that the student wrote in any three separate courses taken in the Economics Department for the outcomes assessment of the Economics program.
8. The three papers should be handed in at one time in a folder to the Economics office, before the first day of the month in which the student plans to graduate.
9. The Mathematics Department requires that In the semester of graduation, students must submit a portfolio consisting of two papers, typically written for previous courses, that demonstrate mathematical and writing proficiency; participate in an exit interview, which may be scheduled by the department administrative assistant; and complete a senior survey, available from the department administrative assistant.

Take **all** of the following Economics courses:

- ECON 2012 - Principles of Economics: Macroeconomics
- ECON 2022 - Principles of Economics: Microeconomics
- ECON 4071 - Intermediate Microeconomic Theory
- ECON 4081 - Intermediate Macroeconomic Theory
- ECON 4091 - History of Economic Thought
- ECON 4811 - Introduction to Econometrics

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 3200 - Elementary Differential Equations
- MATH 4310 - Introduction to Real Analysis I
- MATH 4650 - Numerical Analysis I
- MATH 4779 - Math Clinic
- MATH 4810 - Probability
- MATH 4820 - Introduction to Mathematical Statistics

Take **one** of the following courses:

- MATH 3301 - Introduction to Operations Research I - Deterministic Systems
- MATH 3302 - Operations Research II
- MATH 4387 - Applied Regression Analysis
- MATH 4409 - Applied Combinatorics
- MATH 4733 - Partial Differential Equations
- MATH 4791 - Continuous Modeling
- MATH 4792 - Probabilistic Modeling
- MATH 4793 - Discrete Math Modeling
- MATH 4794 - Optimization Modeling

Take **one** of the following courses:

- MATH 4110 - Theory of Numbers
- MATH 4140 - Introduction to Modern Algebra
- MATH 4201 - Topology
- MATH 4220 - Higher Geometry II
- MATH 4320 - Introduction to Real Analysis II
- MATH 4408 - Applied Graph Theory

Take **five** Economics elective courses or **four** Economics elective courses plus **one** Mathematics elective course:

- Any **five** three semester hour courses taken in Economics may satisfy this requirement, other than internships and independent studies (which require the approval of the department chair). *Note:* ECON 3801 and ECON 3811 cannot be counted as electives. **or**
- One of the following Mathematics courses can be counted as **one** Economics elective (it may also be counted as **one** Mathematics required course or **one** Mathematics elective):

- MATH 3301 - Introduction to Operations Research I - Deterministic Systems
- MATH 3302 - Operations Research II
- MATH 4387 - Applied Regression Analysis
- MATH 4390 - Game Theory
- MATH 4450 - Complex Variables
- MATH 4733 - Partial Differential Equations
- MATH 4830 - Applied Statistics
- MATH 5350 - Mathematical Theory of Interest

Take **two** Mathematics elective courses or **one** Mathematics elective course plus **one** Economics elective course:

- Students must choose **two** approved Mathematics electives (at least three semester hours) above 3000, excluding MATH 4012, 4013, 4014, 4015 and 4830 **or**
- **One** of the following Economics courses can be counted as **one** Mathematics elective (and can also be counted as **one** Economics elective):
 - ECON 4030 - Data Analysis with SAS
 - ECON 4110 - Money and Banking
 - ECON 4150 - Economic Forecasting
 - ECON 4320 - Financial Economics
 - ECON 4430 - Economic Growth
 - ECON 4550 - Game Theory and Economic Applications
 - ECON 4610 - Labor Economics
 - ECON 4740 - Industrial Organization

PUBLIC AFFAIRS BA/MPA

Licensure

UNDERGRADUATE TEACHER LICENSURE

Undergraduate Teacher Education Program

The undergraduate teacher education program at CU Denver is a joint effort between the College of Liberal Arts and Sciences and the School of Education & Human Development. Students earn a bachelor's degree through the College of Liberal Arts and Sciences and a teaching license through the School of Education & Human Development.

This undergraduate program is dedicated to quality teacher education. To that end, our admission standards are rigorous and there are a number of program "gates" that teacher candidates go through to complete licensure.

CU Denver has selective admission standards for entering freshmen, including a 93 institutional index that includes students who are typically in the top third of their class or have a 3.4 GPA or score above a 23 on the ACT or 1100 on the SAT. Students transferring from community colleges must have a minimum of a 2.5 GPA.

Please note: The admission into the School of Education & Human Development teacher education program is a separate process from admission to the university. Summer deadlines are January 15 February 15; the fall deadline is March 15. Spring admission deadlines are August 15, September 15 and October 15.*

Undergraduate Teacher Education Pathways

Undergraduate teacher candidates can earn a BA and a Colorado provisional teacher's license in the following areas:

- BA—Individually Structured Major Elementary Education Licensure
- BA—English Literature Secondary English Licensure
- BS—Mathematics Secondary Mathematics Licensure
- BA—History Secondary Social Science Licensure
- BA—Political Science Secondary Social Science Licensure
- BA—Spanish Secondary Spanish Licensure
- BA—French Secondary French Licensure

Program Distinctions

Program Structure

The School of Education & Human Development teacher education program admits teacher candidates in two cohort groups: one in the summer/fall and one in the spring. The initial professional teacher education program includes a 12- or 15-month licensure plan. Students will be taking course work at the university and field-based work in one of CU Denver's partner schools. By enrolling in several courses together, elementary and secondary teacher candidates consider how students develop as learners over the entire K–12 school span. This collaborative approach applies to students in the general and special education program as well. This ensures that all elementary and secondary classroom teachers are well-prepared to work with students with special needs and that all special educators have a solid foundation in general education in curriculum and instruction.

Professional Development Schools

While in the licensure portion of the program, teacher candidates work in a partner school one to four days per week, depending on the internship. University courses are closely interrelated with the four internship experiences in which teacher candidates gradually assume responsibility for teaching. Elementary teacher candidates generally spend an entire academic year in a single partner elementary school, whereas secondary teacher candidates spend their four internships in one of the partner middle schools *and* one of the partner high schools. The partner schools are located in several Denver metropolitan districts with most serving large populations of low-income and/or minority students, as well as a sizeable number of students for whom English is a second language and students with special needs. Each partner school is supported by a site professor from the university one day per week and by a master teacher, called a site coordinator.

Assessment

In 2000, Senate Bill 154 required all Colorado teacher education institutions to become performance based. PBA stands for performance based assessment. PBAs are created that correspond to many of the teacher education courses and concurrent practice in the series of internships. In doing so, knowledge can be evaluated as a result of coursework and performance in schools simultaneously. As teacher candidates progress through the program, they will be introduced to Performance Based Assessments (PBAs) and will be guided and supported in both coursework and internships. Students seeking dual licensure are responsible for four additional PBAs associated with their second endorsement in Special Education.

The PBAs are:

1. Literacy Instruction & Assessment (elementary and secondary versions)
2. Mathematics Instruction & Assessment (elementary)
3. Subject Matter Content (secondary)
4. Student Profile
5. Classroom Management
6. Teacher Work Sample (TWS)
7. Internship Performance Rubric (used at the end of each internship)

Passing the PLACE or PRAXIS II Content examination prior to the final internship is also required before a candidate is eligible for a provisional teaching license in Colorado.

Undergraduate Advising

Undergraduate teacher candidates will have a team of individuals who work with them throughout the completion of their bachelor's degree and teacher licensure. The following are the members of the advising team:

College of Liberal Arts and Science (CLAS) Education Advisor

The CLAS advisor will assist you upon entry to the university through graduation. The CLAS advisor will monitor your progress through the core curriculum, pre-UCTE curriculum, eligibility requirements for the UCTE program and transfer credits. The CLAS advisor will also approve individually structured major-elementary education contracts for elementary education teacher candidates.

Faculty Advisor

A faculty advisor designated within the academic department works with undergraduate teacher education students pursuing secondary licensure regarding specific requirements within academic major (i.e., English, history, mathematics, Spanish, French, and political science). See the CLAS advisor for specific names and contact information.

School of Education and Human Development Advisor

An advisor in the School of Education and Human Development's Student Services Center (Lawrence St. Center Bldg., 701; 303-315-6300) is able to help with questions about prerequisite completion, taking the PRAXIS II/PLACE exam and other general questions.

UCTE Undergraduate Academic Planning Sheets

Developed in collaboration with the academic departments and UCTE program faculty, advisors will work with the teacher candidates on an academic planning sheet. There is little flexibility in the program course requirements as these requirements meet and exceed the Colorado Department of Education's teacher education professional and content standards.

UCTE Undergraduate Community College Articulation

CU Denver honors the community college articulation agreement to transfer the 60 designated semester hours from the community college to anyone admitted to the teacher licensure program. If the teacher candidate is a transfer student, he/she should work with his/her CLAS advisor early and often to ensure that all courses are transferred properly.

Programs of Study

Due to the complex nature of state mandated influences of teacher preparation courses and consistently evaluating this program for students, please refer to the most current version of the teacher education program handbook for academic requirements for this program.

Undergraduate Certificate Programs

APPLIED GERMAN LANGUAGE SKILLS UNDERGRADUATE CERTIFICATE

Introduction

The undergraduate certificate in applied German language skills is designed for students of any discipline who wish to acquire and demonstrate to potential employers that they possess a fluid working knowledge of the German language and understanding of the cultures in which German is spoken. The completion of the requirements for this certificate can also serve as a means for nondegree-seeking professionals to develop a working competency in the German language and culture for use in such areas as international business, education, genealogy, transatlantic travel, academic research, translation and many other fields.

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Certificate

- All currently enrolled students at CU Denver (undergraduate or graduate) in good standing (including nondegree-seeking students) are eligible for admission into the program.
- Any student who already possesses an undergraduate degree is also qualified for admission into the program, but must apply to the university as a nondegree-seeking student.
- Students working toward a baccalaureate degree who are currently enrolled in a college-level institution other than CU Denver are also eligible for certification.

General Requirements

- [Click here for information about Academic Policies.](#)

Certificate Requirements

1. Students must maintain a minimum 3.0 GPA in all course work applied to the certificate.
2. Students must submit documentation that they have passed an internationally recognized German language skills examination.

Take **15 hours** of German Language Skills:

Students must complete a minimum of 15 semester credit hours of upper-division German language skills courses. These courses are defined as those areas of study in which grammar, vocabulary, pronunciation and/or communicative abilities in German are the primary focus of instruction. Up to six credit hours of upper-division German skills courses may be applied as transfer credit from outside, college-level institutions. Alternately, students may apply up to nine credit hours of officially recognized study abroad credit toward this requirement.

Take **9 hours** of German Culture:

Students must complete a minimum of nine semester credit hours of German culture courses where the primary focus of instruction addresses any facet of Austrian, German and/or Swiss culture. These courses may be completed at any level (lower or upper division as well as graduate) and in any combination of disciplines, provided that the student supplies evidence that a significant portion of each course is devoted to Austrian, German and/or Swiss culture. This includes but is not limited to history, philosophy, political science, literature (in German or in translation) and other German cultural topics. Up to three credit hours of culture courses may be applied as transfer credit from outside, college-level institutions. Alternately, students may apply up to six credit hours of officially recognized, documented university-level course work (or the equivalent) in a German-speaking country.

APPLIED STATISTICS UNDERGRADUATE CERTIFICATE

Introduction

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

This is an on-campus program.

Declaring This Certificate

- All undergraduate students in good standing (including non-degree seeking students) will be admitted to the program. For students in the College of Liberal Arts and Sciences, this requires a cumulative grade point average of 2.0 or above.
- [Click here to see and print the application form.](#)

General Requirements

- [Click here for information about Academic Policies.](#)

Certificate Requirements

1. Some mathematical background (including calculus and linear algebra) is recommended.
2. Students must maintain a 3.0 GPA or above in certificate courses with no credit given for courses with grades below B-.
3. 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 are expected to be taken in residency at the University of Colorado Denver.

Take the following **Applied Statistics** course:

- MATH 2830 - Introductory Statistics

Take **one** of the following Applied Statistics Basic Methods courses:

- MATH 4820 - Introduction to Mathematical Statistics
- MATH 4830 - Applied Statistics

Take **one** of the following Applied Statistics Advanced Methods courses:

- MATH 4387 - Applied Regression Analysis
- MATH 4394 - Experimental Designs
- ECON 4150 - Economic Forecasting
- ECON 4811 - Introduction to Econometrics
- GEOG 4770 - Applied Statistics for the Natural Sciences
- SOCY 5183 - Seminar: Quantitative Data Analysis

Complete an independent data analysis project:

- MATH 4840 - Independent Study (1 hour) **or**
- an equivalent course pre-approved by the certificate coordinator.

Note: An independent data analysis project includes a report and presentation to demonstrate proficiency with data analysis techniques and a statistical computing software package.

BIOCHEMISTRY CERTIFICATE

Introduction

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Certificate

- Prerequisites for the Certificate (these courses do not have to be completed at CU Denver):
 - 2 semesters General Chemistry, with laboratories
 - 2 semesters General Biology, with laboratories
 - 2 semesters Organic Chemistry, with at least 1 semester laboratory
- A grade of C (2.0, not C-) or better in each of the Prerequisites is required.

General Requirements

- [Click here for information about Academic Policies](#)

Certificate Requirements

1. The required courses including electives must be completed at CU Denver with a grade of C (2.0, not C-) or better in each class, and a minimum GPA of 2.7 among the Required Courses including electives counted toward the certificate.

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

- CHEM 3810 - Biochemistry
- CHEM 4810 - General Biochemistry I

Take **both** of the following courses:

- CHEM 4820 - General Biochemistry II
- BIOL 3611 - General Cell Biology

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

- CHEM 3011 - Inorganic Chemistry
- CHEM 3111 - Analytical Chemistry
- CHEM 4121 - Instrumental Analysis
- CHEM 4511 - Physical Chemistry I
- CHEM 4521 - Physical Chemistry II
- CHEM 4828 - Biochemistry Lab
- 3-credit internship or independent study in Biochemistry, with prior approval

- PHYS 3151 - Biophysics Outlook I **and**
- PHYS 3161 - Biophysics Outlook II
(these two 1-credit courses together fulfill one elective requirement)

- PHYS 3451 - Biophysics of the Cell

- BIOL 3124 - Introduction to Molecular Biology **or**
- BIOL 4128 - Topics in Molecular Biology

- BIOL 3225 - Human Physiology
- BIOL 3832 - General Genetics
- BIOL 4064 - Advanced Cell Biology
- BIOL 4068 - The Cell Cycle
- BIOL 4125 - Molecular Biology Laboratory
- BIOL 4126 - Molecular Genetics
- BIOL 4144 - Medical Microbiology
- BIOL 4550 - Cell Signaling

BIOTECHNOLOGY CERTIFICATE

Introduction

Biotechnology is a rapidly growing field in Colorado, and nationally. Biotechnology is a broad term covering many disciplines. Agriculture, pharmaceuticals, microbiology, and medical device development are a few of the thriving areas of biotechnology in Colorado. Those wishing to pursue a career in biotechnology need to have a strong knowledge of biology and chemistry. The Department of Integrative Biology offers a Certificate program in Biotechnology that allows students to acquire special skills in research-based biology and chemistry. The certificate is designed to provide a strong background in chemistry, including organic and biochemistry, and in Biology, including both prokaryotic and eukaryotic molecular biology and gene regulation. Upon completion of the requirements, the student will obtain recognition in the form of a Certificate and designation on their transcript.

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Certificate

Students may earn the certificate while working on their Bachelors or Master's Degree; or, the courses may be taken through non-degree admission. All admissions questions should be directed to the Registrar's office (303-556-2389). All questions regarding tuition and fees should be directed to the Bursar's office (303-556-2710).

Prerequisites:

- One year of General Biology and one semester of General Microbiology, both with labs.
- Cumulative GPA of 2.75 or better.

Students interested in completing the Biotechnology certificate should contact the Department of Integrative Biology. A certificate will be issued and noted on your transcript upon proof of satisfactory completion of the course work. You must contact the program advisor when you

have completed all the requirements, the semester you are going to graduate, in order for the certificate recognition to appear on your transcripts.

General Requirements

- [Click here for information about Academic Policies.](#)

Certificate Requirements

1. All courses (21-22 credits) used to satisfy the requirements for the Biotechnology Certificate must be completed with a grade of B- (2.7) or better.
2. No fewer than 14 credits of those used to satisfy the requirements for the Biotechnology Certificate must be completed at CU Denver.
3. All courses used to satisfy the requirements for the Biotechnology Certificate must be completed within a five year period.
4. Students may earn the certificate while working on their Bachelors Degree; or, the courses may be taken through non-degree admission.

Take **all** of the following Biotechnology courses:

- BIOL 4024 - Introduction to Biotechnology

- BIOL 3124 - Introduction to Molecular Biology **or**
- BIOL 4128 - Topics in Molecular Biology

- BIOL 4125 - Molecular Biology Laboratory

- CHEM 4810 - General Biochemistry I **or**
- CHEM 5810 - General Biochemistry I
and
- CHEM 4820 - General Biochemistry II **or**
- CHEM 5820 - General Biochemistry II
or
- CHEM 3111 - Analytical Chemistry **and**
- CHEM 3810 - Biochemistry

- BIOL 3939 - Internship **or**
- BIOL 4840 - Independent Study **or**
- BIOL 5840 - Independent Study: BIOL

Take **one** of the following Elective courses (or a course pre-approved by Dr. Johansen):

- BIOL 4051 - Advanced Topics In Microbiology **or**
- BIOL 5051 - Advanced Topics In Microbiology

- BIOL 4126 - Molecular Genetics **or**
- BIOL 5126 - Molecular Genetics

- BIOL 4144 - Medical Microbiology **or**
- BIOL 5144 - Medical Microbiology

- CHEM 3111 - Analytical Chemistry (if not applied above) **or**
- CHEM 5110 - Advanced Analytical Chemistry

- CHEM 4121 - Instrumental Analysis
- CHEM 4828 - Biochemistry Lab

COMMUNITY LEADERSHIP UNDERGRADUATE CERTIFICATE

Introduction

The Center for NEW DIRECTIONS in Politics and Public Policy offers an undergraduate certificate in 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. The certificate is open to non-degree seeking students (without an undergraduate degree) as well as undergraduates.

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 can also serve as a re-entry point for individuals who have been away from higher education for some time and who are fearful of returning to college to complete their BA degree program when their study skills may have faded.

Students who successfully complete the certificate program would be allowed to transfer in the credits received in the certificate program to complete their undergraduate degree at the University of Colorado Denver. Undergraduate student transfer of credits would follow completion of the formal application for admission and follow the established review for acceptance of transfer credits.

Program Delivery

- This is an on-campus program.

Declaring This Certificate

- Individuals who are not currently admitted students seeking the undergraduate Community Leadership Certificate should 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 undergraduate program at CU Denver would need to complete the application for admissions and be formally admitted by the University prior to requesting transfer of their certificate credits for their degree program.
- Currently admitted undergraduates should schedule certificate advising appointments with the NEW DIRECTIONS office to register their intent to pursue the Community Leadership Certificate. Then they may register for classes as usual.

General Requirements

- [Click here for information about Academic Policies.](#)

Certificate Requirements

1. Twelve credit hours must be successfully completed with a grade of B- or better.

Take **all** of the following courses:

- PSCI 4324 - Politics, Public Policy and Leadership
- PSCI 4644 - Ethical Responsibilities of Leaders

Take **one** of the following electives:

- PSCI 4274 - Conflict Resolution and Public Consent Building
- PSCI 4414 - Organizational Change Agents

Take **one** of the following electives:

- PSCI 4374 - Public Priorities for the 21st Century
- PSCI 4084 - Local Government and Administration

COMPUTER GRAPHICS AND VISUAL EFFECTS UNDERGRADUATE CERTIFICATE

Introduction

Please [click here](#) to see General Visual Arts information.

The undergraduate certificate in computer graphics and visual effects is designed to enhance computer science majors' post-graduation professional marketability and preparation for graduate studies. Students who complete this certificate will understand the characteristics and capabilities of various computer graphic technologies (hardware and software), their value for expressive, functional and strategic applications, their positions within larger contexts and systems, and their influences on individuals and society.

Courses for this certificate are billed at a different rate than the standard course tuition due to the state-of-the-art technology used in the program. For more information regarding this rate, contact Digital Animation Center (DAC) Director Howard Cook at howard.cook@ucdenver.edu or the College of Arts & Media Advising Office at CAMadvising@ucdenver.edu.

Program Delivery

- This is an on-campus program.

Declaring This Certificate

- Only students enrolled in the CU Denver computer science degree program may apply for admission to this certificate. Please contact DAC Director Howard Cook at howard.cook@ucdenver.edu for information about the application process.

General Requirements

- [Click here](#) for information about Academic Policies.

Certificate Requirements

1. All courses for this certificate must be taken at CU Denver.
2. Each course must be completed with a grade of C (2.0) or better. Students earning the certificate must have at least a 2.0 cumulative CU GPA.
3. All applicable courses taken in a College of Arts & Media certificate program can be used toward the requirements for a CAM degree program.

The following Computer Graphics and Visual Effects Certificate course requirements are subject to change. Please contact DAC Director Howard Cook at howard.cook@ucdenver.edu for updates.

Take **all** of the following Computer Graphics and Visual Effects Certificate courses (entry-level):

- FINE 1810 - Digital Animation Foundations: Producing Animation
- FINE 1820 - Digital Animation Foundations: Introduction to Digital 3D

After completing the above two courses, take the following Computer Graphics and Visual Effects Certificate course (available only to students who are accepted into the certificate):

- FINE 2810 - Digital Animation Techniques: Surface Modeling

After completing FINE 2810, take **one** of the following Computer Graphics and Visual Effects Certificate courses (available only to students who are accepted into the certificate):

- FINE 2820 - Digital Animation Techniques: Surface Properties
- FINE 2830 - Digital Animation Techniques: Lighting
- FINE 2850 - Digital Animation Techniques: 3D Character Creation
- FINE 3850 - Digital Animation Techniques: Dynamic Simulation

CULTURAL DIVERSITY STUDIES UNDERGRADUATE CERTIFICATE

Introduction

The undergraduate certificate in cultural diversity studies is designed to appeal to undergraduate students with a background in any major. It will allow students to demonstrate to potential employers that they possess the multicultural skills and knowledge necessary to succeed in the workplace. Students will enroll in department courses that focus on the historical context in which race and culture have emerged in the United States.

This certificate is also targeted to nondegree-seeking professionals who seek to acquire multicultural knowledge and the skills necessary to ensure their success in professional environments. Students will be encouraged to think critically about race and race relations. Their expanded understandings of the implications of race and culture in work environments will ensure employers that they offer the highest quality employees opportunities in employment or advancement.

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Additional information about the undergraduate certificate in cultural diversity studies may be obtained from ethnic studies Director Donna Langston, Lawrence Street Center, 480, 303-315-3616, Donna.Langston@ucdenver.edu.

Program Delivery

- This is an on-campus program.

Declaring This Certificate

- Please see your advisor.

General Requirements

- [Click here for information about Academic Policies.](#)

Certificate Requirements

1. The undergraduate certificate in cultural diversity studies requires 12 semester hours (four courses).
2. A minimum grade of *B-* must be earned in each of the four courses completed as part of the certificate.
3. All credits for the certificate must be earned at CU Denver.

Take the following **required** Cultural Diversity Studies course:

- ETST 2000 - Introduction to Ethnic Studies

Choose **three** Elective courses from any Ethnic Studies Department courses, including the following:

- ETST 2155 - African American History
- ETST 2294 - Race and the Media
- ETST 3254 - Race and Ethnicity in the Inner City
- ETST 3297 - Social History of Asian Americans
- ETST 3396 - History of the American Indian
- ETST 3704 - Culture, Racism and Alienation

- ETST 4558 - Chicano and Latino Politics

There are cross-listed courses in a variety of departments, including history, political science and sociology. Any cross-listed course is acceptable. You must register for it under ETST numbers. A complete listing of department offerings and cross-listed courses can be obtained every semester from the Ethnic Studies Department web page: (www.ucdenver.edu/academics/colleges/CLAS/Departments/ethnicstudies/Pages/EthnicStudies.aspx) or by calling our office at 303-315-3616 for a copy.

DEMOCRACY AND SOCIAL MOVEMENTS UNDERGRADUATE CERTIFICATE

Introduction

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.

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.

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Certificate

- Please see your advisor.

General Requirements

- [Click here](#) for information about Academic Policies.

Certificate Requirements

1. The undergraduate certificate requires five program courses (15 credits, with at least 6 credits at the upper division level), one in each of the four political science subfields and the capstone seminar, as well as completion of an appropriate experiential learning requirement.
2. All courses for the certificate must be taken in residency at CU Denver, and completed with a grade of *C* or higher.
3. A minimum GPA of 2.0 is required for the undergraduate certificate.
4. Topics courses approved by the program advisor can also satisfy course requirements.
5. All students, whether working toward a degree or as a non-degree student, are eligible for the certificate.

Take **one** of the following International Politics courses*:

- PSCI 4216 - International Politics: Human Rights
- PSCI 4225 - Democracy and Democratization
- PSCI 4265 - Social Justice And Globalization
- PSCI 4808 - Strategies of Peacebuilding

Take **one** of the following Comparative Politics courses*:

- PSCI 4146 - Indigenous Politics
- PSCI 4224 - Dictatorships in 21st Century
- PSCI 4225 - Democracy and Democratization
- PSCI 4555 - International Women's Resistance
- PSCI 4808 - Strategies of Peacebuilding

Take **one** of the following American Politics courses*:

- PSCI 3035 - Political Movements: Race and Gender
- PSCI 3914 - The Urban Citizen

- PSCI 4074 - Urban Politics

Take **one** of the following Political Theory courses*:

- PSCI 4207 - Theories of Social and Political Change
- PSCI 4265 - Social Justice And Globalization

**Note:* Some courses appear more than once in different subfields; students should choose four different subfield courses, not count one toward two subfields.

Take the following **Capstone** course:

- PSCI 4206 - Social Movements, Democracy and Global Politics

Complete the **Experiential Learning Requirement**:

Like the existing departmental experiential learning requirement for majors, this requirement can be fulfilled without taking course credits, for example, by documenting the inclusion of significant experiential learning/field work in regular course work, or by documenting significant relevant field work in one's professional life.

ETHICS UNDERGRADUATE CERTIFICATE

Introduction

The certificate in ethics is designed for students currently enrolled in a degree program as well as nondegree students.

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences 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.

Program Delivery

- This is an on-campus program.

Declaring This Certificate

- Please see your advisor.

General Requirements

- [Click here for information about Academic Policies.](#)

Certificate Requirements

1. A total of 15 semester hours is required for an Ethics certificate.

Take the following **required** Ethics course:

- PHIL 1020 - Introduction to Ethical Reasoning

Take **four** of the following Ethics courses:

- PHIL 3002 - Ancient Greek Philosophy
- PHIL 3150 - History of Ethics
- PHIL 3200 - Social and Political Philosophy
- PHIL 3250 - Business Ethics
- PHIL 3500 - Ideology and Culture: Racism and Sexism
- PHIL 4150 - Twentieth Century Ethics
- PHIL 4242 - Bioethics

Take the following required **Capstone** course*:

- PHIL 3840 - Independent Study

**Note:* Students are required to write a capstone paper in an area of ethics directly related to their career and/or field of study.

GEOGRAPHIC INFORMATION SCIENCE UNDERGRADUATE CERTIFICATE

Introduction

The intention of this certificate is to provide undergraduates with a mechanism for demonstrating capabilities in spatial techniques in the social and/or physical sciences. The focus of this certificate is on a broad array of geotechniques, including geographic information systems, remote sensing, cartography and statistics, which give students additional analytical skills to take into the workplace or on to graduate school. This certificate is designed for geography majors as well as nonmajors.

Upon successful completion of the certificate, students will be able to:

- understand basic theoretical underpinnings of spatial analysis
- apply geo-spatial technologies to real-world applications
- have a basic knowledge of how to operate at least three types of software used for spatial analysis

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.

Program Delivery

- This is an on-campus program.

Declaring This Certificate

- Of the four core requirements, only the statistics class has prerequisites, including algebra and introductory calculus. Because of the technical nature of the GIS and remote sensing course work, however, some mathematical experience is desirable prior to beginning the program.
- Students may begin the program in any semester or during the summer by making arrangements with the GISci certificate coordinator, and completing and signing the Application for GISci Certificate.

General Requirements

- [Click here for information about Academic Policies.](#)

Certificate Requirements

1. Students must have a 3.0 GPA in all approved geographic technology courses to earn the certificate.
2. The certificate will be awarded when the student graduates with the bachelor's degree. For those who already have a bachelor's degree, the certificate will be awarded upon completion of the program.
3. To obtain the certificate, students must complete four core courses, one elective, and a 1-hour independent study, totaling 16 hours.
4. Although the four core courses may be taken in any order, it is advisable to begin with GEOG 4081 - Introduction to Cartography and Computer Mapping since this course familiarizes students with many key concepts used in the other classes.
5. All core courses are offered on a yearly basis. Any alterations to the program **MUST** be approved by the GISci Coordinator.

Take **all** of the following Geographic Information Science courses:

- GEOG 4060 - Remote Sensing I: Introduction to Environmental Remote Sensing
- GEOG 4080 - Introduction to GIS
- GEOG 4081 - Cartography and Computer Mapping
- GEOL 4770 - Applied Statistics for the Natural Sciences **or** equivalent course approved by the GISci Certificate Coordinator.

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

- GEOG 4070 - Remote Sensing II: Advanced Remote Sensing
- GEOG 4085 - GIS Applications for the Urban Environment
- GEOG 4090 - Environmental Modeling with Geographic Information Systems
- GEOG 4095 - Deploying GIS Functionality on the Web
- GEOG 4235 - GIS Applications in the Health Sciences
- CVEN 5382 - GIS Spatial Database Development
- CVEN 5385 - GIS Relational Database Systems **or** an elective approved by the GISci Certificate Coordinator.

MEDIATION UNDERGRADUATE CERTIFICATE

Introduction

Mediation entails a third-party intervention designed to assist parties in managing conflict.

Trained mediators are impartial process experts who learn to utilize communication and conflict philosophy and theories to increase the probability of more favorable outcomes between parties in conflict. The undergraduate certificate is designed for communication majors or any student

interested in developing practical skills in alternative dispute resolution. The courses in this certificate focus on alternative dispute processes that include strategies for managing conflict in personal, public, legal, political, governmental and corporate contexts.

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.

Program Delivery

This is an on-campus program.

Declaring This Certificate

General Requirements

- [Click here for information about Academic Policies.](#)

Certificate Requirements

1. The undergraduate certificate in mediation requires 12 semester hours (four courses).
2. A grade of B or higher must be earned in each course completed as part of the certificate (a grade of B- is not acceptable).
3. All of the credit hours for the certificate must be earned at the University of Colorado Denver.

Take the following **Mediation** core course:

- COMM 4262 - Mediation

Take **at least one** of the following two courses (students who take both classes take one elective rather than two; students who take only one must select two electives):

- COMM 4255 - Negotiations and Bargaining
- COMM 4260 - Communication and Conflict

Take **one or two** of the following Elective courses:

- COMM 2140 - Argumentation
- COMM 3271 - Communication and Diversity
- COMM 4240 - Organizational Communication
- COMM 4282 - Environmental Communication
- COMM 4681 - Communication Issues in Trial Court Practices and Processes

PUBLIC RELATIONS UNDERGRADUATE CERTIFICATE

Introduction

Public relations 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 undergraduate certificate in public relations is designed for undergraduate communication majors who wish to demonstrate to potential employers that they possess skills and knowledge in the area of public relations. It also is useful for non-degree-seeking working professionals without bachelor's degrees who plan to enter or re-enter the workplace and who seek to acquire the skills and knowledge necessary to perform public relations in their professional environments.

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.

Program Delivery

This is an on-campus program.

Declaring This Certificate

- Students should apply for the undergraduate certificate in Public Relations *after* the completion of the required courses.
- To apply, students must complete the certificate application (see the Communications Department website) and return it to Dr. Hamilton Bean in his mailbox in room 102-A of the Plaza 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 mailed to the student.
- Students who are not already enrolled at CU Denver must also complete an Application for Non-Degree Admission prior to registering for courses. The form should be returned to the Office of Admissions in the annex of the CU Building.

Additional information about the undergraduate certificate in Public Relations may be obtained from Dr. Hamilton Bean, Department of Communication, Plaza 102-Q, 303-352-3876, Hamilton.Bean@ucdenver.edu.

General Requirements

- [Click here for information about Academic Policies.](#)

Certificate Requirements

1. The undergraduate certificate in public relations requires 12 semester hours (four courses).
2. A grade of B must be earned in each course completed as part of the certificate.
3. All of the credit hours for the certificate must be earned at the University of Colorado Denver.

Take **all** of the following Public Relations courses:

- COMM 4635 - Principles of Public Relations
- COMM 4640 - Advanced Public Relations
- COMM 4665 - Principles of Advertising

Take **one** of the following Public Relations courses:

- COMM 3680 - Mass Communication Skills
- COMM 4240 - Organizational Communication
- COMM 4805 - Graphics

SCIENTIFIC FOUNDATIONS OF TECHNICAL INNOVATION CERTIFICATE

Introduction

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.

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.

Program Delivery

- This is an on-campus program.

Declaring This Certificate

- 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.

General Requirements

- [Click here](#) for information about Academic Policies.

Certificate Requirements

Take **all** of the following Scientific Foundations of Technical Innovation courses:

- PHYS 4850 - Physics for Design and Innovation I
- PHYS 4852 - Physics for Design and Innovation II

Take **six** 1 semester-hour short courses out of the list of Topics in Scientific Instrumentation; the specific sequence must be approved by the certificate advisor.

- PHYS 4400 - Topics in Scientific Instrumentation and Laboratory Methods

VISUAL COMMUNICATION OF SCIENCE UNDERGRADUATE CERTIFICATE

Introduction

Please [click here](#) to see General Visual Arts information.

The undergraduate certificate in visual communication of science enhances science/biology/medical students' ability to communicate science visually. Students who complete the certificate will have a general understanding of design research, storytelling, interpretation and creative problem solving. They will be comfortable with software tools for computer based design such as Adobe Photoshop and Adobe Illustrator, have a wide ranging skill set that can be applied toward communicating science with various tools, and be competent in the production and delivery of clear, thoughtful presentations of scientific research and subject matter.

Program Delivery

- This is an on-campus program.

Declaring This Certificate

- To declare a CAM certificate, please see the College of Arts & Media's Office of Advising and Student Services in Arts Building, 177. Consult an advisor in the College of Arts & Media at CAMadvising@ucdenver.edu for more information.

General Requirements

- [Click here](#) for information about Academic Policies.

Certificate Requirements

1. All courses for this certificate must be taken at CU Denver.
2. Each course must be completed with a grade of C (2.0) or better. Students earning the certificate must have at least a 2.0 cumulative CU GPA.
3. All applicable courses taken in a College of Arts & Media certificate program can be used toward the requirements for a CAM degree program.

Take **all** of the following Visual Communication of Science Certificate courses:

- FINE 2405 - Introduction to Digital Design
- FINE 2428 - Introduction to Scientific Media Design

After completing the above two courses, complete **all** of the following Visual Communication of Science Certificate courses:

- FINE 4446 - Visualization & Infographics
- FINE 4447 - Presenting Science

Courses

Catalog Course Definitions

Core - Course is approved for specific core curriculum (i.e. arts and sciences curriculum; quantitative reasoning and mathematical skills)

Cross-Listed – Class that is offered along with another class that has the same topic, title, and course content. If cross-listed with another course, applicable credits only apply towards one degree.

Gt - Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer as part of the gtPathways program.

Max Hours – Allowed to apply towards a degree for specific amount of hours, as listed in the course description; applicable credits only apply towards one career.

Requisite:

- **Prerequisite** - Specific course completed or “in progress” (i.e. ENGL 1020 or ENGL 1020 with C- or higher)
- **Corequisite** – Specific course taken at the same time (i.e. BIOL 2071 taken same time as BIOL 2051)
- **Restriction** – Restricted to a specific population (i.e. Restricted to MUSC majors or junior standing, etc.)

Course Number Definitions:

- 1000 - 4999 Undergraduate Level
- 5000 - 9999 Graduate Level

Access-Counsel Psych/Counsel

ACPC 5110 - Group Counseling

Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACPC 5400 - Career Development

Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACPC 5820 - Strategies in Agency Counseling

Max hours: 6 Credits. **Semester Hours:** 6 to 6

Accounting

ACCT 2200 - Financial Accounting and Financial Statement Analysis

The financial accounting process, the role of the profession and the analysis of financial statements. Principal focus on interpretation of financial statements, with emphasis on asset and liability valuation problems and the determination of net income. Prereq: MATH 1070 and sophomore standing. A grade of 'C' or better is required in this course to proceed to ACCT 2220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 2220 - Managerial Accounting and Professional Issues

Introduces managerial accounting. Shows managers how to use accounting information to make decisions. Principal focus on cost behavior analysis, budgeting and product costing. Prereq: ACCT 2200 with a grade of 'C' or better and sophomore standing. Strictly enforced. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 2550 - Introductory Accounting for Entrepreneurs and the Arts

An integration of financial and managerial accounting processes as they relate to Entrepreneurs, Arts & Media managers and similar applications. This course will cover the analysis and interpretation of financial statements, asset and liability valuation and the determination of net income. Incorporates the use of accounting information to make decisions focusing on cost behavior analysis, budgeting and product costing in entrepreneurial and arts related businesses. Prereq: MATH 1070 or 1110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 3220 - Intermediate Financial Accounting I

An intensive analysis of generally accepted accounting principles, accounting theory and preparation of annual financial statements for public corporations. Must complete course with a 'C' to qualify in graduation requirements. Prereq: ACCT 2220 and DSCI 2010 with a C or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 3230 - Intermediate Financial Accounting II

Selected topics not covered in ACCT 3220. Must complete course with a grade of 'C' to qualify in graduation requirements. Prereq: ACCT 3220, completed with a grade of a 'C' or better. Strictly enforced. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 3320 - Intermediate Cost Accounting

Cost analysis for purposes of control and decision making. Analysis of cost behavior, role of accounting in planning and control, and managerial uses of cost accounting data. Includes use of computer assisted decision models. Must receive a 'C' grade to qualify in graduation requirements. Prereq: ACCT 2220, and DSCI 2010 completed with a grade of 'C' or better. Strictly enforced. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 3939 - Internship

Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: Senior standing and 3.5 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ACCT 4030 - Financial Accounting

Analysis of financial accounting concepts, the development of accounting thought and principles and critical review of generally accepted accounting principles. (Not recommended for candidates planning to sit for the CPA examination.) Note: Students who have taken ACCT 3220 or ACCT 3230 (or equivalent) may not take this course. Prereq: ACCT 2200 and ACCT 2220 or equivalent. Must have a 'C' or better in courses. Strictly enforced. Max hours: 3 Credits.

Semester Hours: 3 to 3

ACCT 4054 - Accounting Systems and Data Processing

The design and analysis of accounting information systems, with special emphasis on computers and computer programming, and the role of accounting in the management process. Must earn a grade of 'C' or better to qualify for graduation. Prereq: ACCT 3220 and ISMG 2050 with a grade of 'C' or better. Cross-listed with ACCT 6054. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 4070 - Management Accounting

Designed to provide students with a foundation in management accounting models and information, with emphasis on management decision making uses of accounting information. (Not recommended for candidates planning to sit for the CPA examination.) Prereq: ACCT 2200 and 2220 or equivalent with a grade of a 'C' or better. Note: Students who have taken ACCT 3320 or its equivalent may not take this course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 4240 - Advanced Financial Accounting

Advanced financial accounting concepts and practices with emphasis on accounting for partnerships, business combinations and consolidations. Prereq: ACCT 3230 with a grade of a 'C' or better. Strictly enforced. Cross-listed with ACCT 6024. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 4282 - Capitalism, Accounting and Ethical Choices

Examines the development of the U.S. economy from 1850 to today with emphasis on the ethics of accounting, capitalism, and government controls. Prereq: ACCT 3220 with a C or higher or permission. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 4330 - Managerial Accounting Problems and Cases

Critical analysis of advanced topics in managerial accounting. Considerable use of cases and current readings. Prereq: Completion of ACCT 3320 with a grade of 'C'. Strictly enforced. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 4370 - International Accounting

Designed to expose students to the international aspects of accounting and financial management. Includes discussion of some of the different financial accounting practices across countries; financial statement analysis in a global context, international auditing practices and procedures, international tax implications and the implications of operating within the regulations of the Foreign Corrupt Practices Act, the European Union, North American Free Trade Agreement and General Agreement on Tariffs and Trade. Prereq: Completion of ACCT 3220 with a grade of 'C' or better. Strictly enforced. Cross-listed with ACCT 6370 and INTB 6370. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 4410 - Income Tax Accounting

Provisions and procedures of federal income tax laws and requirements affecting individuals and business organizations, including problems of tax planning and compliance. Note: Students cannot receive credit for both ACCT 4410 and ACCT 6140. Prereq: ACCT 3220 with a C or higher. Cross-listed with ACCT 6140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 4490 - Experiential Learning

Designed to provide practical knowledge on developing a professional practice in accounting or financial management. Topics: Marketing, operating a professional practice. Lectures, guest speakers student projects. Prereq: ACCT 3220 completed with a 'C' or better, or permission of instructor. Cross-listed with ACCT 6490. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 4520 - Oil and Gas Accounting

The Oil and Gas Accounting course is designed to give students an overview of the oil and gas industry and the particular accounting issues this industry faces. The focus is on the oil and gas industry but many of the issues discussed are appropriate and applicable to all energy-related entities. This is a valuable learning experience for those interested in acquiring an understanding of the accounting issues for energy management firms in preparation for entry into public accounting. The course enjoys support from the energy industry in the form of guest speakers and project ideas. Prereq: ACCT 3220 with a grade of 'C' or better. Strictly enforced. Cross-listed with ACCT 6520. Max Hours: 3 credits. **Semester Hours:** 3 to 3

ACCT 4620 - Auditing Theory

Auditing Theory: Focus on the professional responsibilities of CPAs, generally accepted auditing standards, and PCAOB auditing standards, with emphasis on the theory underlying the development of standards, objectives and procedures. Students cannot receive credit for both ACCT 4620 & ACCT 6020. Prereq: ACCT 3220 and 4054 must be completed with a grade of a 'C' or better. Cross-listed with ACCT 6020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 4625 - Auditing Practice

Focus on the application of generally accepted auditing standards and PCAOB auditing standards to practice. Emphasis on procedures used by CPAs to gather and document audit evidence. Note: Students cannot receive credit for both ACCT 4625 and ACCT 6025. Prereq: ACCT 4620 and by permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 4780 - Accounting and Information Systems Processes and Controls

The course is designed to develop knowledge and skills used to understand and evaluate corporate accounting processes and systems. It focuses on financial and information system internal controls and the flow of corporate information through an accounting system. A financial system objective and risk assessment approach is used to present concepts and techniques for evaluating the adequacy of system processes and controls. Prereq: Completion of ACCT 2200, ACCT 2220 and ACCT 3054 with a grade of 'C' or better (strictly enforced). Cross-listed with ACCT 6510, ISMG 4780, and ISMG 6510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 4800 - Accounting for Government and Nonprofit Organizations

Planning and control of government and nonprofit organizations. Includes program budgets, responsibility accounting and fund accounting. Prereq: Completion of ACCT 3220 with a grade of 'C' and permission of instructor, strictly enforced. Cross-listed with ACCT 6080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 4840 - Independent Study

Max hours: 8 Credits. **Semester Hours:** 1 to 8

ACCT 4915 - Accounting for the Public Interest

Applies accounting knowledge and concepts in a not-for-profit organization. Student volunteers help with functions or special projects and are supervised by both faculty members and personnel from the agency to which they are assigned. Prereq: Permission of instructor. Cross-listed with ACCT 6015. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 4950 - Special Topics

Research methods and results, special topics and professional developments in accounting. Consult the current 'Schedule Planner' for semester offerings. Prereq: Varies according to topic and instructor requirements. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ACCT 5939 - Internship

Max hours: 3 Credits. **Semester Hours:** 1 to 3

ACCT 6015 - Accounting for the Public Interest

Applies accounting knowledge and concepts in a not-for-profit organization. Student volunteers help with functions or special projects and are supervised by both faculty members and personnel from the agency to which they are assigned. Note: This class is rarely offered. Prereq: Permission of instructor. Cross-listed with ACCT 4915. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6020 - Auditing Theory

Focus on the professional responsibilities of CPAs, generally accepted auditing standards, and PCAOB auditing standards, with emphasis on the theory underlying the development of standards, objectives and procedures. Students cannot receive credit for both ACCT 4620 & ACCT 6020. Prereq: ACCT 3220 completed with ?C? or better or ACCT 6030 'B'. Cross-listed with ACCT 4620. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6024 - Advanced Financial Accounting

Advanced financial accounting concepts and practice with emphasis on accounting for partnerships, business combinations and consolidations. Prereq: ACCT 3230 or 6030 with a grade of C or higher. Cross-listed with ACCT 4240. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6025 - Auditing Practice

Focus on the application of generally accepted auditing standards and PCAOB auditing standards to practice. Emphasis on procedures used by CPAs to gather and document audit evidence. Students cannot receive credit for both ACCT 4625 and ACCT 6025. Prereq: ACCT 4620 must be completed with a grade of "B" or better, or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6030 - Financial Accounting

Accelerated analysis of financial accounting concepts, the development of accounting thought and principles and critical review of generally accepted accounting principles. Note: STUDENTS WHO HAVE TAKEN ACCT 3220 and ACCT 3230 (or equivalent) MAY NOT TAKE THIS COURSE. Student must take both ACCT 3220 AND 3230) Prereq: BUSN 6550 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6033 - Advanced Managerial Accounting

Critical analysis of advanced topics in managerial accounting. Note: This class is rarely offered. Prereq: ACCT 3320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6054 - Accounting Systems and Data Processing

The design and analysis of accounting information systems, with special emphasis on computers and computer programming, and the role of accounting in the management process. Prereq: Completion of ACCT 2220 and ISMG 2050 with a grade of "C" or better (strictly enforced). Cross-listed with ACCT 4054 (previously ACCT 3054) Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6070 - Management Accounting

Designed to provide graduate business students with a foundation in management accounting models and information, with emphasis on management decision making uses of accounting information. Note: STUDENTS WHO HAVE TAKEN ACCT 3320 (or equivalent) MAY NOT TAKE THIS COURSE. Prereq: BUSN 6550 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6080 - Accounting for Government and Nonprofit Organizations

Nonprofit Organizations. Planning and control of government and nonprofit organizations. Includes program budgets, responsibility accounting and fund accounting. Prereq: ACCT 3220 or BUSN 6550 or permission of instructor. Cross-listed with ACCT 4800. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6140 - Tax Planning for Managers

A Federal tax survey course with an emphasis on tax planning for the graduate student who wants to understand the impact of taxation on individual and business transactions. Course materials emphasize the application of individual, partnership and corporate tax principles to the decision making process. Prereq: BUSN 6550 or equivalent. Note: Students cannot receive credit for both ACCT 4410 and 6140. Cross-listed with ACCT 4410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6250 - Seminar: Financial Accounting

Nature and origin of accounting theory and the development of postulates, principles and practices. Methodology appropriate to development and evaluation of accounting theory, with special emphasis on accepted research standards and procedures. Prereq: ACCT 3230 and ACCT 4620 or ACCT 6020 or concurrent registration in ACCT 4620 or ACCT 6020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6260 - Seminar: Managerial Accounting

Focuses on the conceptual foundations of managerial accounting. Behavioral and quantitative approaches regarding information for decision making, planning, control, performance evaluation and other issues are investigated. Prereq: ACCT 3320 or ACCT 6070 (or equivalent). Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6280 - Professional Judgment and Ethical Decisions in Accounting

Accounting is a process of providing economic information useful for decision making. This course provides (1) an opportunity to develop professional judgment skills, and (2) tools to make better decisions through an active, case-oriented learning method. Cases involve representative problems professional accountants face in financial reporting, audit, tax, business services, and practice management, including ethical conflicts and technical decisions. Participants learn to apply a structured decision model, incorporating critical, creative, evaluative and reflective judgment processes and learn how to recognize and avoid common decision errors and biases. Prereq: ACCT 4620 or ACCT 6020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6282 - Capitalism, Accounting and Ethical Choices

Examines the development of the U.S. economy from 1850 to today with emphasis on the ethics of accounting, capitalism, and government controls. Prereq: ACCT 2220 or BUSN 6550 (not strictly enforced). Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6285 - Accounting and Finance for Sustainability

Topics in accounting and finance related to business sustainability include the merits and challenges of a triple-bottom-line perspective, mandatory and voluntary reporting, environmental liability measurement and disclosure, emissions trading, green investments, shareholder activism, microfinance, and socially responsible investing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6290 - Management Control Systems

Focuses on the design and use of control systems which ensure that people in organizations behave consistently with the organizational goals. Controls for communication, motivation and performance evaluation (along with informational requirements) are stressed through analysis of cases and classroom discussion. Note: This class is rarely offered. Prereq: BUSN 6550 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6340 - Financial Statement Analysis

Financial statements are used as an information source on which to base investment, lending potential or even employment. Designed to develop skills in using, understanding, analyzing, and interpreting financial statements and to make students aware of the value and limitations of financial statement information. Note: Should take in the third semester of the graduate program. Prereq: BUSN 6550 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6350 - Current Issues in Professional Accounting

An in-depth analysis of current issues in the accounting profession, including ethics development, and validity of standards and regulations. Prereq: ACCT 3230, ACCT 4620, ACCT 6020 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6360 - Fraud Examination

This course examines the theories and methods of fraud examination in the context of auditing both for-profit and not-for-profit entities. Topics include identification of weaknesses in accounting controls, analytical review, and forensic accounting methods. Prereq: ACCT 4620 or ACCT 6020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6370 - International Accounting

Designed to expose students to the international aspects of accounting and financial management. Includes discussion of some of the different financial accounting practices across countries; financial statement analysis in a global context, international auditing practices and procedures, international tax implications and the implications of operating within the regulations of the Foreign Corrupt Practices Act, the European Union, North American Free Trade Agreement and General Agreement on Tariffs and Trade. Prereq: BUSN 6550 or equivalent. Note: Students cannot receive credit for both ACCT 6370 and INTB 6370. IFRS's are reviewed and compared with the requirements of US GAAP. Cross-listed with INTB 6370 and ACCT 4370. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6380 - Forensic Accounting

An examination of investigative auditing, fraud auditing, litigation support, and economic quantification of damages. Prereq: ACCT 4620 or ACCT 6020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6400 - Taxation of Corporations and Shareholders

A study of federal income tax problems of corporations and corporate shareholders. Prereq: ACCT 4410 & 6140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6410 - Advanced Tax For Individuals

Advanced federal income tax course stressing the use of the Internal Revenue Code, Treasury regulations, case law, and administrative guidance to resolve federal income tax issues affecting individuals. Topics: items of gross income inclusion/exclusions, deductions, items of non-recognition, characterization of income, and tax rates. Prereq: ACCT 4410 or 6140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6420 - Taxation of Estates and Gifts

Introduction to principles and practices associated with the taxation of estates and gifts. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6430 - International Taxation

International taxation focuses on the U.S. taxation of international transactions, including a review of the taxation systems in several countries. Includes different forms of doing business in several countries (e.g. in the U.S., would include sole proprietorship, partnerships, limited liability companies and corporations), the ease of operating each form of business, identifying how business owners are protected from the business liabilities and risks and the different, if any, tax treatments afforded each form of business. Other topics include a review of tax rates, consumption regimes (e.g. value -added taxes), the taxation of U.S. expatriates, the tax consequences of repatriating profits to the U.S., the application of any tax treaties with the U.S. and related tax matters. Prereq: ACCT 4410 or ACCT 6140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6440 - Tax Practice and Procedures

A study of organization, policies, and procedures of federal and state taxing authorities. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6450 - Research Problems In Taxation

Study of the methodology used in tax research and tax planning, together with a study of some aspects of tax administration and tax practice and some aspects of the current law and proposals for its revision. Note: This class is rarely offered. Prereq: ACCT 4410 or ACCT 6140 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6460 - Advance Topics in Taxation

Course will focus on advanced topics in tax planning for closely held businesses. Format: Lectures by expert tax professionals and questions/discussion on various topics with emphasis on current issues and trends. Prereq: ACCT 4410 or 6140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6470 - Internal Auditing

Intro course for business students and CIA candidates. Topics include: IA fundamentals; IA standards; internal controls; managing the IA department; IA working papers, procedures and evidences; fraud detection and prevention; ethics; evaluation of the IA function, and Sarbanes-Oxley Act of 2002. Prereq: ACCT 4620 or ACCT 6020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6480 - Partnership Taxation

Fundamentals of the Taxation of Partnerships and Partners. This class will focus on fundamental tax issues relating to partnerships and partners arising from the formation, operation, and liquidation of partnerships. Course work includes an examination of pertinent federal income tax returns of the partnership. Prereq: ACCT 4410 or 6140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6482 - Advanced Partnership Taxation

Advanced federal income tax course focusing on the taxation of partnerships and their partners. Topics: "substantial economic effect", allocation of debt to partners' bases, "hot assets", profits interests, related-party transactions, distribution "waterfalls", profit and loss allocation "waterfalls", and taxation of retiring partners. Prereq: ACCT 6480. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6490 - Experiential Learning

Designed to provide practical knowledge on developing a professional practice in accounting or financial management. Topics: Marketing, operating a professional practice. Lectures, guest speakers (if you are interested in being a guest lecturer for the class contact the instructor), and student projects. Prereq: ACCT 3220 or permission of instructor. Cross-listed with ACCT 4490. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6500 - Advanced Corporate Taxation

A study of the tax rules and problems relating to corporate organizations, reorganizations, commonly controlled corporations, and consolidated tax returns, with a special emphasis on the tax rules associated with restructuring of corporate entities in the context of corporate merger and acquisition transactions. Prereq: ACCT 6140 and 6400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6510 - Accounting and Information Systems Processes and Controls

The course is designed to develop knowledge and skills used to understand and evaluate incorporating accounting processes and systems. Focuses on financial and information system internal controls and the flow of corporate information through an accounting system. A financial system objective and risk assessment approach is used to present concepts and techniques for evaluating the adequacy of system processes and controls. Prereq: ACCT 4054 or ACCT 6054. Cross-listed with ACCT 4780, ISMG 4780 and 6510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6520 - Issues in Oil and Gas Accounting

The Oil and Gas Accounting course is a course designed to give students an overview of the oil and gas industry and the particular accounting issues this industry faces. The focus is on the oil and gas industry but many of the issues discussed are appropriate and applicable to all energy-related entities. This is a valuable learning experience for those interested in acquiring an understanding of the accounting issues for energy management firms in preparation for entry into public accounting. The course enjoys support from the energy industry in the form of guest speakers and project ideas. Prereq: BUSN 6550 or ACCT 3220 or permission of instructor. Cross-listed with ACCT 4520. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6620 - Advanced Auditing

Development of auditing as a profession, including evolution of standards and audit reports. Historical and contemporary literature in the field reviewed. Prereq: ACCT 4620 or ACCT 6020 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6800 - Special Topics

Research methods and results, special topics and professional developments in accounting. Consult the current 'Schedule Planner' for semester offerings as new special topics courses are frequently added. Prereq: Varies according to topics and instructor requirements. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ACCT 6840 - Independent Study

Permission of instructor required. Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study. Max hours: 8 Credits. **Semester Hours:** 1 to 8

ACCT 6939 - Internship/Cooperative Education

Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: 15 semester hours for MS students and 21 hours for MBA students and a cumulative 3.2 GPA. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ACCT 6950 - Master's Thesis

Max hours: 8 Credits. **Semester Hours:** 1 to 8

Anthropology

ANTH 1000 - Anthropology: Past and Present

Anthropology is the study of humankind in all of its diversity and complexity. Anthropologists have traditionally approached the study from four distinct perspectives: biological, cultural, linguistic and archaeological. This course considers how anthropologists study humankind from these four perspectives and the robust picture of humanity that emerges. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 1111 - Freshman Seminar

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ANTH 1302 - Introduction to Archaeology

Introduces the study of past cultures and their environments. Emphasis is on the scientific method, aspects of research design and analytical techniques used by archaeologists to determine chronology, taphonomy, source production areas, exchange networks, and human-environment interactions. Note: Three hours of lecture and a two-hour lab each week. Max hours: 4 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS3 **Semester Hours:** 4 to 4

ANTH 1303 - Introduction to Biological Anthropology

Introduces the study of human biological evolution, both processes and outcomes, from primate ancestors to fossil hominids to contemporary human populations. Methods of obtaining and interpreting data concerning the genetic, biological and evolutionary basis of physical variation in living and skeletal populations. Note: 3 hours of lecture and a 2 hour lab each week. Max hours: 4 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1 **Semester Hours:** 4 to 4

ANTH 2102 - Culture and the Human Experience

An application of the concept of culture to several aspects of the human experience, including gender relations, emotion and personality, cognition, language, health and healing and economic behavior. In exploring these dimensions of the human experience, the course focuses on selected cultures from each of the world's major geographic areas. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS3 **Semester Hours:** 3 to 3

ANTH 2400 - Video and Social Change

Introduction to video production and analysis applied to social change. Focus on theories and practices of non-fiction image-making and "doing visual ethnography" to examine a range of experience and knowledge among different societies, communities, policy discourses and ourselves. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 2840 - Independent Study

Max hours: 3 Credits. **Semester Hours:** 1 to 3

ANTH 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ANTH 3000 - Globalization, Migration and Transnationalism

Examines the cultural dynamics of globalization, including: the development of special economic zones in the global south, rural to urban migration, transnational migration, the maintenance of transnational ties, and cross-border social formations. Reviews the dynamics of globalization through case studies and film. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 3006 - Sustainable Development and Equity

Investigates theories, policies and discourses of development and equity and their relationship to health, socio-environmental problems. Considers the connections between green environmental knowledge and neoliberalism, the success and failures of development along public health, economic equality, social justice and ecological lines. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 3008 - Contemporary World Problems: An Anthropological Perspective

This course examines contemporary problems confronting humanity from an anthropological perspective - a historical, holistic and comparative framework that will be used to critically assess these issues and identify forces driving them. Problems to be addressed include climate and environmental change, resource depletion, and poverty and inequality. Prereq: Upper-division undergraduate standing and/or permission of the instructor. Max hours: 3 Credits.

Semester Hours: 3 to 3

ANTH 3101 - Foundations of Cultural Anthropology

Covers current theories in cultural anthropology and discusses the nature of field work. Major schools of thought and actual field studies are explored with an emphasis on anthropological data gathering, analysis and writing. Prereq: Introductory course in cultural anthropology. Max hours: 3 Credits.

Semester Hours: 3 to 3

ANTH 3121 - Language, Culture, and Communication

Definitions of language and communication and their relationship to human behavior, thought and culture. The classification of languages, linguistic universals, language acquisition, multilingualism, and nonhuman communication, with consideration of the evolutionary implications of such studies. Prereq: Introductory course in cultural anthropology. Max hours: 3 Credits.

Semester Hours: 3 to 3

ANTH 3142 - Cultural Diversity in the Modern World

An in-depth analysis of the phenomena of culture and application of the culture concept to understanding cultural diversity in the modern world. Applies the concept of culture to several basic aspects of human social life, for example: social class and gender relations, ethnicity, racism and sexism, education, health and economic behavior. Students explore these issues in the context of case studies of particular groups and/or communities, focusing primarily on the diversity of cultural expression in contemporary U.S. Max hours: 3 Credits.

Semester Hours: 3 to 3

ANTH 3150 - Special Topics in Medical Anthropology

Seminar series on current issues in medical anthropology. Faculty offer a range of different courses, including the political economy of drugs, health and human rights, and reproductive health. Prereq: Introductory course in cultural anthropology. Max hours: 3 Credits.

Semester Hours: 3 to 3

ANTH 3200 - Human Migration: Nomads, Sojourners, and Settlers

Explores the relationship between human migration, voluntary and forced and social organization and culture in the modern world. Case studies include pastoralists, foragers, refugees, immigrants, sojourners and settlers and their impact on health, culture, identity, ethnicity, tradition and nationality. Cross-listed with PBHL 3200. Max hours: 3 Credits.

Semester Hours: 3 to 3

ANTH 3202 - Anthropology of Health Care Policy

Uses the tools and methods of cultural anthropology to analyze health care reform in the U.S. We examine analyses of the current health care system, debates over its reform, compare the US health care system to that of health care systems worldwide. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 3210 - Urban Food Systems and Sustainability

Urbanites are increasingly removed from the complex of factors that provide us food. Being concerned about sustainability, we need to understand the complex webs in food systems and their implications for the health and natural systems. This problem-based course will wrestle with urban food systems organized to address the 3 E's of sustainability: environmental, economic, and equity. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 3301 - World Prehistory

Explores of 3.5 million years of human cultural development that examines the prehistory of Africa, Asia, Europe and the Americas. Patterns and processes that underlie the earliest hominid expansion out of Africa, tool use, origins of fire, the peopling of the Americas, the development of metallurgy, the domestication of plants and animals and the rise of cities and the state are examined. Emphasis is on both regional developments and landmark projects that have helped clarify prehistory. Note: Introductory course in Archaeology (ANTH 1302) recommended. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 3310 - Colorado Archaeology

A survey of the prehistoric and protohistoric peoples of the five major culture areas of Colorado: the Four Corners, Great Basin, Rocky Mountains, High Plains, and Front Range. Of special interest will be the study of the initial peopling of Colorado, economic and political organization, ethnic interaction and the history of archaeological work in the region. Prereq: ANTH 1302. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 3315 - North American Archaeology

Course provides a survey of the prehistoric and historic archaeology of the United States, Canada and Northern Mexico. Current knowledge of the subject and current debates are discussed. Prereq: ANTH 1302. **Semester Hours:** 3 to 3

ANTH 3320 - Southwestern Archaeology

Considers the origins, characteristics, and interrelationships of the major culture areas in the American southwest, including the Anasazi, Hohokam, Mogollon, Sinagua and Northern Mexico. Note: ANTH 1302 recommended but not required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 3330 - Topics in Archaeology

A flexible format for addressing specific topics in archaeology. Examples include the archaeology of the Great Plains, the Mediterranean Region, etc. Prereq: An introductory course in archaeology. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ANTH 3410 - Anthropology of Work

Explores the culture of workforces and workplaces. Ethnographic methods and collaborative research practices comprise the framework of the course to examine people, occupations and work cultures engaged in production and consumption of commodities at local and global levels. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 3420 - Anthropology and Politics of the Global Tobacco Epidemic

Examines anthropological perspectives on tobacco, tobacco-related health policymaking, and cigarette manufacturers and leaf-buying companies in the global tobacco epidemic. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 3500 - Human Osteology

Provides in-depth knowledge of human osteology, including the following topics: skeletal anatomy; age, sex and stature determination; skeletal trauma/pathology; and taphonomy. Recitation component provides hands-on experience with skeletal material. Prereq: ANTH 1303. Max hours: 4 Credits. **Semester Hours:** 4 to 4

ANTH 3512 - Human Evolution

Provides an overview of the fossil and archaeological evidence for human origins. Theory and method in paleoanthropology is emphasized. The goal is to outline current knowledge of human biological evolution and the lifeways of our evolutionary relatives. Prereq: ANTH 1303. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 3550 - Forensic Anthropology

Provides an introduction to methods used in forensic anthropology for investigating human remains in cases of medicolegal importance, including recovery, attribution of demographic characteristics, analysis of disease and trauma and determination of personal identity. Prereq: ANTH 1303. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 3590 - Primate Behavior Research at the Zoo

Students will review information on primates, learn about data collection models, design a behavior observation project on captive primates, collect and analyze behavior data, write and present a formal scientific paper. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 3666 - Anthropology of Death

The primary goal of the course is to identify and understand the range of human expression through the treatment of human remains in anthropological literature with focus on burials, mortuary practices, and associated rituals. Along with more theoretical papers, specific case studies will be used to address a variety of topics and issues, such as historic and prehistoric social organization, bio-archaeology, cannibalism, human sacrifice, mummification, the ethics of studying human remains, and the treatment of pets in prehistory. The time range that we will cover in the course will span from the Neolithic to the early 20th century, and numerous cultures from all parts of the globe will be our subject matter. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 3700 - Current Topics in Anthropology

This undergraduate course offers a flexible format for addressing specific topics of special interest in anthropology, such as: aging, race and prejudice, class, warfare and aggression, ethnicity, myth and folklore, language and communication, Colorado prehistory and topics in evolutionary theory. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ANTH 3910 - Cross-Cultural Field Experience

An intensive contact with another culture through supervised travel in the U.S. or in a country other than the United States. Written reports required. Note: Class includes pre-trip orientation lectures; in-country lectures by local resource people and supervising CU-Denver faculty. Max hours: 6 Credits. **Semester Hours:** 3 to 6

ANTH 3939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ANTH 4000 - Special Topics in Anthropology

Designed to give students a chance to evaluate critically some practical or theoretical problem under faculty supervision and to present results of their thinking to fellow students and instructors for critical evaluation. Prereq: Permission of instructor. Cross-listed with ANTH 5000. Max hours: 9 Credits. **Semester Hours:** 1 to 4

ANTH 4010 - Medical Anthropology: Global Health

This course is concerned with the underlying biological and cultural determinants of health throughout the human life cycle in global and cross-cultural perspective. Note: The first of a two-course sequence in medical anthropology and global health studies; the second is ANTH 4020. Prereq: Upper division and/or graduate standing. Cross-listed with ANTH 5014. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4030 - Ethnobiology

Considers the relationship between human society and plants and animals in the natural world. Primary focus on the perception and cognitive organization of the environment and how that affects the definition and use of plants and animals as resources. Prereq: Introductory anthropology and/or biology. Cross-listed with ANTH 5030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4040 - Anthropology of Food and Nutrition

Examines the myriad relationships between food as a biological necessity and eating as a socially and culturally conditioned activity. Takes a biocultural perspective that considers not only the tremendous variety of foods we eat, but also the complex meanings and importance attached to food and eating. Prereq: Introductory course in anthropology. Cross-listed with ANTH 5040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4050 - Quantitative Methods in Anthropology

Surveys the ways of deriving meaning from anthropological data by numerical means, including, but not confined to basic statistical procedures. Prereq: College-level algebra or its equivalent. Cross-listed with ANTH 5053. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4060 - Evolutionary Medicine

Evolutionary medicine is a relatively new approach for understanding patterns of human health and disease. In this course, students will learn how human evolutionary history has shaped our susceptibility and resistance to both chronic and infectious diseases. Prereq: ANTH 1303. Cross-listed with ANTH 5060, HBSC 5060 and PBHL 4060. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4070 - Culture of Development and Globalization

Anthropological critiques of development and globalization point out that they have occurred without regard for the diversity of human culture and human need. Beginning with this analysis, this course goes one step further by examining culture and values of development and how they affect the way development gets done. Prereq: Upper division standing and permission of instructor. Cross-listed with ANTH 5070. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4080 - Global Health Practice

A travel-study course that provides students the opportunity to work on global health issues in the context of a supervised internship experience. In addition to a formal internship placement or directed research opportunity, students attend formal lectures and participate in seminars devoted to addressing those health issues most relevant to the country in which the course is being taught. Prereq: HBSC/ANTH 4010/5014, HBSC/ANTH 4020/5024, HLTH 6070 or equivalent. Cross-listed with ANTH 5080, HBSC 5080, PBHL 4080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4090 - Political Economy of Drugs

Psychotropic drugs, both legal and illicit, are a predominant part of our everyday lives. This course examines their use and meaning within cultures, and the social, political and economic issues that surround their production, use and misuse. Prereq: introductory course in cultural anthropology. Cross-listed with ANTH 5090, HBSC 5090, and PBHL 4090. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4150 - Human Biocultural Adaptability

The chief concern of this course is the relationship between ourselves and our surroundings and the very immediate ways the environments in which we live affect us. The view is of ourselves as a part of, not apart from, these environments. Prereq: ANTH 1303 and 2102 or equivalent. Cross-listed with ANTH 5150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4170 - Culture and the Environment

Examines the historical origins of Western and non-Western ideas of the environment and the place of people within it. The imposition of Western ideas on non-Western groups regarding environmental policy is also examined, with special attention given to practices of conservation, development and transnational monetary policy. Prereq: ANTH 2102 or equivalent. Cross-listed with ANTH 5170. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4180 - The Nature of Power

Introduces the major theories of power used in contemporary anthropology, with an emphasis on cross-cultural perspectives. Explores how power is defined, determined and exercised globally and locally and how different systems of power articulate with one another. Prereq: ANTH 2102 or equivalent. Cross-listed with ANTH 5180. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4200 - Gender in Cross-Cultural Perspective

A comparative analysis of gender-based status and social roles of women and men, with women's status and roles emphasized due to their near-universal construction as the "Other" sex. Examines in cross- and sub-cultural context the relations among women's status and their subsistence and reproductive activities; and the division of labor by sex, ideology and political economy. Prereq: ANTH 2102 or equivalent. Cross-listed with ANTH 5200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4230 - Anthropology and Community Based Participatory Research

The seminar explores anthropological critiques, knowledge production and multi-media approaches to community based participatory research (CBPR) such as photovoice and digital storytelling to understand the history of CBPR and analyze partnerships between university researchers and community representatives. Cross-listed with ANTH 5230. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4260 - Human Reproductive Ecology

Considers the determinants of fertility variation within and among traditional human societies. Biocultural and ecological perspectives on pubertal timing, marriage patterns, birth seasonality, duration of birth intervals and reproductive senescence. Prereq: ANTH 1303 or equivalent. Cross-listed with ANTH 5260. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4290 - Anthropology and Public Health

This course critically explores anthropological approaches to public health problems. Through a number of key issues and case studies, we examine how public health practice can be enhanced through anthropological research, theory and methodology. Prereq: upper division standing. Cross-listed with ANTH 5290. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4300 - Migrant Health

This course examines health issues associated with transnational migration from an anthropological point of view. Drawing upon case studies, we examine the health of migrant communities in both host and sending nations. Prereq: upper division standing. Cross-listed with ANTH 5300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4320 - Archaeology of Mexico and Central America

Surveys the major prehistoric and protohistoric cultures and societies of that area of Mexico and Central America identified with the evolution of Meso-American civilization. Major topics include early human colonization of the Americas, the domestication of plants and animals, the emergence of regionally-based cultures and societies, trade and exchange and the evolution of urbanism and the state. Primary emphasis on such ancient cultures and societies as those of the Olmec, Zapotec, Maya, Teotihuacan, Toltec and Aztec. Prereq: Introduction to archaeology. Cross-listed with ANTH 5320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4330 - Lithic Analysis

Examines the theoretical basis and methodological tools used by archaeologists in the analysis of prehistoric stone tools. Topics of discussion include the mechanics of stone fracture, typologies, use wear analysis and core reduction techniques. Prereq: ANTH 1302. Cross-listed with ANTH 5330. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4350 - Anthropology of Globalization

This course provides an overview of anthropological contributions to the study of globalization. Particular attention is devoted to: transformations in global capitalism, state and immigration policy, transnational families, health and transnationalism. Prereq: Previous coursework in Anthropology strongly recommended. Cross-listing ANTH 5350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4380 - Archaeology of Hunters-Gatherers

Explores the theory and methods used by archaeologists to investigate prehistoric hunter gatherers. Topics of concern include mobility, subsistence, procurement, and socio-political organization. Prereq: ANTH 1302 Cross-listed with ANTH 5380. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4390 - Laboratory Methods in Archaeology

Methods and theories of archaeology are used to scrutinize the collection and interpretation of data and the relationships of archaeology to other disciplines. Core materials emphasize the critique of basic archaeological assumptions. Note: Course content varies slightly each time it is offered, in response to student needs and the availability of projects (e.g., laboratory work, urban excavation, survey and mapping). May be repeated for credit when topics change. Prereq: ANTH 1302 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4400 - Archaeology of Power and Inequality

Addresses inequality and power through a long-term archaeological and theoretical perspective. Discusses explanations for the origins of power and inequality and their role in early small-scale societies and emerging complex politics. Prereq: ANTH 1302 or equivalent. Cross-listed with ANTH 5400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4450 - Development and Conservation: Contemporary Issues

Applies the theoretical paradigms of political ecology to contemporary issues of sustainable development. Case studies are chosen illustrating topics based on faculty expertise and student interaction. The first part of the course presents theoretical perspectives relevant to the chosen topic. In the second half, students participate in directed problem solving activities. Prereq: ANTH 4070, ANTH 4170 and graduate standing or permission of instructor. Cross-listed with ANTH 5450. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4460 - Development and Conservation: Theory and Practice

Examines the praxis of anthropological knowledge of human ecosystem interaction and development of economic opportunities. Issues of biodiversity, resource conservation, sustainable development and globalization are studied. Prereq: ANTH 4450 or permission of instructor. Cross-listed with ANTH 5460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4500 - Advanced Issues in Human Evolution

This flexible course offers an advanced treatment of issues in human biological evolution. Topics may emphasize morphological evolution, behavioral evolution, the environment of human evolution, non-human primate comparative information. Prereq: ANTH 1303 and 3512 or equivalent. Cross-listed with ANTH 5500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4550 - Primate Comparative Anatomy

Examines human and non-human primate anatomical diversity. Students learn primate anatomy and the morphological differences among species. Explanations for the evolutionary origins of differences are reviewed, focusing on evolutionary theory, comparative methods and biomechanics. Prereq: ANTH 1303 or equivalent. Cross-listed with ANTH 5550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4560 - Human Ecology

Studies demographic and ecological variables as they relate to human populations. Aspects of natural selection, overpopulation and environmental deterioration are considered. Prereq: Introductory course in biological or physical anthropology. Cross-listed with ANTH 5560. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4570 - Landscape Archaeology

Introduces spatial archaeology through intrasite analysis and regional studies. Methods treated include site location and quantitative spatial organization. Theoretical topics include definitions of community, ancient urbanism and the impact of subsistence and politics on relations to the landscape. Prereq: ANTH 1302 or equivalent. Cross-listed with ANTH 5570. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4580 - Neanderthals and the Origin of Modern Humans

Focuses on the human fossil record for the taxon *Homo sapiens*, including the earliest members of this group ("early" or "archaic" *Homo sapiens*), the Neanderthals and so-called "anatomically modern" *Homo sapiens*. The goal of the course is to survey the major issues within the area of modern human origins, and to learn about the evolutionary relationships, lifeways and behaviors of these groups. Prereq: ANTH 1303 or equivalent. Cross-listed with ANTH 5580. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4590 - Primate Behavior

Studies nonhuman primate behavior with emphasis on understanding social behavior, ecology and issues related to human evolution. Prereq: ANTH 1303 or equivalent. Cross-listed with ANTH 5590. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4600 - Medical Anthropology

Introduces students to the theories and concepts of medical anthropology, the study of human health and illness. Explores conceptions of the body, modalities of healing, the clinical encounter, and new medical technologies. Prereq: Upper-division standing. Cross-listed with ANTH 5600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4640 - Darwinian Approach to Human Behavior

The evolution of human behaviors from a Darwinian perspective, focusing on the natural selection of behaviors that maximize reproductive success. Includes topics such as male and female reproductive strategies, female mate choice, male violence and resource acquisition and control. Prereq: ANTH 1303. Cross-listed with ANTH 5640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4800 - Special Topics in Medical Anthropology

Seminar series on current issues in medical anthropology. Faculty offer a range of different courses, including the political economy of drugs, health and human rights, and reproductive health. Prereq: upper division standing. Cross-listed with ANTH 5800. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4810 - Integrating Anthropology

Designed to build on specialized course work in the subdisciplines of anthropology, this course emphasizes the basic concepts that integrate and unite the discipline and give it unique perspective. These are the concepts of culture, adaptation and human evolution. In the last several weeks of the course, students consider the applicability of the anthropological perspective to specific human issues. Note: Centers on the critical examination and discussion of presentations made by department faculty and graduate students. Prereq: junior or senior standing and course work equivalent to a minor in anthropology. Cross-listed with ANTH 5810. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4840 - Independent Study

Directed study based on a specific subfield of anthropology. Note: Permission of instructor required. Max hours: 12 Credits. **Semester Hours:** 1 to 3

ANTH 4910 - Field Experience in Archaeology

Students participate in archaeological field research and data recovery and conduct laboratory analysis of materials recovered in the field. Emphasis is placed on excavation technique and accuracy of record keeping. Prereq: Introductory course in archaeology. Cross-listed with ANTH 5910. Max hours: 9 Credits. **Semester Hours:** 3 to 6

ANTH 4995 - Travel Study

A flexible format that permits courses to be taught in various areas of the world. Cultures of the Himalayas. Concerned broadly with contemporary Himalayan culture. Focuses on Tibetan cultures and the Tibetan diaspora, and the Nepalese (Newari) culture of the Katmandu Valley. The goals for this course are: to acquaint the student with social, political and cultural features of this part of the world; to teach, through directed field experiences, how cultural anthropology is practiced; to understand how the process of tourism differs from the study of anthropology; how tourism, however it is practiced, changes in fundamental ways those subject to it. The Arts of Self and Society in Contemporary China. An intensive introduction to contemporary conditions and issues in the People's Republic of China, including social relations, popular culture, eating practices, religious practices and everyday life. Uses a combination of readings, lectures, field trips to local sites and ethnographic fieldwork. Max hours: 12 Credits. **Semester Hours:** 3 to 9

ANTH 5000 - Special Topics in Anthropology

Designed to give students a chance to evaluate critically some practical or theoretical problem under faculty supervision and to present results of their thinking to fellow students and instructors for critical evaluation. Prereq: Permission of instructor. Cross-listed with ANTH 4000. Max hours: 9 Credits. **Semester Hours:** 1 to 6

ANTH 5014 - Medical Anthropology: Global Health

This course is concerned with the underlying biological and cultural determinants of health throughout the human life cycle in global and cross-cultural perspective. Note: The first of a two-course sequence in medical anthropology and global health studies; the second is ANTH 5024. Prereq: Upper division and/or graduate standing. Cross-listed with ANTH 4010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5030 - Ethnobiology

Considers the relationship between human society and plants and animals in the natural world. Primary focus on the perception and cognitive organization of the environment and how that affects the definition and use of plants and animals as resources. Prereq: Introductory anthropology and/or biology and graduate standing. Cross-listed with ANTH 4030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5040 - Anthropology of Food and Nutrition

Examines the myriad relationships between food as a biological necessity and eating as a socially and culturally conditioned activity. Takes a biocultural perspective that considers not only the tremendous variety of foods we eat, but also the complex meanings and importance attached to food and eating. Prereq: Introductory course in anthropology and graduate standing. Cross-listed with ANTH 4040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5053 - Quantitative Methods in Anthropology

Surveys the ways of deriving meaning from anthropological data by numerical means, including, but not confined to basic statistical procedure. Prereq: College-level algebra and graduate standing. Cross-listed with ANTH 4050. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5060 - Evolutionary Medicine

Evolutionary medicine is a relatively new approach for understanding patterns of human health and disease. In this course, students will learn how human evolutionary history has shaped our susceptibility and resistance to both chronic and infectious diseases. Prereq: ANTH 1303. Cross-listed with ANTH 4060, HBSC 5060 and PBHL 4060. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5070 - Culture of Development and Globalization

Anthropological critiques of development and globalization point out that they have occurred without regard for the diversity of human culture and human need. Beginning with this analysis, this course goes one step further by examining culture and values of development and how they affect the way development gets done. Prereq: Upper division standing and permission of instructor. Cross-listed with ANTH 4070. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5080 - Global Health Practice

A travel-study course that provides students the opportunity to work on global health issues in the context of a supervised internship experience. In addition to a formal internship placement or directed research opportunity, students attend formal lectures and participate in seminars devoted to addressing those health issues most relevant to the country in which the course is being taught. Prereq: HBSC/ANTH 5014/4010, HBSC/ANTH 5024/4020, HLTH 6070 or equivalent. Cross-listed with ANTH 4080, HBSC 5080 and PBHL 4080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5090 - Political Economy of Drugs

Psychotropic drugs, both legal and illicit, are a predominant part of our everyday lives. This course examines their use and meaning within cultures, and the social, political and economic issues that surround their production, use and misuse. Prereq: introductory course in cultural anthropology. Cross-listed with ANTH 4090, HBSC 5090, and PBHL 4090. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5150 - Human Biocultural Adaptability

The chief concern of this course is the relationship between ourselves and our surroundings and the very immediate ways the environments in which we live affect US. The view is of ourselves as a part of, not apart from, these environments. Prereq: Background in cultural anthropology and graduate standing. Cross-listed with ANTH 4150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5170 - Culture and the Environment

Examines the historical origins of Western and non-Western ideas of the environment and the place of people within it. The imposition of Western ideas on non-Western groups regarding environmental policy is also examined, with special attention given to practices of conservation, development and transnational monetary policy. Prereq: ANTH 2102 or equivalent. Cross-listed with ANTH 4170. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5180 - The Nature of Power

Introduces the major theories of power used in contemporary anthropology, with an emphasis on cross-cultural perspectives. Explores how power is defined, determined and exercised globally and locally and how different systems of power articulate with one another. Prereq: ANTH 2102 or equivalent. Cross-listed with ANTH 4180. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5200 - Gender in Cross-Cultural Perspective

A comparative analysis of gender-based status and social roles of women and men, with women's status and roles emphasized due to their near-universal construction as the "other" sex. Examines, in cross- and sub-cultural context, the relations among women's status and their subsistence and reproductive activities; and the division of labor by sex, ideology and political economy. Prereq: Graduate standing. Cross-listed with ANTH 4200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5230 - Anthropology and Community Based Participatory Research

The seminar explores anthropological critiques, knowledge production and multi-media approaches to community based participatory research (CBPR) such as photovoice and digital storytelling to understand the history of CBPR and analyze partnerships between university researchers and community representatives. Cross-listed with ANTH 4230. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5260 - Human Reproductive Ecology

Considers the determinants of fertility variation within and among traditional human societies. Biocultural and ecological perspectives on pubertal timing, marriage patterns, birth seasonality, duration of birth intervals and reproductive senescence. Prereq: ANTH 1303 or equivalent. Cross-listed with ANTH 4260. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5290 - Anthropology and Public Health

This course critically explores anthropological approaches to public health problems. Through a number of key issues and case studies, we examine how public health practice can be enhanced through anthropological research, theory and methodology. Prereq: graduate standing. Cross-listed with ANTH 4290. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5300 - Migrant Health

This course examines health issues associated with transnational migration from an anthropological point of view. Drawing upon case studies, we examine the health of migrant communities in both host and sending nations. Prereq: graduate standing. Cross-listed with ANTH 4300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5320 - Archaeology of Mexico and Central America

Surveys the major prehistoric and protohistoric cultures and societies of that area of Mexico and Central America identified with the evolution of Meso-American civilization. Major topics include early human colonization of the Americas, the domestication of plants and animals, the emergence of regionally-based cultures and societies, trade and exchange and the evolution of urbanism and the state. Primary emphasis on such ancient cultures and societies as those of the Olmec, Zapotec, Maya, Teotihuacan, Toltec and Aztec. Prereq: Introduction to archaeology. Cross-listed with ANTH 4320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5330 - Lithic Analysis

Examines the theoretical basis and methodological tools used by archaeologists in the analysis of prehistoric stone tools. Topics of discussion include the mechanics of stone fracture, typologies, use wear analysis and core reduction techniques. Prereq: ANTH 1302. Cross-listed with ANTH 4330. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5350 - Anthropology of Globalization

This course provides an overview of anthropological contributions to the study of globalization. Particular attention is devoted to: transformations in global capitalism, state and immigration policy, transnational families, health and transnationalism. Prereq: Previous coursework in Anthropology strongly recommended. Cross-listing ANTH 4350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5380 - Archaeology of Hunters-Gatherers

Explores the theory and methods used by archaeologists to investigate prehistoric hunter gatherers. Topics of concern include mobility, subsistence, procurement, and socio-political organization. Prereq: ANTH 1302 Cross-listed with ANTH 4380. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5400 - Archaeology of Power and Inequality

Addresses inequality and power through a long-term archaeological and theoretical perspective. Discusses explanations for the origins of power and inequality and their role in early small-scale societies and emerging complex politics. Prereq: ANTH 1302 or equivalent. Cross-listed with ANTH 4400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5450 - Development and Conservation: Contemporary Issues

Applies the theoretical paradigms of political ecology to contemporary issues of sustainable development. Case studies are chosen illustrating topics based on faculty expertise and student interaction. The first part of the course presents theoretical perspectives relevant to the chosen topic. In the second half, students participate in directed problem solving activities. Prereq: ANTH 4070, ANTH 4170 and graduate standing or permission of instructor. Cross-listed with ANTH 4450. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5460 - Development and Conservation: Theory and Practice

Examines the praxis of anthropological knowledge of human ecosystem interaction and development of economic opportunities. Issues of biodiversity, resource conservation, sustainable development and globalization are studied. Prereq: ANTH 5450 or permission of instructor. Cross-listed with ANTH 4460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5500 - Advanced Issues in Human Evolution

This flexible course offers an advanced treatment of issues in human biological evolution. Topics may emphasize morphological evolution, behavioral evolution, the environment of human evolution, non-human primate comparative information. Cross-listed with ANTH 4500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5530 - Anthropological Genetics

An advanced survey of molecular and population genetics and their applications in anthropology. Topics vary, including but not limited to: genetic epidemiology, genetic distance studies, behavioral genetics, developmental genetics, sociobiology, and use of mitochondrial DNA to reconstruct population histories. Emphasis is on applications of new technology and methodology, as well as new genetic paradigms replacing classical models of genetic causation. Prereq: Undergraduate course work in biological anthropology or general genetics. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5550 - Primate Comparative Anatomy

Examines human and non-human primate anatomical diversity. Students learn primate anatomy and the morphological differences among species. Explanations for the evolutionary origins of differences are reviewed, focusing on evolutionary theory, comparative methods and biomechanics. Prereq: ANTH 1303 or equivalent. Cross-listed with ANTH 4550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5560 - Human Ecology

Studies demographic and ecological variables as they relate to human populations. Aspects of natural selection, overpopulation and environmental deterioration are considered. Prereq: Background in biological or physical anthropology and graduate standing. Cross-listed with ANTH 4560. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5570 - Landscape Archaeology

Introduces spatial archaeology through intrasite analysis and regional studies. Methods treated include site location and quantitative spatial organization. Theoretical topics include definitions of community, ancient urbanism and the impact of subsistence and politics on relations to the landscape. Prereq: ANTH 1302 or equivalent. Cross-listed with ANTH 4570. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5580 - Neanderthals and the Origin of Modern Humans

Focuses on the human fossil record for the taxon *Homo sapiens*, including the earliest members of this group ("early" or "Archaic" *Homo sapiens*), the Neanderthals and so-called "Anatomically modern" *Homo sapiens*. The goal of the course is to survey the major issues within the area of modern human origins, and to learn about the evolutionary relationships, lifeways and behaviors of these groups. Prereq: ANTH 1303 or equivalent. Cross-listed with ANTH 4580. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5590 - Primate Behavior

Studies nonhuman primate behavior with emphasis on understanding social behavior, ecology and issues related to human evolution. Prereq: ANTH 1303 or equivalent. Cross-listed with ANTH 4590. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5600 - Medical Anthropology

Introduces students to the theories and concepts of medical anthropology, the study of human health and illness. Explores conceptions of the body, modalities of healing, the clinical encounter, and new medical technologies. Prereq: Graduate standing. Cross-listed with ANTH 4600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5640 - Darwinian Approach to Human Behavior

The evolution of human behaviors from a Darwinian perspective, focusing on the natural selection of behaviors that maximize reproductive success. Includes topics such as male and female reproductive strategies, female mate choice, male violence and resource acquisition and control. Prereq: ANTH 1303. Cross-listed with ANTH 4640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5800 - Special Topics in Medical Anthropology

Seminar series on current issues in medical anthropology. Faculty offer a range of different courses, including the political economy of drugs, health and human rights, and reproductive health. Prereq: graduate standing. Cross-listed with ANTH 4800. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5810 - Integrating Anthropology

Designed to build on specialized course work in the subdisciplines of anthropology, this course emphasizes the basic concepts that integrate and unite the discipline and give it unique perspective. These are the concepts of culture, adaptation and human evolution. In the last several weeks of the course, students consider the applicability of the anthropological perspective to specific human issues. Note: Centers on the critical examination and discussion of presentations made by department faculty and graduate students. Cross-listed with ANTH 4810. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5840 - Independent Study

Directed study based on a specific subfield of anthropology. Prereq: Permission of instructor required. Max hours: 12 Credits. **Semester Hours:** 1 to 6

ANTH 5910 - Field Experience in Archaeology

Students participate in archaeological field research and data recovery and conduct laboratory analysis of materials recovered in the field. Emphasis is placed on excavation technique and accuracy of record keeping. Prereq: Background in archaeology and graduate standing. Cross-listed with ANTH 4910. Max hours: 9 Credits. **Semester Hours:** 3 to 6

ANTH 5939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 6

ANTH 5995 - Travel Study

A flexible format that permits courses to be taught in various areas of the world. Cultures of the Himalayas. Concerned broadly with contemporary Himalayan culture. Focuses on Tibetan cultures and the Tibetan diaspora, and the Nepalese (Newari) culture of the Katmandu Valley. The goals for this course are: to acquaint the student with social, political and cultural features of this part of the world; to teach, through directed field experiences, how cultural anthropology is practiced; to understand how the process of tourism differs from the study of anthropology; how tourism, however it is practiced, changes in fundamental ways those subject to it. The Arts of Self and Society in Contemporary China. An intensive introduction to contemporary conditions and issues in the People's Republic of China, including social relations, popular culture, eating practices, religious practices and everyday life. Uses a combination of readings, lectures, field trips to local sites and ethnographic fieldwork. Max hours: 9 Credits. **Semester Hours:** 3 to 9

ANTH 6000 - Seminar in Current Research Topics

An inquiry into current research of critical and general interest to anthropologists. Variable format. Prereq: Permission of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 3

ANTH 6040 - Advanced Topics in Medical Anthropology

A flexible seminar format for dealing with topics of special interest in medical anthropology on an advanced graduate level. Topics to be considered vary from semester to semester. Examples include high altitude adaptation, anthropological perspectives on substance abuse, epidemiology, environmental and occupational health, the health consequences of cultural change and cross-cultural psychiatry. Note: Topics vary from semester to semester. Prereq: Permission of instructor. Max hours: 9 Credits. **Semester Hours:** 1 to 4

ANTH 6041 - Human Genetics: Legal, Ethical and Social Issues

Examines legal, ethical and social issues that have come about with advances in human genetics. Topics include privacy, informed consent, discrimination, forensics, medical malpractice and property rights. Prereq: Graduate standing. Cross-listed with HBSC 6320 and 7320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 6063 - Qualitative Research Design and Methods

Much of the data collected in the social sciences is interview and text-based. This course explores methods for collecting and analyzing these data and theoretical paradigms that underlie these methods. Cross-listed with HBSC 7051. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 6103 - Current Theory in Ethnography

An in-depth inquiry into important theories in cultural anthropology through extensive primary source reading. Practice in formulating theory, critical thinking and theoretical writing are emphasized. Note: First course in a two-course required graduate sequence. Prereq: Undergraduate course work in cultural anthropology. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 6133 - Anthropological Perspectives on Language

An intensive introduction to linguistic anthropology. Following a brief survey of technical linguistics, focus is on: the roles of language in society; multilingualism; language and identity; language and worldview; language, gender, class and power; language as social action; and other topics. Students carry out investigations based on models from their reading, as well as responding to the theoretical approaches of the field. Prereq: Undergraduate course work in cultural anthropology. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 6307 - Contemporary Perspectives in Archaeology

Explores contemporary theoretical methodological perspectives in archaeology. Structured to proceed from a survey of the history of archaeological thought based on recent retrospectives, to an analysis of works reflecting current perspectives and directions. Topics include: archaeological interpretation, classical versus scientific archaeology, versus culture-history, functionalist and materialist paradigms, ethno-archaeological and text-based studies, neo-evolutionism, interactionist models, Marxist perspectives, processual theory. Prereq: Undergraduate course work in archaeology. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 6317 - Archaeological Research Design and Analysis

Examines the methods and techniques used in archaeology, including theory-building, hypothesis testing and middle range theory. Core materials emphasize the learning and critique of basic archaeological assumptions and the methods and theories used to scrutinize the collection and interpretation of data. Topics include chronometric applications and paleo-environmental reconstruction. Prereq: ANTH 6307 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 6503 - Biological Anthropology Core: The Fossil Record

Examines the historical development and modern practice of biological anthropology, including the theoretical and methodological foundations of this field. Emphasis is placed on the evidence for human and non-human primate evolution and the processes that influenced this evolution. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 6513 - Biological Anthropology Core: Modern Human Variation

Considers the theory and methods used in investigations of biological variation in contemporary human populations. This includes the biological and cultural sources responsible for creating and maintaining contemporary variation as well as their functional consequences. Methods of research design and how to write a grant and scientific articles are considered. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 6520 - Seminar: Selected Topics in Physical Anthropology

A flexible seminar format for dealing with topics of special interest in physical anthropology on an advanced graduate level. Topics vary from semester to semester. Examples include: anthropology of nutrition, paleoecology, primate evolution, field experience in paleontology, advanced osteology and advanced human ecology. Prereq: Undergraduate work in biological/physical anthropology and graduate standing. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ANTH 6840 - Independent Study: Anth

Max hours: 12 Credits. **Semester Hours:** 1 to 3

ANTH 6950 - Master's Thesis

Max hours: 6 Credits. **Semester Hours:** 1 to 6

Arabic

ARAB 1010 - Beginning Arabic I

Beginning course in Modern Standard Arabic (MSA) designed for students who have not had any experience with the language. Max hours: 5 Credits. **Semester Hours:** 5 to 5

ARAB 1020 - Beginning Arabic II

Beginning course in Modern Standard Arabic (MSA) designed for students who have not had any experience with the language. Max hours: 5 Credits. **Semester Hours:** 5 to 5

Architecture

ARCH 1110 - Introduction to Architecture

Introduces students to the essential ways of looking at and thinking about buildings, sites and cities, exposing students to the various perspectives, positions and practices that they will encounter in both an architecture curriculum and in architectural practice. Restriction: Must be an undergraduate Architecture student with sophomore standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 2110 - Design Studio I

Introduces students to the principles of design and composition through studies of architecture's formal, spatial, and geometric systems. Students explore these using a variety of drawing techniques including diagramming and drawings that are exploratory, analytical and developmental. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 2230 - Architectural History I

Introduces architecture and urbanism from prehistory to the mid-seventeenth century by exploring the social, cultural, technical, philosophical and aesthetic ideas that shaped buildings and other architectural and urban settings in different parts of the world. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3110 - Design Studio II

Introduces students to the expressive potential of architecture's elements and systems. Students explore techniques for translating and expressing ideas in buildings through the static, dynamic and sequential manipulation of architectural form and space. Prereq: ARCH 2110. Restriction: Must be an undergraduate Architecture student. Max hours: 6 Credits. **Semester Hours:** 6 to 6

ARCH 3120 - Design Studio III

Focuses on the design of buildings in their relationship to physical, natural and cultural contexts. Students explore non-formal concepts and translate them into architectural experiences that integrate program, site and climate. Prereq: ARCH 3110. Restriction: Must be an undergraduate Architecture student. Max hours: 6 Credits. **Semester Hours:** 6 to 6

ARCH 3130 - Construction Practices I

Provides an overview of the materials, systems, assemblies and processes that inform the design and construction of buildings, reviewing the building technologies and developing student understandings of the interrelationship between the interconnected elements and systems that define buildings and spaces. Prereq: PHYS 2010/2030 and MATH 1130 are recommended. Restriction: Must be an undergraduate Architecture student. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3230 - Architectural History II

Introduces architecture and urbanism from the mid-seventeenth century to the present, exploring the forces that shaped buildings and other architectural and urban settings in different parts of the world. Prereq: ARCH 2230. Restriction: Must be an undergraduate Architecture student. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3330 - Building Systems I

Introduces the concepts and methods of environmental control in residential buildings. Discusses the thermal behavior of buildings, climate as a determinant of building design, energy use in buildings, natural and mechanical means of environmental control, plumbing, electrical, communication systems, water supply and sanitation systems. Prereq: MATH 1130. Coreq: PHYS 2010 and 2030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3340 - Theory of Structures I

Introduction to the analysis and design of structural elements and focuses on the principles of statics and the strength of materials. Topics include stress determination, deflection and the behaviors of tension, compression and shear in various structural elements. Prereq: MATH 1130. Coreq: PHYS 2010 and 2030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3430 - Construction Practices II

Discusses the principles and processes of building construction and introduces the major systems and assemblies that inform construction practices. Stresses the relationship between architectural concepts and emerging building technologies, teaching students how to select appropriate materials, systems and assemblies. Prereq: ARCH 3130. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3600 - Special Topics Cultural

Special topics in architecture studies related to cultural inquiries including theory, cultural diversity, and/or cross cultural thinking. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ARCH 3601 - History of American Architecture

This course investigates the history of architecture in the United States as a chronological survey of buildings, architects, landscapes, and urban forms and as an exploration of the social, political, economic, technological, and similar issues that inform this built environment. Restriction: Must be an undergraduate Architecture student with sophomore standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3602 - Architecture Photography

Architecture elective in photography of space, interior, and exterior with an emphasis on design composition of architecture. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3700 - Special Topics Design

Special topics in architecture studies related to design inquiries including theory, design skills, and/or analytical thinking. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ARCH 3701 - Survival Sketching

The focus of this course will be the sketchbook and the keeping of a sketchbook. Restriction: Must be an undergraduate Architecture student with sophomore standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3702 - Design Thinking

Students will be introduced to tools that will enable them to reframe design dilemmas in favor of productive resolutions. Course content will include examples and specific techniques of design thinking, including empathy, abductive reasoning, testing, plussing and diagramming. Prereq: sophomore standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3800 - Special Topics - Technical

Special topics elective will include coursework in either Digital Media In Design courses, Design-Build site Construction, or the Science and Art of Engineering Buildings. Additional topics will be develop in conjunction with the required undergraduate technical electives. Restriction: Must be an undergraduate Architecture student with sophomore standing or higher. Max hours: 12 Credits. **Semester Hours:** 3 to 3

ARCH 3801 - Arch. Digital Media I

Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3802 - Arch Project Presentation

Architecture elective in digital and analog methods of presentation and composition for various audiences and formats. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3949 - Internship I

Experiential learning student internships sponsored by faculty in a field related to architecture. Minimum of 45 work hours per credit. Prereq: Permission of instructor, advisor and acceptance in BS Architecture program. Must also have sophomore standing. Minimum 15 credit hours with 2.75 GPA. Max hours: 3 Credits. **Semester Hours:** 1 to 3

ARCH 4110 - Design Studio IV

Design Studio IV. Introduces students to analysis and design as complementary processes. Students learn how to form design intentions based on analytical research and close study of the relationship between architecture, precedent and culture, and to consider buildings as settings that address issues of culture, society, economy and ecol. Prereq: ARCH 3120. Max hours: 6 Credits. **Semester Hours:** 6 to 6

ARCH 4120 - Design Studio V

Explores the place and role of architecture as an instrument of critical social engagement and cultural change, the role of history and precedent in the design process, and the role of detail through projects that demonstrate student's proficiency as designers. Prereq: ARCH 4110. Max hours: 6 Credits. **Semester Hours:** 6 to 6

ARCH 4340 - Theory of Structures II

Focuses on the relationship between architectural concepts and the selection of structural systems. Addresses the qualitative and quantitative analysis of reinforced concrete, steel, and wood structural systems and members. Prereq: ARCH 3340. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 4440 - Building Systems II

Focuses on the environmental systems in commercial and other nonresidential buildings. Discusses natural and artificial lighting, HVAC systems, acoustics, vertical transportation and fire protection. Prereq: ARCH 3330. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 4840 - Independent Study

Studies initiated by students or faculty and sponsored by a faculty member to investigate a special topic or problem related to architecture. Prereq: Restricted to undergraduate ARCH students within the College of Architecture and Planning with sophomore standing or higher. Max hours: 6 Credits. **Semester Hours:** 1 to 3

ARCH 4949 - Internship II

Experiential learning student internships sponsored by faculty in a field related to architecture. Minimum of 45 work hours per credit. Permission of instructor, advisor and acceptance in BS Architecture program. Must also have sophomore standing. Minimum 15 credit hours with 2.75 GPA. Max hours: 3 Credits. **Semester Hours:** 1 to 3

ARCH 5000 - Math and Physics for Architects

Provides the review of mathematics and physics. This is a prerequisite for the graduate technology courses. Does not count toward the required credits for the MARCH degree. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 5010 - Introduction to Architectural Representation

This course explores the development of graphic skills emphasizing drawing as a means to design. It includes investigation of drawing types and methods; diagramming of ideas and systems; informative, exploratory and developmental sketching. Coreq: ARCH 5110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 5110 - Design Studio I

This first of four core design studios introduces the basic strategies and techniques of architectural design. Focuses on the languages of design, as well as on traditional and digital methods of visualizing architectural ideas and forms. Prereq: Must have completed the College's woodshop training program. Coreq: ARCH 5111. Max hours: 6 Credits. **Semester Hours:** 6 to 6

ARCH 5111 - Architectural Graphics I

This course explores the development of graphic skills emphasizing drawing as a means to design. It includes investigation of drawing types and methods; diagramming of ideas and systems; informative, exploratory and developmental sketching. Coreq: ARCH 5110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 5120 - Design Studio II

The second of the four core design studios focuses on concepts of small-scale building design, siting and climate. Through a number of design exercises, students learn how these factors help shape buildings. Prereq: ARCH 5110 and ARCH 5111. Coreq: ARCH 5121. Max hours: 4 Credits. **Semester Hours:** 4 to 4

ARCH 5121 - Design Seminar II

Supports fuller discussion of the key themes and concepts in ARCH 5120. Prereq: ARCH 5110 and 5111; Coreq: ARCH 5120. Max hours: 2 Credits. **Semester Hours:** 2 to 2

ARCH 5130 - Design Studio III

The third of the four core studios focuses on concepts of program, architectural meaning and human behavior in buildings. Through a number of design exercises, students learn how these factors help shape buildings. Prereq: ARCH 5120 and ARCH 5121. Coreq: ARCH 5131. Max hours: 4 Credits. **Semester Hours:** 4 to 4

ARCH 5131 - Design Seminar III

Supports fuller discussion of the key themes and concepts in ARCH 5130. Prereq: ARCH 5120 and ARCH 5121. Coreq: ARCH 5130. Max hours: 2 Credits. **Semester Hours:** 2 to 2

ARCH 5140 - Design Studio IV

The last of the four core design studios focuses on concepts of building technology, context and environmental sustainability. Through a number of design exercises, students learn how technology helps shape buildings. Prereq: ARCH 5130 and 5131. Coreq: ARCH 5141. Max hours: 4 Credits. **Semester Hours:** 4 to 4

ARCH 5141 - Design Seminar IV

Supports fuller discussion of the key themes and concepts in ARCH 5140. Prereq: ARCH 5130 and 5131; Coreq: ARCH 5140. Max hours: 2 Credits. **Semester Hours:** 2 to 2

ARCH 5210 - Introduction to Architecture

Introduces important ways of looking at architecture and acquaints students with the various perspectives that they will later find in the rest of the curriculum. Max hours: 3 Credits.

Semester Hours: 3 to 3

ARCH 5220 - History and Theory Architecture I

Introduces world architecture and urbanism from prehistory to the Italian Renaissance. The course helps students understand the various cultural, technological, philosophical, and aesthetic ideas that helped shape buildings through history. Buildings and settlements on all continents and in all of the major world cultures are discussed. Prereq: ARCH 5210. Max hours: 3 Credits.

Semester Hours: 3 to 3

ARCH 5230 - History and Theory Architecture II

Examines world architecture and urbanism from the Italian Renaissance to the present. Helps students understand the various cultural, technological, philosophical and aesthetic ideas that helped shape buildings through history. Buildings and settlements on all continents and in all of the major world cultures are discussed. Prereq: ARCH 5220. Max hours: 3 Credits. **Semester**

Hours: 3 to 3

ARCH 5240 - Human Factors in Design

Focuses on the ethical, social, cultural and psychological principles, processes which people bring to the perception and design of the built environment. Its major topics include: ethical values; cultural patterns and values; privacy and community; social, cultural and personal ritual; the symbolic content of form and environment; and programming and post-occupancy evaluation. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 5310 - Building Construction I

Provides an overview of the structure, systems, assemblies and processes that make a building. Provides a broad view of building technology and an understanding of the interrelationship of all the parts, upon which subsequent technology courses are based. Max hours: 3 Credits. **Semester**

Hours: 3 to 3

ARCH 5330 - Sustainable Systems I

This course introduces concepts and methods of environmental control and energy conservation in residential buildings. It discusses the thermal behavior of buildings, climate, natural, passive and mechanical environmental controls, plumbing, electrical, communication, water supply and sanitation systems. Prereq: ARCH 5320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 5340 - Sustainable Systems II

The second course in the environmental control systems sequence focuses on the natural, passive, conservational environmental systems in commercial and other non-residential buildings. Discusses natural and artificial lighting, HVAC systems, acoustics, vertical transportation and fire protection. Prereq: ARCH 5330. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 5350 - Structures I

The first course in the structures sequence introduces the analysis and design of structural elements and focuses on the principles of statics and the strength of materials. Topics include stress determination, deflection and the behaviors of tension, compression and shear in various structural elements. Coreq: ARCH 5340. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 5360 - Structures II

Focuses on the relationship between architectural concepts and the selection of structural systems. Addresses the qualitative and quantitative analysis of reinforced concrete, steel and wood structural systems and members. Prereq: ARCH 5350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 5410 - Professional Practice

Introduces the essential elements of professional practice through topics such as internship, licensing, services, modes of practice, fees, marketing, documents, specification and production procedures. Examines traditional and emerging forms of practice. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 5420 - Digital Project Delivery

Introduces basic aspects of building information modeling (BIM) concepts, software, development, management and delivery for architectural projects. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6150 - Design Studio V

This is the final core studio and must be taken before ARCH 6170, the capstone studio. Prereq: ARCH 5140 and ARCH 5141. Coreq: ARCH 6151. Max hours: 4 Credits. **Semester Hours:** 4 to 4

ARCH 6151 - Design Seminar V

Supports fuller discussion of the key themes and concepts in ARCH 6150. Prereq: ARCH 5140 and ARCH 5141. Coreq: ARCH 6150. Max hours: 2 Credits. **Semester Hours:** 2 to 2

ARCH 6170 - Capstone Design Studio

Students enter the capstone design studio after completing the five core design studios. This studio focuses on an architectural project including considerations of structural systems, environmental systems, life safety concerns, regulatory considerations, wall sections, building assemblies and significant detail. Prereq: ARCH 6150 and ARCH 6151. Coreq: ARCH 6171. Max hours: 12 Credits. **Semester Hours:** 4 to 4

ARCH 6171 - Capstone Design Seminar

The capstone seminar provides additional theoretical and technical support as well as opportunity for discussion and debate regarding the themes central to the capstone project. Prereq: ARCH 6150, ARCH 6151. Coreq: ARCH 6170. Max hours: 6 Credits. **Semester Hours:** 2 to 2

ARCH 6190 - Special Topics in Design Studies

Various topics in design, according to current faculty and student interests. Prereq: Completion of ARCH 5110. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ARCH 6210 - History of American Architecture

Examines the history of American architecture from prehistoric times to the present, mainly within the geographical borders of the present-day United States. Helps students understand the various cultural, technological, philosophical and aesthetic ideas that helped shape American buildings. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6212 - History of Modern Architecture

Examines the various theories, accomplishments and ideals of modern architecture in the 20th century. Issues include the relationship between theory and practice, architecture and ideology, technology, abstraction and representation, functionalism and formalism, utopianism and social responsibility. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6220 - History of Architectural Theory

Investigates the history of architectural theories in the West from antiquity to the present. Explores the various ideas that have been proposed to explain or to direct architectural design and examines the relationship between the theories and the buildings themselves. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6221 - Post-Structuralist Architecture

Examines the ways in which architecture has responded to the philosophical changes introduced during the 1960's French post-structuralism. Evaluates how the new metaphysical outlooks have affected architectural theory and design methods. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6222 - Contested Terrains

Explores the different processes, factors and forces and determines and influences occupation, land use and built form through the phenomena of conflict and contestation. Design is inherently located within the disputes and discourses involving landscape as location and resource. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6230 - Preservation Theory and Practice

The practice of historic preservation has evolved in a specific policy context. This introductory course introduces basic American institutions and laws associated with preservation as well as standards, definitions, and practices associated with these. Cross-listed with HIPR 6010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6231 - Regionalisms & the Vernacular

This class explores the history of the built environment from the perspective of evolutionary change; peoples attempting to meet utilitarian needs, respond to environmental forces, societal expectations, and aesthetic aspirations through design. The course looks closely at vernacular structures in a global context. Cross-listed with HIPR 6110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6232 - Reading the City

Design and planning professionals, including preservationists, must learn to work in environments with which they have had little previous knowledge. This course emphasizes gaining understanding of a novel environment and translating that knowledge into a well-researched and media savvy professional presentation. Prereq: HIPR 6410 is recommended. Cross-listed with HIPR 6610. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6240 - History Of The City

Introduces students to the history of global cities through selected typologies. Explores similarities and differences among cities considered against the larger cultural, political and socio-economic envelope of which they are part. Provides awareness of origins, growth and evolution of urban form. Cross-listed with URBN 6640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6241 - Studies in Tectonics

This research seminar focuses on tectonics - the logic of structure & material combinations (wood, metal, stone, masonry etc.). Through case studies, the relationship between function, aesthetics, detail, and tectonics are explored in relation to contemporary architectural concerns. Prereq: HIST I & II. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6249 - Sketching As Seeing

Sketching promotes seeing, and seeing promotes thinking. This course is designed to help you think & see by the regular practice of sketching & the discipline of keeping a sketchbook. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6250 - Drawing from Barragan

Course explores the work of a seminal figure - Luis Barragan - as a means with which to consider the potentials for a new synthesis in architecture. Learning to draw spaces in colored pencil will give insight regarding his design principles. Cross-listed with ARCH 6390. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6251 - Neuro Science and Design

This seminar will explore knowledge that informs how humans perceive and respond to the environment. Particular emphasis will be placed on how cognitive science and interdisciplinary scholarship can provide an evidence base to potential applications in environmental design. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6252 - Land/ARCH

This theory seminar examines the contemporary discourse surrounding landscape, architecture, and the dialogue between the two. The course is structured around a series of panel discussions and paper presentations, based on positions developed by seminar participants throughout the semester. Cross-listed with LDAR 6686. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6253 - Nature of Nature

Examines a variety of meanings for "nature." Different perspectives will be examined such as nature and place, nature and convention, nature and experience, nature and gender, nature and food, nature and activism, and nature and technology. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6254 - Architecture, In Theory

Explores theories and texts that have influenced the analysis and the production of architectural form. The focus is on the expressive potential of architectural forms and the modalities of the realization of this potential. Prereq: Course is offered to doctoral students but masters students may enroll with instructor approval. Cross-listed with DSPL 7016. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6255 - Cultural Institutions

Selected types of cultural institutions including art museums, libraries, cultural centers, theaters, etc. are studied in this research seminar. Through case studies and readings, their ongoing cultural, architectural and corporate values are examined. Prereq: ARCH 5220 and 5230 or instructor approval. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6275 - History Native Amer Arch

Introduces Native American architecture from the 12th century to the present. The course helps students understand the various cultural, technological, philosophical and aesthetic ideas that helped shape these buildings throughout history. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6290 - Special Topics in Cultural Studies

Various topics in cultural studies, according to current faculty and student interests. Prereq: ARCH 5210, ARCH 5220 and ARCH 5230. Max hours: 21 Credits. **Semester Hours:** 3 to 3

ARCH 6310 - Greenbuilding Tech

This seminar will advance the student's knowledge of environmental building and construction methods through studies in material resources, innovative green systems, alternate green technology, energy efficiency, and affordability in "green architectural design." Prereq: One course in ECS Systems. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6313 - LEED Certification, Greenbuilding Seminar

This RIGOROUS course will use the LEED Certification process to provide a framework for assessing building performance and meeting sustainability goals, following the 1st step in a two stage Professional Accreditation process, focusing on LEED GA, Green Associate Accreditation. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6314 - LEED AP Advanced Greenbuilding Seminar

This advanced LEED Certification and Accreditation course builds on the first LEED GA course, providing a framework for assessing green building performance and sustainability goals, exploring advanced green building concepts and preparing the student for the LEED AP BD+C exam. Prereq: ARCH 6313 or instructor approval. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6351 - Building Conservation

This course emphasizes the relationship between knowledge acquisition, professional judgement, and design modification. Topics include: 1) Historic Building Types & Methods, 2) Field and Lab Methods of Building Assessment, and 3) Management of Building Rehabilitation. The course takes an integrative approach to the scientific, aesthetic, managerial and legal dimensions of preservation. Prereq: ARCH 5310 and ARCH 5320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6352 - Documentation, Analysis, Representation

This methods course focuses on skills development in in-situ documentation of the historic environment. The course includes modules on: a) historic records, b) archaeological evidence, c) building and site measurement, d) photographic & Photometric methods, e) geo-spatial data, f) graphic representation, and g) reporting formats. Cross-listed with HIPR 6310. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6353 - Daylighting Design

Daylighting is the use of light from the sky to illuminate building interiors. The objective of this course is to introduce students to the fundamentals of daylighting design including how it is perceived and how it impacts building energy flows. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6354 - The Art of Proportion

This course covers the use of proportional systems in the Classical tradition. Students complete a series of graphic exercises culminating in the construction of a Beaux-Art style ink-wash of a classical column. Cross-listed with ARCH 6290 and HIPR 6090. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6355 - Urban Conservation: Context for Reuse

Human habitats (especially cities) are dynamic. The preservationist cannot freeze cities in a static representation of the past. The course deals with philosophical and political contexts, but emphasizes the role of strategic design intervention in the shaping of evolving cities. Cross-listed with HIPR 6410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6370 - Introduction To Design Build

Introduction to Design Build project delivery methods important to architects. Lecture, research on the industry and an individual student project are the methods used to introduce ethical questions, role of the architect, owner, consultant and subcontractors. Work leads to studio project or case study. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6373 - Construction in Design Build

Using a single project, students fully explore the design phase, estimating, scheduling and project management skills in traditional construction. Course is concurrent with an advanced studio and builds a project on a site. Prereq: ARCH 6370. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6390 - Special Topics in Technology

Various topics in technology, according to current faculty and student interests. Prereq: ARCH 5310 and ARCH 5320. Max hours: 18 Credits. **Semester Hours:** 3 to 3

ARCH 6412 - Construction Documents

Introduces the concepts and techniques of construction documents. Max hours: 3 Credits.

Semester Hours: 3 to 3

ARCH 6450 - Pre-Design

Course lectures, readings, and case studies cover pre-design methodologies, research, documentation, facilitation and consensus building. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6451 - Digital Applications

This course introduces first year design students to the Graphic Design Concepts and Digital Applications necessary to create both Printed and Interactive Presentations of their work. Students learn computer skills including: Photoshop, InDesign and Flash. Prereq: ARCH 5110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6452 - Digital Portfolio Design

This course introduces students to the Graphic Design Concepts and the Digital Applications used to create both Printed and Web-based Portfolios. Students must have completed ARCH 5110 and have a working knowledge of Photoshop. Prereq: ARCH 5110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6453 - Introduction To Digital Design & Fabrication

An introductory class to Computer Aided Design (CAD) and Computer aided manufacturing (CAM). Students explore how these technologies apply to the field of architecture with a focus is on parametric/algorithmic design approaches and mass customization manufacturing techniques. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6454 - Rhino Modeling and Representation

An introductory class to Computer Aided Design (CAD) and Computer Aided Manufacturing (CAM). Students explore how these technologies apply to the field of architecture with a focus on surface modeling and parametric/algorithmic design approaches and mass customization and representation as well as manufacturing techniques. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6460 - Architecture Photography

Introduces the key concepts and techniques of photography in general and architectural photography in particular. Students learn basic principles of exposure, focal length, composition and darkroom procedures and then undertake a number of photographic exercises. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6461 - Architectural Precedents

Explores a number of traditional answers to recurring design issues, such as how to approach and enter a building or how to design a facade. In a seminar setting, students examine traditional ideas for their underlying principles and design new architectural compositions based on those principles. Prereq: Completion of ARCH 5110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6462 - Furniture Design

Students learn how to design and build furniture in the College's woodshop. Topics include ergonomics, properties of materials, principles and techniques of joinery and techniques of hand and machine tools. Prereq: must have completed the college's woodshop training program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6463 - Beginning Revit

Introduces beginning design students to basic building components and Revit techniques. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6464 - Intermediate Revit

Revit techniques for experienced CAD users who need to share files and collaborate in design projects. Cross-listed with ARCH 6390. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6465 - Advanced Revit

Emphasizes family customization of Revit for architectural practice. Prereq: ARCH 6390. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6470 - ACE Mentoring

Graduate students work with professional architects, designers, and engineers mentoring students in selected local high schools to learn problem solving, graphics and model making to produce a design project. Student mentors develop lesson plans, outcomes and keep a weekly journal. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6471 - Managing Quality & Risks

A lecture and seminar on approaches to risk management including contracts, insurance, financial analysis, dispute resolution and client relationships. Utilizing case study approach, quality assurance will be defined and studied in the design and building phase of workings. Prereq: ARCH 6370. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6472 - Architecture in a Single Source Project Delivery

Directed to the practice of architecture with design build and other single source delivery systems. This course examines requirements of codes, zoning, building systems and legal questions for the architect. Prereq: ARCH 6370. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6473 - Research Tools & Methods

Introduces the thesis in architecture and establishes the scholarly basis for the research and construction of a Master's Thesis project. This course will provide the student with the research practices and methodologies to develop the scholarship and products required to produce a Thesis Project Proposal. Completion of this course is a prerequisite for the student to submit the Thesis Proposal for departmental approval to continue with the remaining 9 credits of thesis work. Cross-listed with LDAR 6949. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6490 - Special Topics in Professional Studies

Various topics in professional studies according to current faculty and student interests. Max hours: 18 Credits. **Semester Hours:** 3 to 3

ARCH 6520 - Architecture in Other Cultures

Various studies of architecture and urbanism in foreign countries. Max hours: 12 Credits. **Semester Hours:** 1 to 9

ARCH 6624 - The Built Environment in Other Cultures I: Research Design

The intent is to broaden students' perspectives by asking them to examine design within another culture. Each student prepares a proposal of study including a statement of the problem to be addressed, the type of field research to be undertaken and the nature of the report to be produced. Cross-listed with LDAR 6624. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6730 - International Studies Preparation

The course will prepare students to go to China, for 10-day International Summer School, 5-week China Summer Urban Design Joint Studio, 9-month Gensler Internship, and 1-year LA Dual Degree program. Topics include historic, geographic and cultural issues, and language lessons. Cross-listed with URBN 6730, LDAR 6730, and URPL 6730. Max hours: 3 Credits. **Semester Hours:** 1 to 3

ARCH 6775 - Bluff General Elective

Provides students the opportunity to focus their attention on one of three areas: technical studies, professional studies, or cultural studies. Students will complete coursework as it relates to Design Build Bluff. Counts as a general elective. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6840 - Independent Study

Studies initiated by students or faculty and sponsored by a faculty member to investigate a special topic or problem related to architecture. Prereq: Permission of instructor. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ARCH 6910 - Teaching Assistantship

Work with a faculty member in a course to help with class preparation and delivery. This is intended for students who may be considering a career in teaching architecture. Prereq: Permission of instructor. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ARCH 6930 - Architecture Internship

Designed to provide professional practice experience. The internship is composed of eight hours per week working in a practicing professional's office during the regular semester. Students must complete the second-year level before taking this course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6931 - Architecture Internship

Designed to provide professional practice experience. The internship is composed of eight hours per week working in a practicing professional's office during the regular semester. Students must complete the second-year level before taking this course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 7840 - Independent Study

Max hours: 3 Credits. **Semester Hours:** 1 to 3

Bioengineering

BIOE 1010 - Bioengineering Design and Prototyping I

BIOE 1010 introduces students to bioengineering, and provides an introduction to possible careers and research topics in Bioengineering. Students also learn human anatomy by understanding how to incorporate visual human datasets into computer prototyping and design tools. Restricted to Pre-BIOE students. Max hours: 2 Credits. **Semester Hours:** 2 to 2

BIOE 1020 - Bioengineering Design and Prototyping II

BIOE 1020 extends work from BIOE 1010 by introducing students to practical skills around computer-aided design (CAD), modeling and prototyping with focus on project-oriented work aimed at design, prototyping and metrology of specific medical devices. Prereq: BIOE 1010. **Semester Hours:** 2 to 2

BIOE 2010 - Introduction to Programming for Bioengineers

Digital computers are the primary tools of modern engineers. This class introduces the undergraduate to general computing concepts, computer languages, and programming techniques. BIOE 2010 is restricted to second-year pre-bioengineering students in the Department of Bioengineering who have successfully completed MATH 1401. Max hours: 2 Credits. **Semester Hours:** 2 to 2

BIOE 2020 - Introduction to Computational Methods for Bioengineers

A modern engineer is required to solve problems involving the physical world not only on paper, but also using numerical tools implemented on digital computers. This class introduces the students a first set of numerical algorithms for the solution of calculus-based engineering problems. Prereq: BIOE 2010 and MATH 2411. Max hours: 2 Credits. **Semester Hours:** 2 to 2

BIOE 4063 - 3D Modeling for Bioengineers

This course instills in the 3D modeling skills specific to the biomedical industry. Topics include computer aided design (CAD), medical imaging, image processing, patient specific image to three-dimensional (3D) model reconstruction, non-uniform rational b-spline (NURBS) surfaces, finite element and computational fluid dynamics (FEA/CFD) analyses and physical modeling using rapid prototyping. Restrictions: Matriculated CEAS students. Max hours: 3 Credits.

Semester Hours: 3 to 3

BIOE 5010 - Cell and Molecular Biology for Bioengineers

Introduction to cellular and molecular biology, with a focus on using engineering methods and literature to analyze structure and function of cells throughout lifecycle and multiple scales. Design experiments to test hypotheses. Prereq: Graduate standing in Bioengineering or instructor permission. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 5011 - Systems Physiology for Bioengineers

Use engineering principles to study key physiological systems. Topics: cardiovascular, neuroscience, urological, or renal medicine. Related engineering principles: pressure-flow relationships, stress-strain, electromechanical coupling and signal transduction. Prereq: Graduate standing in Bioengineering or instructor permission. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 5020 - Analytic Methods for Engineering Analysis

This course provides mathematical tools essential for graduate level bioengineering work. Studies selected topics from probability, linear algebra, and vector calculus, with emphasis on bioengineering applications. Prereq: Graduate standing in Bioengineering or instructor permission. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 5021 - Numerical Methods for Engineering Analysis

Provides computational skills and knowledge of numerical methods for engineering/scientific computation using Matlab. Topics: root finding, interpolation, difference and integration rules, solution of initial and boundary value ODEs, and introduction to the solution of PDEs. Prereq: Graduate standing in Bioengineering or instructor permission. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 5030 - Technology for Bioengineers

This course will prepare students fundamental bioengineering principles common to areas of active research. This includes fundamental principles behind systems and instrumentation in mechanics, electronics, fluid flow and clinical imaging modalities, as well as an introduction to polymeric biomaterials. Prereq: Graduate standing in Bioengineering. Max hours: 3 Credits.

Semester Hours: 3 to 3

BIOE 5031 - Technology for Bioengineers II

This course continues the introduction to imaging from BIOE 5030 (Technology for Bioengineers I) but with a much stronger emphasis on quantitative methods of medical image analysis and description of medical imaging physics. Prereq: Graduate standing in Bioengineering. Grade of B or better in BIOE 5030, or consent of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 5040 - Research Methods for Bioengineers

This course provides an introduction to research methods for bioengineers in order to prepare for basic research, clinical applications and commercialization of medical technologies. Topics include literature review, regulatory policy. Prerequisite: Graduate standing in Bioengineering (MS/PhD). Max hours: 2 Credits. **Semester Hours:** 2 to 2

BIOE 5041 - Clinical Experiences for Bioengineers

This course provides opportunities for clinical experiences such as observing surgeries and touring intensive care units to prepare students for clinical applications and foster collaborations with clinical practitioners. Experiences take place through the school year. Prerequisites: Graduate standing in Bioengineering (MS/PHD). Max hours: 1 Credit. **Semester Hours:** 1 to 1

BIOE 5053 - Optics & Microscopy in Biomedical Research

Comprehensive overview of optical imaging, ranging from classical microscopy to advanced, non-linear techniques and includes theory, technology and applications in biomedical sciences. This will prepare students for developing and applying state-of-the-art optical imaging in their research. Prereq: Grad standing or permission from the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 5063 - 3D Modeling for Bioengineers

Course instills 3D modeling skills specific to biomedical industry. Topics include computer aided design, medical imaging, image processing, patient specific image to three-dimensional model reconstruction, non-uniform rational b-spline surfaces, finite element, computational fluid dynamics analyses, physical modeling using rapid prototyping. Restrictions: Matriculated CEAS students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 5064 - Advanced MatLab For Bioengineers And Life Scientists

This course covers MatLab programming for bioengineers and life scientists. Topics include MatLab syntax and optimization as well as techniques for working with scalars, time-series, images and multi-dimension datasets. Surface/Curve fitting, modeling, automation and classification will be covered as well. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 5073 - Neural Interfaces and Bionic Limbs

This course will explore advanced topics in neural interfaces (Brain machine interfaces, peripheral nerve interfaces etc), the issues involved in the design of mechatronic limb systems and the decoding algorithms used to map the neural interface to the mechatronic limb. Restrictions: Matriculated CEAS students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 5074 - Introduction to Laboratory Animal Research

This course provides basic theoretical and practical knowledge on the use of the most common laboratory animal species, animal models and welfare, general concepts on animal biology and husbandry, and essential principles of anesthesia, analgesia, surgery and peri operative care. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 5083 - Polymers in Biomedical Applications

This course will cover a fundamental synthetic method and basic characteristics of various polymeric biomaterials and their crucial roles in different biomedical applications. It will also cover how the polymers can be modified to enhance biomedical applications. Prereq: Graduate standing at CU Denver or instructor permission. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 5420 - Special Topics in Bioengineering

Special topics of particular interest to graduate students in Bioengineering. Prereq: Graduate standing within the Department of Bioengineering or permission of instructor. Max hours: 12 Credits. **Semester Hours:** 3 to 3

BIOE 5840 - Independent Study in Bioengineering

Graduate level independent study in Bioengineering with a faculty mentor. Prereq: Graduate standing within the Department of Bioengineering or permission of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 6

BIOE 6950 - Masters Thesis

Research for Master Thesis under supervision of faculty thesis advisor. Prerequisites: Consent of thesis advisor. Restrictions: Satisfactory progress toward MS-Bioengineering degree. Max hours: 6 Credits. **Semester Hours:** 1 to 6

BIOE 6960 - Master's Project

Training for Master's Project under the supervision of faculty project advisor. Prereq: Department Consent. Max hours: 6 Credits. **Semester Hours:** 1 to 6

BIOE 8990 - Doctoral Dissertation

Research for doctoral dissertation under supervision of faculty advisor. Prerequisites: Consent of dissertation advisor. Restrictions: Satisfactory progress toward PhD-Bioengineering Degree. Max hours: 10 Credits. **Semester Hours:** 1 to 10

Biology

BIOL 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

BIOL 1136 - Human Biology

Topics include: basic human body chemistry, healthy internal body balance, new disease treatments, human inheritance and human beings as part of Earth's living systems. Note: For students who are not majoring in biology. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 1550 - Basic Biology: Ecology and the Diversity of Life

Introduces important biological concepts, including: the process of science, biological diversity, evolution, basic ecological principles and environmental issues. Lectures emphasize current issues. Note: For students who are not majoring in biology. Biology and health career majors should not take this course. Max hours: 4 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1 **Semester Hours:** 4 to 4

BIOL 1560 - Basic Biology: From Cells to Organisms

Introduces students to cell structure and function, survey of representative human systems, genetics and applications of biotechnology. Immune systems featured with an emphasis on Aids, cancer and other human diseases prevalent in today's world. Note: For students who are not majoring in biology. Biology and health career majors should not take this course. Max hours: 4 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1. **Semester Hours:** 4 to 4

BIOL 2051 - General Biology I

Introduces four major areas of study: (1) the chemistry of biological systems; (2) the structure and function of the cell; (3) cellular energy transformations (photosynthesis and respiration); and (4) genetics (mitosis, meiosis, patterns of inheritance, molecular genetics). Note: Biology majors and pre-health career students must also take the accompanying laboratory - BIOL 2071. It is recommended that students have completed CHEM 1000 or high school chemistry prior to taking this course. No co-credit with BIOL 2095. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC2. **Semester Hours:** 3 to 3

BIOL 2061 - General Biology II

This course is a continuation of BIOL 2051. Introduces four major areas of study: (1) evolution,(2) animal structure and function, (3) plant structure and function and (4) ecology. Note: Biology majors and pre-health career students must also take the accompanying laboratory - BIOL 2081. Prereq: BIOL 2051 with a grade of "C-" or higher. No co-credit with BIOL 2097. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC2. **Semester Hours:** 3 to 3

BIOL 2071 - General Biology Laboratory I

Introduces the basic scientific approach and report preparation through exercises and experiments in cell biology, basic biochemical techniques, genetics, molecular genetics and applications of biotechnology. Note: Exercises corresponding to topics in BIOL 2051. Prereq: BIOL 2051 with a grade of "C-" or higher or concurrent enrollment in BIOL 2051. No co-credit with BIOL 2096. Max hours: 1 Credit. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1. **Semester Hours:** 1 to 1

BIOL 2081 - General Biology Laboratory II

Study of evolution, plant and animal anatomy, developmental biology; includes two off-campus ecology field trips. Note: Exercises corresponding to topics in BIOL 2061. Prereq: BIOL 2051, 2061, and 2071 with a grade of "C-" or higher; concurrent enrollment in BIOL 2061 accepted. No co-credit with BIOL 2098. Max hours: 1 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1. **Semester Hours:** 1 to 1

BIOL 2091 - General Biology Lab for Secondary Teacher Licensure

One-semester general biology laboratory for those students who are pursuing secondary science teacher licensure. Introduces the scientific method through select exercises and experiments in cell biology, basic biochemical techniques, genetics, molecular genetics, anatomy, physiology, and development, ecology, and evolution. Note: Exercises corresponding to select topics in BIOL 2051 and BIOL 2061. Will not fulfill biology major requirements. Students completing BIOL 2071 and BIOL 2081 may not receive credit for BIOL 2091, nor may students completing BIOL 2091 receive credit for BIOL 2071 and BIOL 2081. Prereq: BIOL 2051 or equivalent with a grade of "C-" or higher. Coreq: BIOL 2061. Max hours: 1 Credit. **Semester Hours:** 1 to 1

BIOL 2095 - Honors General Biology I

Honors level course limited to students in the BA/BS/MD, Denver Bound and UNHL programs. Four major topics covered: the chemistry of biological systems, the structure/function of the cell, cellular energy transformations and genetics. Prereq: BIOL 2096 must be taken in conjunction with this course. Instructor permission required. No co-credit with BIOL 2051. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1. **Semester Hours:** 3 to 3

BIOL 2096 - Honors General Biology Lab I

Honors level course limited to students in the BA/BS/MD, Denver Bound and UNHL programs. Introduces the basic scientific approach and report preparation through exercises and experiments in cell biology, basic biomedical techniques, genetics, molecular genetics and applications of biotechnology. Prereq: BIOL 2095 must be taken in conjunction with this course. Instructor permission required. No co-credit with BIOL 2071. Max hours: 1 Credit. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1. **Semester Hours:** 1 to 1

BIOL 2097 - Honors General Biology II

Honors level course limited to students in the BA/BS/MD, Denver Bound and UNHL programs. This course is a continuation of BIOL 2095. Introduces four major areas of study: evolution, animal structure/function, plant structure/function, and ecology. Prereq: BIOL 2095 and 2096 with a C- or higher. Instructor permission required. No co-credit with BIOL 2061. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1. **Semester Hours:** 3 to 3

BIOL 2098 - Honors General Biology Lab II

Honors level course limited to students in the BA/BS/MD, Denver Bound and UHL programs. Advanced study of evolution, plant and animal anatomy, developmental biology and includes two off-campus ecology field trips. Prereq: BIOL 2095, 2096 with a C- or higher and instructor permission. No co-credit with BIOL 2081. Max hours: 1 Credit. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1. **Semester Hours:** 1 to 1

BIOL 2750 - Introduction to Molecular Research Techniques

Designed to give background knowledge and hands-on experience for a person wanting to work in a molecular-research laboratory. Introduction to basic molecular techniques including micropipetting, making media, DNA and RNA isolation, restriction digest, RT-PCR, and gel electrophoresis. Max hours: 2 Credits. **Semester Hours:** 2 to 2

BIOL 2840 - Independent Study

Note: registration by special processing form only. Prereq: One semester of general biology with a grade of "C-" or higher and permission of instructor. Max hours: 9 Credits. **Semester Hours:** 1 to 3

BIOL 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

BIOL 3104 - Behavioral Genetics

Interdisciplinary course on relationships between behavior and heredity, with emphasis on human behavioral genetics. Prereq: General biology or general psychology. Cross-listed with PSYC 3104. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 3124 - Introduction to Molecular Biology

Provides an understanding of the structure and function of genetic material, DNA replication and recombination, and regulation of gene expression and protein synthesis. Emphasizes eukaryotic systems, while providing an overview of prokaryotic systems. Prereq: BIOL 3832 with a grade of C- or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 3134 - Advanced Topics

Periodic examination of current topics in the field of biology. (See Schedule Planner for current topics). Max hours: 9 Credits. **Semester Hours:** 1 to 8

BIOL 3225 - Human Physiology

The basic orientation of the course is toward understanding the functioning of the body as a set of homeostatic mechanisms. Particular emphasis is placed on membrane potentials, muscle, circulation, respiration, digestion, the kidney, the control of metabolism and acid-based balance. Prereq: BIOL 3611 and CHEM 2031/2081, 2038/2088, 2061/2091 and 2068/2098 with a C- or higher. Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 3244 - Human Anatomy

Introduces the structural aspects of the human body. Anatomical models, microscope slides and dissections, including human cadavers are used in the lab. Prereq: BIOL 2051/2095, 2061/2097, 2071/2096 and 2081/2098 with a C- or higher. Max hours: 5 Credits. **Semester Hours:** 5 to 5

BIOL 3330 - Plant Diversity

Surveys all major plant groups using evolutionary and ecological principles to interpret patterns of diversity in form and function. Topics include reproduction and life cycles, adaptations and ecological interactions, paleobotany and biogeography, classification and taxonomy and evolution. Prereq: BIOL 2051, 2061, 2071 and 2081 grade of "C-" or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 3411 - Principles of Ecology

A lecture course that examines the interrelationships between organisms and their environments. Subject matter includes organism, population and ecosystem levels of study and application to current environmental issues. The emphasis is on the underlying principles of ecology that involve all types of organisms. Note: Satisfies core ecology requirement for biology major. May not be used as upper division biology elective. No co-credit with BIOL 3412. Prereq: BIOL 2051, 2061, 2071 and 2081 with a grade of "C-" or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 3413 - Ecology Laboratory

Provides hands-on experiences in ecology and appreciation for using research tools to study ecological systems. Students will learn a wide range of techniques and concepts related to population, community, ecosystem, urban, and physiological ecology. Prereq: BIOL 3411 or 3412 with a grade of "C-" or higher; concurrent registration in ecology accepted. Max hours: 2 Credits. **Semester Hours:** 2 to 2

BIOL 3445 - Introduction to Evolution

Introduction to the processes and patterns of evolution. Topics include: history of evolutionary thought, origin of life, evidence for evolution, phylogenetics, evolutionary genetics, natural selection and other evolutionary forces, speciation and biodiversity, evolution of sexual reproduction and social organization. Prereq: BIOL 2051/2095, 2061/2097, 2071/2096 and 2081/2098. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 3520 - Invertebrate Zoology

Most species on earth are invertebrate animals that, by definition, lack backbones. This course examines the biology, taxonomy, anatomy, ecology and evolution of these important creatures, which occupy a diversity of terrestrial, freshwater and marine habitats. Prereq: BIOL 2051, 2061, 2071 and 2081 with a grade of "C-" or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 3521 - Vertebrate Biology

The subphylum vertebrata consists of fish, amphibians, reptiles, birds and mammals--some of the most fascinating and most threatened species on earth. This course covers the geological record, evolution, taxonomy, anatomy, physiology, ecology and conservation of these organisms.

Prereq: BIOL 2051, 2061, 2071 and 2081 with a grade of "C-" or higher. Max hours: 3 Credits.

Semester Hours: 3 to 3

BIOL 3611 - General Cell Biology

Covers the structure and function of the cell including bioenergetics, membranes, secretion, respiration and the cell cycle. Prereq: BIOL 2051, 2061, 2071, 2081 and CHEM 2031, 2038, 2061 and 2068 with a C- or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 3612 - Cell Biology Laboratory

Laboratory course covering topics in cell and molecular biology, such as protein folding, membrane potential, organelle function, cell signaling and fertilization; as well as associated methods, including microscopy, cell culture and PCR. Basic skills are emphasized in recitation and laboratory. Prereq: General cell biology with a grade of "C-" or higher or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 3621 - Introduction to Immunology

Provides an introduction to the basic concepts of immunology, including development of the immune system, innate immunity, aspects of the adaptive immune system, and the role of the immune system in disease, as well as allergies and autoimmunity. Prereq: BIOL 3611 and 3832 with a C- or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 3654 - General Microbiology

Covers all aspects of the biology of microorganisms: their cellular structures and function, growth and metabolism, general and molecular genetics, diversity and interactions with other organisms and the environment (ecology). The objective is to provide students with a thorough introduction to microbiology including basic micro-biological laboratory techniques. Note: General cell biology or general genetics is recommended. Prereq: BIOL 3832 and CHEM 2031, 2038, 2061 and 2068 with a C- or higher. Max hours: 5 Credits. **Semester Hours:** 5 to 5

BIOL 3763 - Biostatistics

Introduces statistical thinking in biology. Emphasizes data exploration and probability-based inference methods including estimation, testing, and confronting models with data. Concepts and examples for general and applied biology, including ecology and the health sciences. Includes exposure to statistical software. Prereq: One year of general biology with a "C-" (1.7) or higher, and equivalent of college-level algebra with "B" (3.0) or higher, or introductory statistics with a "B" (3.0) or higher, or permission of instructor. Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 3832 - General Genetics

Introduces molecular, classical, developmental and population genetics. Prereq: One year of general biology with a grade of "C-" or higher. Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 3840 - Independent Study

Note: Registration by special processing form only. Prereq: One year of general biology with a grade of "C-" or higher and permission of instructor; registration by special processing form only. Max hours: 6 Credits. **Semester Hours:** 1 to 3

BIOL 3939 - Internship

Designed experience involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

BIOL 4024 - Introduction to Biotechnology

Introduces aspects of biotechnology within a historical context, including medical, forensic, agricultural and microbial biotechnology. Addresses principles behind state-of-the-field techniques in recombinant DNA technology, bioinformatics, proteomics and genomics. Biotechnology regulations and ethics will also be discussed. Prereq: BIOL 3832 with a C- or higher. Cross-listed with BIOL 5024. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4050 - Advanced Biology Topics

Examines current topics in the field of biology. Topics vary from term to term. See Schedule Planner for current topics. Prereq: One year of general biology with grades of "C-" or higher. Cross-listed with BIOL 5050. Max hours: 8 Credits. **Semester Hours:** 1 to 8

BIOL 4051 - Advanced Topics In Microbiology

An in-depth study of microbial concepts, including prokaryotic and eukaryotic structure and function; properties of biological macromolecules; microbial growth kinetics; and microbial diversity. Emphasis is on one of the following: virology, microbial physiology, environmental microbiology, microbial biotechnology and nucleic acids. Prereq: General microbiology with a grade of "C-" or higher. Cross-listed with BIOL 5051. Max hours: 6 Credits. **Semester Hours:** 3 to 3

BIOL 4052 - Advanced Ecology

This combination seminar and lecture course focuses on state-of-field knowledge, current theories and recent models in selected areas of ecology, such as theoretical ecology, evolutionary ecology, population biology and ecosystems ecology. Prereq: Introductory ecology with a grade of "C-" or higher (BIOL 3411 or BIOL 3412 or equivalent). Cross-listed with BIOL 5052. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4053 - Disease Ecology

The study of the underlying principles that influence the spatio-temporal patterns of infectious disease in environments. Students will apply ecological theories about concepts such as biodiversity, trophic interactions, landscape structure, and nutrient cycling to the study of disease. Prereq: Introductory Ecology with a grade of "C-" or higher. Cross-listed with BIOL 5053. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4054 - Developmental Biology

Covers gametogenesis, fertilization, cleavage and development of the embryo with an emphasis on the biochemical and biophysical aspects. Prereq: General cell biology with a grade of "C-" or higher. Cross-listed with BIOL 5054. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4064 - Advanced Cell Biology

Builds on the foundations laid in the prerequisite courses. Major topics include the functions of cell membranes, energy transduction and regulation of metabolic pathways. A major emphasis is the control and integration of cellular activities. Prereq: General cell biology and one semester of biochemistry with grades of "C-" or higher. Cross-listed with BIOL 5064. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4068 - The Cell Cycle

Provides an in-depth study of the molecular regulation of the eukaryotic cell cycle. Includes mitosis, meiosis, developmental cell cycles, cell cycle checkpoints and cell cycle defects in cancer. Prereq: General cell biology and general genetics with a grade "C-" or higher. Biochemistry strongly recommended. Cross-listed w/BIOL 5068. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4074 - Human Reproductive Biology

Comprehensive study of anatomy and physiology of human reproduction. Embryogenesis of male and female reproductive systems and detailed analysis of contraception, world population growth, population control and implications of population growth are also covered. Prereq: BIOL 3611 with a C- or higher. Cross-listed with BIOL 5074. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4125 - Molecular Biology Laboratory

Provides hands-on experiences in molecular biology and an appreciation for using the tools of molecular biology to study biological systems. Emphasis is placed on DNA cloning, PCR, mutagenesis and protein purification techniques. Experimental design and the theories underlying the techniques are also discussed. Prereq: General microbiology with a grade of "C-" or higher and molecular biology, either introductory or advanced, with a grade of "C-" or higher; concurrent registration in molecular biology accepted. Cross-listed with BIOL 5125. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4126 - Molecular Genetics

Examines molecular techniques and their application to experimental genetics, specifically organization and mapping of genomes, application and model systems in defining hereditary components of disease, and mechanisms of identifying mutations and their implications for disease. Also addresses application of recombinant DNA technology. Prereq: General genetics and one year of organic chemistry (or equivalent) with grades of "C-" or higher; biochemistry strongly recommended. Cross-listed with BIOL 5126. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4128 - Topics in Molecular Biology

Literature-based course examining the regulation of gene expression in eukaryotic systems, as well as contemporary recombinant DNA technology and applications of molecular cloning techniques. Prereq: BIOL 3124 with a C- or higher; biochemistry strongly recommended. Cross-listed with BIOL 5128. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4134 - Human Genetics

Advanced survey of the current status of the field. Emphasis on understanding, diagnosis and treatment of genetic disease and on the impact of molecular biology on human genetics. Prereq: General genetics with a grade of "C-" or higher. Cross-listed with 5134. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4144 - Medical Microbiology

Provides an understanding of the relationship between pathogenic organisms and their host. Emphasis is placed on the area of medical bacteriology, with attention given to mechanisms of pathogenesis, genetics of disease, serology and treatment. Prereq: general microbiology with a grade of "C-" or higher. Cross-listed with BIOL 5144. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4154 - Conservation Biology

Basic concepts and theories in ecology, population biology and genetics as they apply to issues relating to the preservation of biodiversity, such as the genetics of small populations, captive propagation, restoration ecology and the design of nature reserves. Prereq: Introductory ecology (BIOL 3411, 3412 or equivalent) with a grade of "C-" or higher. Cross-listed with BIOL 5154. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4165 - Neurobiology

Overview of neuroscience, covering the cellular basis of neuronal activity, muscle, sensory structures and the structure and function of the human brain. Prereq: One year of general biology and general cell biology with grades of "C-" or higher. Cross-listed with BIOL 5165. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4250 - Mechanisms of Animal Behavior

The proximate and ultimate mechanisms of animal behavior are analyzed using comparative animal examples from the scientific literature. Proximate mechanisms include genetic and physiological processes. Ultimate mechanisms include the role of natural and sexual selection in the evolution of behavior. Prereq: One year of general biology with a grade of "C-" or higher. Genetics and human physiology are recommended. Cross-listed with BIOL 5250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4315 - Plant Systematics

Lecture, lab and field trips. Extensive introduction to the basic principles and concepts of vascular plant systematics. Topics include principles of taxonomy, nomenclature, methods, systems of classification and field and herbarium procedures. Emphasis on plant structure and identification using fresh, frozen and pressed plant specimens. Prereq: One year of general biology with a grade of "C-" or higher. Cross-listed with BIOL 5315. Max hours: 4 Credits.

Semester Hours: 4 to 4

BIOL 4335 - Plant Science

Lecture, lab and field trips. An in-depth study of flowering plants, including embryology, structure, function, reproduction, ecology and evolution of the group. Emphasis is placed upon morphology and anatomy at all stages of plant development. Prereq: One year of general biology (BIOL 2051, 2061, 2071, 2081) and General Cell Biology (BIOL 3611) with a grade of "C-" or higher. Cross-listed with BIOL 5335. Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 4345 - Flora of Colorado

Lecture, lab and field trips. Introduces the vascular plant flora of Colorado, including ferns, gymnosperms and flowering plants. Emphasis on field identification of species representing a range of natural communities from grassland to alpine tundra, as well as non-natives. Field and herbarium techniques covered. Prereq: BIOL 3411 or 3412 with a C- or higher. Cross-listed with BIOL 5345. Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 4415 - Microbial Ecology

An in-depth study of ecology as it relates to microorganisms; abiotic and biotic interactions within microbial populations in macro- and microhabitats; and the role of microorganisms in maintaining steady state conditions in natural ecosystems. Emphasis is placed on how the ecology of microorganisms affects the human condition. Prereq: General microbiology with a grade of "C-" or higher. Cross-listed with BIOL 5415. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4416 - Aquatic Ecology

This advanced ecology course examines the inter-relations of biological (including humans), physical and chemical components of wetlands, streams, rivers, lakes, reservoirs and groundwater. Learning is facilitated through lectures, discussions, student presentations, laboratory and field exercises. Prereq: Introductory ecology (BIOL 3411, 3412 or equivalent) with a grade of "C-" or higher. Cross-listed with BIOL 5416. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4425 - Biogeography

An in-depth study of biological populations through analysis of geographic distribution patterns in space and time. Emphasis on how biogeography informs studies of evolution and ecology and on applied studies in conservation, sustainability, epidemiology, and disease dynamics. Prereq: One year of general biology with a grade of "C-" or higher. Cross-listed with BIOL 5425. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4450 - Marine Biology

Looks at the fascinating organisms that inhabit the oceans, which represent 99% of the living space of earth. While the focus is on the ecology of marine organisms, taxonomy, physiology and anatomy are also covered. Prereq: One year of general biology with a grade of "C-" or higher. Cross-listed with BIOL 5450. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4455 - Comparative Environmental Physiology

This advanced physiology course explores the physiological evolutionary adaptations of different animals in the context of their environment. Content includes exploration of maintenance of homeostasis via feedback regulation, structure-function relationships, cellular physiology, and the study of organ systems including the nervous, endocrine, respiratory, reproductive and cardiovascular systems. Prereq: Human or animal physiology with a grade of "C-" or higher. Cross-listed with BIOL 5455. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4460 - Environmental Toxicology

Text and literature-based course provides students with background knowledge concerning environmental toxins, the nature and extent of environmental contamination, and toxicant effects on individual organisms and populations. Prereq: Human Physiology with grades of "C-" or higher. Organic Chemistry and/or Biochemistry strongly recommended. Cross-listed with BIOL 5460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4464 - Exercise Physiology

This course addresses the dynamic physiological changes associated with exercise. Where human physiology addresses physiological processes at rest, this course explores how the cardiovascular, respiratory, nervous and endocrine systems support increased energy transfer as skeletal muscle becomes more active. Prereq: Human Physiology (BIOL 3225 or equivalent) with a grade of C- or higher. Cross-listed with BIOL 5464. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4474 - Ecological Methods

Deals with the empirical aspects of an ecological study. Students learn sampling techniques that are used in plant and animal ecology. Emphasis is placed on hypothesis testing, data analysis and experimental field designs. Prereq: Introductory ecology (BIOL 3411, 3412 or equivalent) with a grade of "C-" or higher. Cross-listed with BIOL 5474. Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 4475 - Mechanisms of Human Pathology

Studies physiological, cellular and biochemical processes in human diseases, with particular focus on non-communicable diseases such as diabetes, cardiovascular disease and diseases of aging such as osteoporosis and macular degeneration. Prereq: Human physiology with a grade of "C-" or higher; general cell biology or general microbiology strongly recommended. Cross-listed with BIOL 5475. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4494 - Population and Evolutionary Genetics

Introduces the genetic processes underlying evolutionary change in microbial, plant and animal populations. Topics include: sources of variation, Hardy-Weinberg equilibrium, population genetic structure, natural selection and other evolutionary forces, quantitative genetics and molecular phylogenetics. Emphasis on experimental data. Prereq: One year of general biology and general genetics with grades of "C-" or higher. Cross-listed with BIOL 5494. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4550 - Cell Signaling

Lecture by faculty and student presentations cover mechanism of hormones and regulation of various cellular processes through second messenger systems. Prereq: General cell biology with a grade of "C-" or higher; one semester of biochemistry recommended. Cross-listed with BIOL 5550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4622 - Topics in Immunology

An in-depth study of immunological concepts. Topics will vary from semester to semester and may range from specifics of immune cell responses to tolerance and autoimmunity. Delivery will include lecture, student presentations, and discussion. Prereq: BIOL 3621 with a C- or higher. Cross-listed with BIOL 5622. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4634 - Biology of Cancer

Cancer is the second leading cause of death in the United States. This course offers an overview of recent research into the causes, treatments and possible prevention of cancer. Includes a detailed look at the mechanisms of action of various oncogenes. Prereq: General cell biology with a grade of 'C-' or higher; general genetics strongly recommended. Cross-listed with BIOL 5634. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4640 - Mammalogy

Lecture, laboratory, and required field trips. This course provides a general overview of the biology of mammals, including their diversity, distribution, economic importance, and other characteristics that make them of special interest to humans. Coverage will be worldwide, with special emphasis placed on the mammals of Colorado. Prereq: One year of general biology with grades of 'C-' or higher and completion of the structure/ function core requirement with a grade of 'C-' or higher. Cross-listed with BIOL 5640. Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 4644 - Advanced Human Anatomy Laboratory

Advanced laboratory course in human anatomy. In-depth look at the structural aspects of the human body, emphasizing function. Models, microscope slides, and visual media will supplement cadaver-based dissections. Prereq: One year of general biology and human anatomy with a grade of "C-" (2.0) or higher. Cross-listed with BIOL 5644. Max hours: 2 Credits. **Semester Hours:** 2 to 2

BIOL 4674 - Endocrinology

This systematic survey of the endocrine system looks at the cellular basis and biochemical characteristics of individual endocrine tissues. Their function in the regulation of other endocrinological, physiological, and behavioral events is analyzed. The course emphasizes the human system and complements studies in physiology, behavior and neurobiology. Prereq: Human physiology with a grade of "C-" or higher. Cross-listed with BIOL 5674. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4840 - Independent Study

Note: Registration by special processing form only. Prereq: One year of general biology with a grade of "C-" or higher and permission of instructor. Max hours: 12 Credits. **Semester Hours:** 1 to 6

BIOL 4910 - Field Studies

Field studies of individuals, populations and communities comprising a specified ecosystem. Emphasis on field identification of vascular plants and vertebrate animals. Topics include the physical environment, biotic and abiotic interactions, life history, ecological adaptations and biogeography. Note: Lectures and a week-long field trip. Prereq: One year of general biology and ecology with grades of "C-" or higher; permission of instructor. Cross-listed with BIOL 5910. Max hours: 6 Credits. **Semester Hours:** 3 to 3

BIOL 4974 - Evolution

A capstone course that draws upon concepts from all fields of biology. Topics include the fossil record, mass extinctions, the historical development of the modern synthesis, principles and mechanisms of evolution, current viewpoints and controversies. Prereq: BIOL 3445 and 3832 with a C- or higher. Cross-listed with BIOL 5974. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4990 - Undergraduate Research Seminar

Introduces research in the biological sciences. Students read current scientific literature, attend related seminars and participate in discussions. This course offers students a chance to interact with visiting scientists, who will present state-of-the-field biological research in a seminar setting. Prereq: Senior standing, satisfactory completion of all biology core courses, overall GPA of 3.0 or higher and permission of instructor. Cross-listed with BIOL 6655. Max hours: 1 Credit. **Semester Hours:** 1 to 1

BIOL 5001 - Cells, Human Systems and Heredity

Systematic study of key concepts in cell structure and function; energy transformations in living systems, functioning of human systems in health or disease, patterns or process of human inheritance and biotechnology impacts on human society. Concepts are linked to other scientific, mathematical, societal and pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: Permission of project director. Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 5002 - RM-MSMSP: Ecology, Biodiversity and Adaptation

Systematic study of biological concepts including ecosystems, population dynamics, food chains, biodiversity and evolutionary processes. Instruction is inquiry-based and interactive. Concepts are linked to other scientific, mathematical, societal and pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: Permission of instructor (project director). Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 5003 - RM-MSMSP: The Biology of Life: Integrated Perspectives

Uses an integrated approach to investigate current biological, ecological and environmental issues including biofuels, climate change, red tides, coral bleaching, biomagnifications of toxins, acid rain and population growth. Note: This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: BIOL 5001 and BIOL 5002 or permission of instructor. Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 5004 - Research Experience for Teachers - Biology Cohort

The Research Experience for Teachers (RET) program is a five-week research exploration in which twelve RM-MSMSP teachers will raise their level of relevant scientific understanding by engaging in a "hands on" workshop, transforming what they have learned into new curricular materials that will improve the scientific abilities of their students and hopefully stimulate them to consider a STEM career. Note: This course is not applicable toward any degree in the College of Liberal Arts & Sciences. Max hours: 6 Credits. **Semester Hours:** 1 to 6

BIOL 5024 - Introduction to Biotechnology

Introduces aspects of biotechnology within a historical context, including medical, forensic, agricultural and microbial biotechnology. Addresses principles behind state-of-the-field techniques in recombinant DNA technology, bioinformatics, proteomics and genomics. Biotechnology regulations and ethics will also be discussed. Prereq: BIOL 4024: one year of general biology with a grade of "C" (2.0) or higher. BIOL 5024: graduate standing or permission of instructor. Cross-listed with BIOL 4024. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5050 - Advanced Biology Topics

Examines current topics in the field of biology. Topics vary from term to term. See Schedule Planner for current topics. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4050. Max hours: 9 Credits. **Semester Hours:** 1 to 8

BIOL 5051 - Advanced Topics In Microbiology

An in-depth study of microbial concepts, including prokaryotic and eukaryotic structure and function; properties of biological macromolecules; microbial growth kinetics; and microbial diversity. Emphasis is on one of the following: virology, microbial physiology, environmental microbiology, microbial biotechnology and nucleic acids. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4051. Max hours: 6 Credits. **Semester Hours:** 3 to 3

BIOL 5052 - Advanced Ecology

This combination seminar and lecture course focuses on state-of-field knowledge, current theories and recent models in selected areas of ecology, such as theoretical ecology, evolutionary ecology, population biology and ecosystems ecology. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4052. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5053 - Disease Ecology

The study of the underlying principles that influence the spatio-temporal patterns of infectious disease in environments. Students will apply ecological theories about concepts such as biodiversity, trophic interactions, landscape structure, and nutrient cycling to the study of disease. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4053. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5054 - Developmental Biology

Covers gametogenesis, fertilization, cleavage and development of the embryo with an emphasis on the biochemical and biophysical aspects. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4054. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5064 - Advanced Cell Biology

Builds on the foundations laid in the prerequisite courses. Major topics include the functions of cell membranes, energy transduction and regulation of metabolic pathways. A major emphasis is the control and integration of cellular activities. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4064. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5068 - The Cell Cycle

Provides an in-depth study of the molecular regulation of the eukaryotic cell cycle. Includes mitosis, meiosis, developmental cell cycles, cell cycle checkpoints and cell cycle defects in cancer. Prereq: Graduate standing or permission of instructor. Cross-listed w/BIOL 4068. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5074 - Human Reproductive Biology

Comprehensive study of anatomy and physiology of human reproduction. Embryogenesis of male and female reproductive systems and detailed analysis of contraception, world population growth, population control and implications of population growth are also covered. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4074. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5099 - Biology For Computer Scientists, Engineers and Mathematicians

Designed to give a foundation in molecular biology for work in the field of computational biology or bioinformatics. The goal of this new field is to provide predictive capability for diagnosing disease and discovering therapeutics. Prereq: B.S. in computer science, engineering, mathematics or a related discipline. Graduate standing or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5125 - Molecular Biology Lab

Provides hands-on experiences in molecular biology and an appreciation for using the tools of molecular biology to study biological systems. Emphasis is placed on DNA cloning, PCR, mutagenesis and protein purification techniques. Experimental design and the theories underlying the techniques are also discussed. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4125. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5126 - Molecular Genetics

Examines molecular techniques and their application to experimental genetics, specifically organization and mapping of genomes, application and model systems in defining hereditary components of disease, and mechanisms of identifying mutations and their implications for disease. Also addresses application of recombinant DNA technology. Prereq: General genetics and one year of organic chemistry (or equivalent) with grades of "C" (2.0) or higher; biochemistry strongly recommended. Graduate standing or permission of the instructor. Cross-listed with BIOL 4126. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5128 - Topics in Molecular Biology

Literature-based course examining the regulation of gene expression in eukaryotic systems, as well as contemporary recombinant DNA technology and applications of molecular cloning techniques. Prereq: General cell biology and general genetics with a grade of "C" (2.0) or higher; biochemistry strongly recommended. Graduate standing or permission of the instructor. Cross-listed with BIOL 4128. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5134 - Human Genetics

Advanced survey of the current status of the field. Emphasis on understanding, diagnosis and treatment of genetic disease and on the impact of molecular biology on human genetics. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4134. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5144 - Medical Microbiology

Provides an understanding of the relationship between pathogenic organisms and their host. Emphasis is placed on the area of medical bacteriology, with attention given to mechanisms of pathogenesis, genetics of disease, serology and treatment. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4144. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5154 - Conservation Biology

Basic concepts and theories in population biology and genetics as they apply to issues relating to the preservation of biodiversity, such as the genetics of small populations, captive propagation, restoration ecology and the design of nature reserves. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4154. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5165 - Neurobiology

Overview of neuroscience, covering the cellular basis of neuronal activity, muscle, sensory structures and the structure and function of the human brain. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4165. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5250 - Mechanisms of Animal Behavior

The proximate and ultimate mechanisms of animal behavior are analyzed using comparative animal examples from the scientific literature. Proximate mechanisms include genetic and physiological processes. Ultimate mechanisms include the role of natural and sexual selection in the evolution of behavior. Prereq: One year of general biology with a grade of "C" (2.0) or higher. Genetics and human physiology are recommended. Graduate standing or permission of the instructor. Cross-listed with BIOL 4250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5315 - Plant Systematics

Lecture, lab and field trips. Extensive introduction to the basic principles and concepts of vascular plant systematics. Topics include principles of taxonomy, nomenclature, methods, systems of classification and field and herbarium procedures. Emphasis on plant structure and identification using fresh, frozen and pressed plant specimens. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4315. Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 5330 - Evolution and Diversification of Plants

Surveys the diverse assemblage of green algae and land plants. Ecological and evolutionary principles are used to interpret patterns of form and function within the context of their phylogeny as revealed from molecular systematics. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5335 - Plant Science

Lecture, lab and field trips. An in-depth study of flowering plants, including embryology, structure, function, reproduction, ecology and evolution of the group. Emphasis is placed upon morphology and anatomy at all stages of plant development. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4335. Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 5345 - Flora of Colorado

Lecture, lab and field trips. Introduces the vascular plant flora of Colorado, including ferns, gymnosperms and flowering plants. Emphasis on field identification of species representing a range of natural communities from grassland to alpine tundra, as well as non-natives. Field and herbarium techniques covered. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4345. Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 5415 - Microbial Ecology

An in-depth study of ecology as it relates to microorganisms; abiotic and biotic interactions within microbial populations in macro- and microhabitats; and the role of microorganisms in maintaining steady state conditions in natural ecosystems. Emphasis is placed on how the ecology of microorganisms affects the human condition. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4415. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5416 - Aquatic Ecology

This advanced ecology course examines the inter-relations of biological (including humans), physical and chemical components of wetlands, streams, rivers, lakes, reservoirs and groundwater. Learning is facilitated through lectures, discussions, student presentations, laboratory and field exercises. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4416. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5425 - Biogeography

An in-depth study of biological populations through analysis of geographic distribution patterns in space and time. Emphasis on how biogeography informs studies of evolution and ecology and on applied studies in conservation, sustainability, epidemiology, and disease dynamics. Prereq: One year of general biology with a grade of "C" (2.0) or higher. Graduate standing or permission of the instructor. Cross-listed with BIOL 4425. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5445 - Applied Environmental Biology

Examines the reciprocal relationships of organisms and the environment at scales from microbes to ecosystems. Explores the impact of human-caused perturbations on organisms as well as the impact of living systems on the flow of energy and materials (natural and man-made) through the environment. Prereq: Graduate standing or permission of instructor; one year of general biology and one year of general chemistry; introductory ecology recommended. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5450 - Marine Biology

Looks at the fascinating organisms that inhabit the oceans, which represent 99% of the living space of earth. While the focus is on the ecology of marine organisms, taxonomy, physiology and anatomy are also covered. Prereq: One year of general biology. Graduate standing or permission of the instructor. Cross-listed with BIOL 4450. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5455 - Comparative Environmental Physiology

This advanced physiology course explores the physiological evolutionary adaptations of different animals in the context of their environment. Content includes exploration of maintenance of homeostasis via feedback regulation, structure-function relationships, cellular physiology, and the study of organ systems including the nervous, endocrine, respiratory, reproductive and cardiovascular systems. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4455. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5460 - Environmental Toxicology

Text and literature-based course provides students with background knowledge concerning environmental toxins, the nature and extent of environmental contamination, and toxicant effects on individual organisms and populations. Prereq: Human Physiology with grades of "C" (2.0) or higher. Organic Chemistry and/or Biochemistry strongly recommended. Cross-listed with BIOL 4460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5464 - Exercise Physiology

This course addresses the dynamic physiological changes associated with exercise. Where human physiology addresses physiological processes at rest, this course explores how the cardiovascular, respiratory, nervous and endocrine systems support increased energy transfer as skeletal muscle becomes more active. Prereq: graduate standing or permission of instructor. Cross-listed with BIOL 4464. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5474 - Ecological Methods

Lecture, laboratory. Deals with the empirical aspects of an ecological study. Students learn sampling techniques that are used in plant and animal ecology. Emphasis is placed on hypothesis testing, data analysis and experimental field designs. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4474. Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 5475 - Mechanisms of Human Pathology

Studies physiological, cellular and biochemical processes in human diseases, with particular focus on non-communicable diseases such as diabetes, cardiovascular disease and diseases of aging such as osteoporosis and macular degeneration. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4475. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5494 - Population and Evolutionary Genetics

Introduces the genetic processes underlying evolutionary change in microbial, plant and animal populations. Topics include: sources of variation, Hardy-Weinberg equilibrium, population genetic structure, natural selection and other evolutionary forces, quantitative genetics and molecular phylogenetics. Emphasis on experimental data. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4494. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5550 - Cell Signaling

Lecture by faculty and student presentations cover mechanism of hormones and regulation of various cellular processes through second messenger systems. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5621 - Immunology

Studies antibody-antigen interactions, the immune system, inflammation, hypersensitivity, autoimmunity, and recovery from infection. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4621. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5622 - Topics in Immunology

An in-depth study of immunological concepts. Topics will vary from semester to semester and may range from specifics of immune cell responses to tolerance and autoimmunity. Delivery will include lecture, student presentations, and discussion. Prereq: One year of general biology with a grade of 'C' or higher; general cell biology and general genetics are recommended. Graduate standing or permission of the instructor. Cross-listed with BIOL 4622. Max hours: 3 Credits.

Semester Hours: 3 to 3

BIOL 5634 - Biology of Cancer

Cancer is the second leading cause of death in the United States. This course offers an overview of recent research into the causes, treatments and possible prevention of cancer. Includes a detailed look at the mechanisms of action of various oncogenes. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4634. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5640 - Mammalogy

Lecture, laboratory, and required field trips. This course provides a general overview of the biology of mammals, including their diversity, distribution, economic importance, and other characteristics that make them of special interest to humans. Coverage will be worldwide, with special emphasis placed on the mammals of Colorado. Prereq: One year of general biology with grades of 'C' (2.0) or higher and completion of the structure/ function core requirement with a grade of 'C' (2.0) or higher. Graduate standing or permission of the instructor. Cross-listed with BIOL 4640. Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 5644 - Advanced Human Anatomy Laboratory

Advanced laboratory course in human anatomy. In-depth look at the structural aspects of the human body, emphasizing function. Models, microscope slides, and visual media will supplement cadaver-based dissections. Prereq: One year of general biology and human anatomy with a grade of "C-" (2.0) or higher, graduate standing or permission of instructor. Cross-listed with BIOL 4644. Max hours: 2 Credits. **Semester Hours:** 2 to 2

BIOL 5674 - Endocrinology

This systematic survey of the endocrine system looks at the cellular basis and biochemical characteristics of individual endocrine tissues. Their function in the regulation of other endocrinological, physiological, and behavioral events is analyzed. The course emphasizes the human system and complements studies in physiology, behavior and neurobiology. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4674. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5705 - Principles of Biological Research

Workshop course for students engaged in original research. Covers topics including proposal and grant writing, study design, data management and analysis, discovery dissemination including poster and oral presentations, manuscript presentation, peer review and critical evaluation of scholarly work in biology. Note: Course is aimed at research students at the graduate level but advanced undergraduate students may have the opportunity to take the class. Biology graduate students will take the course at the 6000 level and the 5000 level will be available for advanced undergraduate students. Prereq: Students involved in original research and permission of instructor. Cross-listed with BIOL 6705. Max hours: 2 Credits. **Semester Hours:** 2 to 2

BIOL 5840 - Independent Study: BIOL

Note: Registration by special processing form only. Prereq: Permission of instructor. Max hours: 12 Credits. **Semester Hours:** 1 to 3

BIOL 5910 - Field Studies

Field studies of individuals, populations and communities comprising a specified ecosystem. Emphasis on field identification of vascular plants and vertebrate animals. Topics include the physical environment, biotic and abiotic interactions, life history, ecological adaptations and biogeography. Note: Lectures and a week-long field trip. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4910. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5939 - Internship

Designed experience involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Graduate standing. Max hours: 9 Credits. **Semester Hours:** 1 to 6

BIOL 5974 - Evolution

A capstone course that draws upon concepts from all fields of biology. Topics include the fossil record mass extinctions, the historical development of the modern synthesis, principles and mechanisms of evolution, current viewpoints and controversies. Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4974. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 6002 - Biology Skills Sets - Pedagogy

The purpose is to introduce sound practice in teaching and innovation in pedagogy. Topics covered will include assessment techniques, creation of learning goals, and research methods in biological education. Prereq: Graduate standing. Max hours: 1 Credit. **Semester Hours:** 2 to 2

BIOL 6655 - Seminar

Prereq: Graduate standing or permission of instructor. Cross-listed with BIOL 4990. Max hours: 2 Credits. **Semester Hours:** 1 to 1

BIOL 6705 - Principles of Biological Research

Workshop course for students engaged in original research. Covers topics including proposal and grant writing, study design, data management and analysis, discovery dissemination including poster and oral presentations, manuscript presentation, peer review and critical evaluation of scholarly work in biology. Note: Course is aimed at research students at the graduate level but advanced undergraduate students may have the opportunity to take the class. Biology graduate students will take the course at the 6000 level and the 5000 level will be available for advanced undergraduate students. Prereq: Students involved in original research, graduate standing, and permission of instructor. Cross-listed with BIOL 5705. Max hours: 8 Credits. **Semester Hours:** 2 to 2

BIOL 6764 - Biological Data Analysis

Addresses quantitative aspects of research design, data collection and analysis in the biological sciences. Emphasizes relationships among probability theory, estimation, testing, inference, and interpretation. Hands-on computational methods used throughout the course. Prereq: Graduate standing, BIOL 3763 or equivalent with a "B" (3.0) or higher, or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 6950 - Master's Thesis

Max hours: 9 Credits. **Semester Hours:** 1 to 8

BIOL 7010 - Topics in Integrative and Systems Biology

Addresses current research problems in integrative biology and system biology by surveying the peer-reviewed literature. Particular attention will be paid to research topics that integrate multiple levels of biological organization and that investigate how properties of systems emerge from interactions of sub-units. Note: New students to the doctoral program in Integrative and Systems Biology will enroll in this course for the fall and spring terms of their first year. The course can only be taken twice; however, students will be exposed to new material both terms. Prereq: graduate standing. Max hours: 6 Credits. **Semester Hours:** 3 to 3

BIOL 7650 - Research in Integrative and Systems Biology

Designed to allow doctoral students to conduct research for course credit prior to advancement to candidacy. Prereq: Ph.D. student and permission of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 3

BIOL 7920 - Directed Reading/Grant Writing

Allows students to examine current literature related to their specialty area of biological research and to work in collaboration with a research mentor to develop a grant-based dissertation proposal in preparation for the comprehensive review examination. Prereq: Students must be in the Integrative and Systems Biology PhD program and have permission from the instructor. Max hours: 9 Credits. **Semester Hours:** 3 to 3

BIOL 8990 - Doctoral Dissertation

Designed to allow doctoral students to conduct research for course credit prior to advancement to candidacy. Prereq: Students must be in the Integrative and Systems Biology PhD program and have permission from the instructor. Max hours: 60 Credits. **Semester Hours:** 1 to 10

BIOL 9000 - INTC: Special Topics

Max hours: 10 Credits. **Semester Hours:** 1 to 10

Business

BUSN 5939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 3

BUSN 6520 - Leading Individuals and Teams

Students learn the strengths and weaknesses of their management style and how to work effectively with individual differences. Students also learn how to form teams around purpose/task, diagnose problems and identify and implement solutions by utilizing leadership skills such as setting goals, processes and measures, interpersonal communication, motivation and conflict management. Students develop an understanding of the effect of the organizational and social context on the behavior of individuals and teams. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6521 - Leading Individuals and Teams

Students learn the strengths and weaknesses of their management style and how to work effectively with individual differences. Students also learn how to form teams around purpose/task, diagnose problems and identify and implement solutions by utilizing leadership skills such as setting goals, processes and measures, interpersonal communication, motivation and conflict management. Students develop an understanding of the effect of the organizational and social context on the behavior of individuals and teams. The emphasis is on health care issues and is intended for health care students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6530 - Data Analysis for Managers

Provides an overview of techniques for data analysis, including multiple regression, sampling theory and applications of probabilistic inference from sample data. The emphasis is upon the applications of these techniques to management problems. Students are required to analyze data sets, present their analyses in written or oral form and defend their conclusions. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6540 - Legal and Ethical Environment of Business

Students develop a working knowledge of legal and ethical parameters for business decision making. The course addresses the legal system and mechanisms for resolving disputes. Topics include constitutional law, torts, product liability, contracts, property law, consumer protection, intellectual property, business entities and employment law. It stresses the influence of legal issues on organizational decision making. Note: Students can substitute ENTP 6822 but credit cannot be received for both. Health Administration students must take BUSN 6541. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6541 - Legal and Ethical Environment of Business (Health Section)

Students develop a working knowledge of legal and ethical parameters for business decision making. Addresses the legal system and mechanisms for resolving disputes. Topics include business entities, torts, contracts, employment relationships, litigation and alternative dispute resolution. It stresses the influence of legal issues on organization and decision making. The emphasis is on health care issues and is intended for health care students. Max hours: 3 Credits.

Semester Hours: 3 to 3

BUSN 6550 - Analyzing and Interpreting Accounting Information

Emphasizes the use of accounting statements and data in making business decisions. External financial accounting information and concepts are used for investment and credit decisions. Internal managerial accounting information and concepts are used for product costing, cost analysis and management control. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6560 - Marketing Management

Focuses on the formulation and implementation of a marketing plan in the context of the firm's strengths, overall strategy and competitive environment. Emphasis is on understanding the marketing environment and on decision making skills regarding market selection, pricing, promotion, product configuration and management of distribution channels. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6561 - Marketing Management (Health Section)

Focuses on the formulation and implementation of a marketing plan in the context of the firm's strengths, overall strategy and competitive environment. Emphasis is on understanding the marketing environment and on decision making skills regarding market selection, pricing, promotion, product configuration and management of distribution channels. **Semester Hours:** 3 to 3

BUSN 6610 - Information Systems Management and Strategy

Examines the strategic, technological, financial and organizational issues involved with the effective management of information technology. Topics include: (1) role and importance of IT in modern organizations (e.g., IT impact on competitiveness, alignment of corporate and IT strategies, IT infrastructures and IT-enabled organizational processes), (2) alternative methods to develop, acquire and implement information systems (e.g.) evaluation of IT investments, implementing and managing complex IT projects), (3) nature of IT management (e.g., the evolving roles of enterprise IT management, IT sourcing and contractual relationships) and (4) ethical and security issues associated with IT. Note: Students cannot receive credit if they have taken BUSN 6810 or ISMG 6180. Cross-listed with ISMG 6180. Max hours: 3 Credits.

Semester Hours: 3 to 3

BUSN 6620 - Applied Economics for Managers

After taking this course, students should be able to apply economic principles to make optimal decisions given firm cost, demand and market circumstances. Also, they should be able to analyze the firm's interactions with its competitive market environment. Students will learn basic aspects of federal macroeconomic policy designed to achieve stable prices and economic growth. Also, they will learn to understand the measurement of output (GDP), employment and prices; the conduct of monetary and fiscal policy; and the balance of trade. Prereq: BUSN 6530 or FNCE 6290 and BUSN 6550, both may be taken concurrently. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6621 - Applied Economics for Managers (Health Section)

After taking this course, students should be able to apply economic principles to make optimal decisions given firm cost, demand and market circumstances. Also, they should be able to analyze the firm's interactions with its competitive market environment. Students should understand basic aspects of federal macroeconomics policy designed to achieve stable prices and economic growth. Also, they should understand basic aspects of government regulation of business. The emphasis is on healthcare issues and is intended for healthcare students. Prereq: BUSN 6530 and BUSN 6550, both may be taken may concurrently. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6630 - Management of Operations

This course is concerned with the production and delivery of goods and services. It provides an overview of a variety of key Operation Management issues including scheduling, capacity determination, facility location and layout, distribution and related topics. The use of model-assisted decision making is emphasized. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6631 - Management of Operations (Health Section)

This course focuses on managing and evaluating the processes that produce and deliver health services. Particular emphasis is on quantitative techniques to support healthcare operations including Monte Carlo simulation, decision analysis, quality improvement methods, forecasting, capacity planning, project management and inventory and supply chain management. While this course is intended for healthcare students, it is open to all. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6640 - Financial Management

This course is concerned with the business firm's decisions to make investments and to finance its operations. Students learn to use the tools and theories underlying business valuation, cost of capital, capital budgeting and capital structure. Students will learn to evaluate a firm's financial position through the examination of its financial statements and to prepare pro forma statements for the firm. Prereq: BUSN 6550 completed with a C or better. BUSN 6530 or FNCE 6290 and BUSN 6620 may be taken concurrently. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6710 - Strategic Management

Concerned with the development of a general management perspective in establishing the strategic direction for an enterprise. Students gain an understanding of strategy formulation and implementation within the context of the global environment. Emphasis is on the integration of knowledge acquired in the previous functional area courses. Note: This course is intended as a final semester Capstone course. Prereq: BUSN 6560 and BUSN 6640 completed with a C or better. BUSN 6630 can be taken concurrently. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6711 - Strategic Management (Health Section)

Concerned with the development of a general management perspective in establishing the strategic direction for a health delivery organization. Students gain an understanding of strategy formulation and implementation within the context of the managed care environment. Emphasis is on the integration of knowledge acquired in the previous functional area courses. Note: This course is intended as a final semester course. Required of Health Administration majors; open to others. Prereq: BUSN 6560 and 6640 - strictly enforced; BUSN 6630 strongly recommended and may be taken concurrently. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6800 - Topics In Business

Current topics in business are occasionally offered. Prerequisites vary depending on the material covered. Consult the current 'schedule planner' for specific offerings and prerequisites. Max hours: 12 Credits. **Semester Hours:** 3 to 3

BUSN 6811 - IT and New Business Paradigms

Introduces graduate students to the relationship between information technology and the other functional areas of the business. During the course, students have an opportunity to listen and learn from guest speakers who have been involved with either guiding or interpreting the impact of information technology among functional areas of existing or new business. Through the use of current readings, guest lectures and case analysis, students examine various models of IT and new business paradigms to determine the decisions and success criteria for integrating It in ongoing business. a unique feature of the class will be the opportunity for students to present proposals and projects to be critiqued by individuals with It or business experience. Those individuals provide feedback and perspectives regarding potential It or new business paradigm activities. Prereq: Permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6812 - Business Intelligence Systems

Covers technical and managerial issues associated with the development and the use of decision support systems, expert systems, impacts and the future of MSS are discussed. The DSS component covers decision theory, model management, and business intelligence with an emphasis on how decision-making can be supported using data warehouses, OLAP, and data mining and visualization tools. The ES component focuses on knowledge acquisition, representation, reasoning, and using advanced intelligent systems over the web. In addition, collaboration, communication, enterprise decision support systems integration, impacts, and the future of MSS are discussed. Prereq: ISMG 6080. (Cross-listed with ISMG 6220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6830 - Business and the Natural Environment

Considers the impact of economic activity on the natural environment and the regulatory, market and corporate voluntary responses to reducing this impact. Topics: externalities, life cycle assessment, closed-loop systems, DfE (Design for the Environment), corporate sustainability reporting, and effective corporate sustainability strategies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6840 - Independent Study

Max hours: 8 Credits. **Semester Hours:** 1 to 3

BUSN 6860 - Finance in the Sports Entertainment Industries

This course explores the problems and solutions of financing in sports and entertainment business. It focuses on stadium/venue financing, sports team valuation, entertainment event guarantee estimation, player/artist salary issues and managing disparate revenue streams. The course utilizes speakers, articles, problem sets and cases. Prereq: BUSN 6640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6870 - Global Climate Change

Global climate change may be one of the most important challenges facing business in the 21st century. This course will introduce the potential impacts of climate, then discuss possible regulatory responses to and business risks and opportunities that may emerge if climate change occurs. Cross-listed with INTB 6870. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Business Analytics

BANA 2010 - Business Statistics

Basic principles of probability and statistics with applications in business. Includes descriptive statistics, probability and probability distributions, data collection, sampling distributions, statistical inference, simple regression and the use of a computer to perform statistical analysis. Students are required to present their analyses in written and/or oral form and defend their conclusions. This is a business core course. Therefore a grade of a 'C' or better must be earned to satisfy Business graduation requirements and prerequisites for other business courses. Prereq: MATH 1070 and 1080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 3000 - Operations Management

Introduces the concepts and methods commonly used in manufacturing and service operations. Topics include aggregate planning, inventory control, scheduling, quality control, and linear programming. This is a business core course. Therefore a grade of a 'C' or better must be earned to satisfy Business graduation requirements. Prereq: ACCT 2200, DSCI 2010/BANA 2010 and junior standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 4950 - Special Topics in Decision Sciences

Courses offered on an irregular basis for the purpose of presenting new subject matter in Decision Sciences. Prereq: Will vary depending upon the particular topic and instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 6610 - Statistics for Business Analytics

Provides a conceptual overview of statistical thinking and its applications to business problems. Topics include descriptive statistics, data exploration, probability, inferential methods, and regression analysis. Students gain hands-on experience with data analytic problems via projects using real business settings and data. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 6620 - Computing for Business Analytics

Introduces database and modeling software used by business analytics professionals. Includes querying relational databases, state-of-the-art statistical freeware, and modeling software. Students learn to obtain, organize, and store data needed for analytics projects, undertake data cleansing for big data tasks, and conduct statistical data visualization. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 6630 - Business Forecasting

Students learn forecasting methodologies such as ARIMA, regression, smoothing, and time-series decomposition applicable to marketing, finance, accounting, human resources management, and supply chain and production management decision-making. This course focuses on practical applications of forecasting techniques, choosing and comparing appropriate methods and applying the results to workplace situations. Prereq: BANA 6610 or FNCE 6290 or BUSN 6530 with a grade of "C" or better. Must complete BUSN 6530 at CU Denver prior to taking this class or obtain consent of instructor (no CBK waivers of BUSN 6530 will be accepted). Cross-listed with FNCE 6372. Note: Cannot receive credit for both BANA 6630 and FNCE 6372 as they are cross listed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 6640 - Decision Analysis

Examines business decision making under conditions of risk and uncertainty using quantitative decision analysis methods such as utility theory, value of information, influence diagrams, decisions with conflicting objectives and hierarchical structured models. Psychological issues and informal fallacies in the decision making process will be discussed. Applications include decisions commonly encountered in capital acquisitions, financial investments, quality control, project selection, strategic planning, production control and human resource management. Student computer-assisted projects are conducted. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 6650 - Project Management

Introduces the topic of Project Management (PM) in a business environment. Emphases will include the knowledge, skills, tools, and techniques as presented in the Project Management Body of Knowledge (PMBOK) a variety of managerial aspects commonly encountered in PM, and current extensions of PM. Projects in diverse contexts are examined. Cross-listed with URPL 6249. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 6710 - Predictive Modeling with Big Data

Addresses statistical approaches to the very large data sets increasingly common in business applications such as internet-based business, fraud detection, credit scoring and market segmentation. Topics include limitations of classical statistical when applied to large data sets, alternative approaches and applications. Emphasis is placed on proper choice of method, interpretation of the results and understanding of the strengths and limitations of the methods. Students are expected to analyze and report on a variety of data sets drawn from business application areas. Prereq: BANA 6610 or BUSN 6530 completed with a C or higher at CU Denver or permission of instructor (no CBK waivers of BUSN 6530 will be accepted). Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 6720 - Simulation Modeling

Students learn to model and analyze complex dynamic systems using state-of-the art software. Illustrative application areas include production systems, service systems, distribution systems and health care systems. Topics include creating reliable simulation models, analyzing the input and output from the model, and managing simulation projects. A substantial part of the course will be devoted to student projects where students define, model and analyze a significant system of their choosing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 6730 - Supply Chain Management

Introduces the design, analysis, management, and control of supply chains. Because of continuing advances in globalization, sustainability, and information technology, course emphasis will include integration of processes and systems, relationship management of upstream and downstream players, and strategies that incorporate current and future trends. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 6740 - VBA for Business Analytics

This course teaches the essentials of Visual Basic for Applications (VBA), the programming language for Microsoft Office. Focus in using VBA as a tool to automate common tasks and to create business analytic applications. Goal is to hide the details of the analytical and modeling techniques by creating user interfaces for inputs and then presenting managerially relevant results. Prereq: BUSN 6630 and BANA 6620. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 6800 - Special Topics

A number of different current topics in business analytics are discussed in this course. Consult the current schedule for semester offerings. Prereq: Permission of instructor. Max hours: 12 Credits. **Semester Hours:** 3 to 12

BANA 6840 - Independent Study

Instructor approval is required. Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study. Max hours: 9 Credits. **Semester Hours:** 9 to 9

BANA 6910 - Business Analytics Practicum

Students apply business analytics methodologies to a real-life business problem in cooperation with a local organization. Under the supervision of faculty, students engage in problem definition, analysis and solution. Results are presented in oral and written form to the sponsoring organization. Because the practicum is a capstone course, it is not appropriate for students just beginning the program. Prereq: Permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Business Law

BLAW 3000 - Legal and Ethical Environments of Business I

Addresses the most fundamental ways the legal and ethical environments of business affect managers. Students are taught to identify legal issues, make ethical judgments about business conduct, and understand the ways ethical and social issues are developed. Topics include actual analysis of legal and ethical issues, ethical theory and its application, law-making processes, contracts, torts, product liability, criminal law, constitutional law and real property. This is a business core course therefore a grade of ""C"" or better must be earned to satisfy Business graduation requirements and prerequisites for other business courses. Prereq: Junior Standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BLAW 3050 - Business Law and Ethics

Students are taught to identify & resolve legal and ethical issues. Topics include contracts, torts, criminal law, constitutional law, business organizations, employment law, intellectual property and real property law. This is a business core course therefore a grade of "C" or better must be earned to satisfy Business graduation requirements. Prereq: junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BLAW 3100 - Legal and Ethical Implications of Risk

Topics include contracts, torts, constitutional law, intellectual property, agency, business organizations, employment law, and real property law. Special focus is placed on the relationship between insurance and risk and the topics covered. May be taken in lieu of BLAW 3050. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BLAW 4120 - Legal Issues for Entrepreneurs

Skills in legal and factual analysis and the application of ethical theories are addressed with an emphasis on applicability for entrepreneurs. The cases are drawn from a variety of functional areas such as accounting, information systems, finance, management, marketing and production. Topics include securities, venture capital, employment law and consumer law. Cross-listed with ENTP 3120. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BLAW 4121 - Legal and Ethical Implications of Risk

Skills in legal and factual analysis and the application of ethical theories are advanced and refined through cases. Topics: insurance law, personal property and intellectual property law, agency, business entities, securities, employment law, and consumer law. Focus is placed on the relationship between insurance, risk and the covered topics. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BLAW 6500 - Legal Issues for CPA's

Examines advanced legal issues affecting accounting financial reporting. Designed for graduate students who want to understand and improve the links between accounting disclosures and legal requirements. Note: This class is rarely offered. Prereq: BLAW 3000 or BUSN 6540 (or equivalent). Max hours: 3 Credits. **Semester Hours:** 3 to 3

Candidate for Degree

CAND 5940 - Candidate for Degree

Max hours: 0 Credits. **Semester Hours:** 0 to 0

Chemistry

CHEM 1000 - Foundations for General Chemistry

This course prepares for CHEM 2031 or 1130. Note: For students with no previous chemistry or with inadequate background. Prereq: MATH 1110 or high school equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

CHEM 1115 - Chemistry Content

Covers content areas of undergraduate chemistry. Topics include periodicity; the mole and chemical bonding; the kinetic theory and states of matter; chemical reactions; solutions and chemical equilibria. Max hours: 3 Credits. **Semester Hours:** 1 to 3

CHEM 1130 - Engineering General Chemistry

A one-semester non-laboratory version of general chemistry for engineers and those science majors who do not require laboratory credit and do not plan to take a second semester of chemistry. Prereq: One year of high school chemistry or Chem 1000 and Math 1110 (or high school equivalent). Max hours: 5 Credits. **Semester Hours:** 5 to 5

CHEM 1474 - Core Chemistry: Chemistry For the Consumer

Focuses on the common household chemicals that affect US on a daily basis. Students learn the underlying chemistry of nuclear power, sunscreens, food, cleaning agents, etc. Home-based laboratory experiments with safe, common substances. Max hours: 4 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1. **Semester Hours:** 4 to 4

CHEM 2031 - General Chemistry I

Topics include chemical structure, atomic and molecular properties, molecular geometry and bonding, and gas laws. Prepares students to take upper division chemistry courses. Note: a beginning course for science majors, medical technologists, pre-medical and pre-dental students. Prereq: One year of high school chemistry or CHEM 1000 and MATH 1110 (or high school equivalent); Coreq: CHEM 2038. No co-credit with CHEM 2081. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC2. **Semester Hours:** 3 to 3

CHEM 2038 - General Chemistry Laboratory I

Students perform laboratory experiments on topics covered in CHEM 2031 and gain experience in observing, recording, and interpreting physical and chemical phenomena. Note: Laboratory to accompany CHEM 2031. Coreq: CHEM 2031. No co-credit with CHEM 2088. Max hours: 1 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1. **Semester Hours:** 1 to 1

CHEM 2061 - General Chemistry II

(Continuation of CHEM 2031.) Topics include kinetics, equilibria and thermodynamics. Prereq: CHEM 2031; Coreq: CHEM 2068. No co-credit with CHEM 2091. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC2. **Semester Hours:** 3 to 3

CHEM 2068 - General Chemistry Laboratory II

Students gain experience with laboratory technique and elementary chemical instrumentation. Note: Laboratory to accompany CHEM 2061 and a continuation of CHEM 2038. Prereq: CHEM 2038; Coreq: CHEM 2061. No co-credit with CHEM 2098. Max hours: 2 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1. **Semester Hours:** 2 to 2

CHEM 2081 - Honors General Chemistry I

Honors Section: Course will omit detailed discussion of stoichiometry and basic atomic structure. Topics include gas laws, thermochemistry, the quantum mechanical model of the atom, periodic properties, bonding and molecular geometry and intermolecular forces. Prepares students to take upper division chemistry courses. Note: Admission into specific UC Denver program or consent of the instructor is required. Prereq: Working knowledge of high school algebra and advanced high school chemistry. Coreq: CHEM 2088. No co-credit with CHEM 2031. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 2088 - Honors General Chemistry I Laboratory

Students perform laboratory experiments on topics covered in General Chemistry I (CHEM 2031) or the companion Honors General Chemistry I course. Students gain experience in observing, recording, and interpreting physical and chemical phenomena. Honors General Chemistry I Laboratory is distinguished from the regular General Chemistry Laboratory by smaller sections, and greater access to specialized techniques, open ended experiments, and instrumentation. Students are introduced to college-level laboratory exercises at a faster pace than traditional General Chemistry laboratory coursework, such that at the end of this course, they are ready to take on more sophisticated work. Coreq: CHEM 2031. No co-credit with CHEM 2038. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CHEM 2091 - Honors General Chemistry II

Course will omit detailed discussion of stoichiometry and basic atomic structure. Topics include gas laws, thermochemistry, the quantum mechanical model of the atom, periodic properties, bonding and molecular geometry and intermolecular forces. Prepares students to take upper division chemistry courses. Note: Admission into specific CU Denver program or consent of the instructor is required. Prereq: CHEM 2081, 2031 and permission of the instructor. Coreq: CHEM 2098. No co-credit with CHEM 2061. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 2098 - Honors General Chemistry II Laboratory

Students perform laboratory experiments on topics covered in General Chemistry II (CHEM 2061) or the companion Honors General Chemistry II course. Students gain experience in observing, recording, and interpreting physical and chemical phenomena. Honors General Chemistry II Laboratory is distinguished from the regular General Chemistry Laboratory by smaller sections, and greater access to specialized techniques, open ended experiments, and instrumentation. Students use the laboratory skills they developed in Honors General Chemistry I Laboratory to work independently with a special emphasis on recording, interpreting, and expressing data, chemical safety, the scientific literature, innovation in the laboratory, and presentation of scientific information in oral and poster formats. Prereq: CHEM 2038 or CHEM 2088. Coreq: CHEM 2061. No co-credit with CHEM 2068. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CHEM 2300 - Nutritional Chemistry

Introduces nutrition intended primarily for majors in nursing, physical therapy, physical education. Topics include structure and metabolism of carbohydrates, lipids and proteins, functions of vitamins and minerals and food constituents. Prereq: CHEM 1000, 1474 or high school chemistry. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 2600 - Introductory Topics in Chemistry

This course is designed primarily for non-chemistry majors. Students will explore a special topic related to chemistry or biochemistry. A description of topics to be covered in the current semester is maintained on the Chemistry department website. Max hours: 6 Credits. **Semester Hours:** 1 to 3

CHEM 2840 - Independent Study: CHEM

Max hours: 3 Credits. **Semester Hours:** 1 to 3

CHEM 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

CHEM 3011 - Inorganic Chemistry

The fundamentals of inorganic chemistry, including: atomic, molecular and crystal structures; the energetics of reactions, acid-base interactions; and the chemistry of main group and transition metal elements, including coordination and organometallic chemistry. Prereq or Coreq: CHEM 3421 or 3491. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 3018 - Inorganic Chemistry Laboratory

Combines theoretical concepts with hands-on laboratory experience and introduces students to modern inorganic chemistry. Experiments cover both main group and transition metal chemistry with an emphasis on synthesis, characterization, and application of inorganic compounds. Prereq or Coreq: CHEM 3011. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CHEM 3111 - Analytical Chemistry

Topics include sampling, volumetric analyses, instrumental analyses and statistical treatment of data. Note: Lecture course for chemistry, biology, medical technology and environmental students. Prereq: CHEM 2061. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 3118 - Analytical Chemistry Laboratory

Students gain experience with technique of sampling and analysis, including an introduction to instrumental methods. Note: Laboratory course to be taken concurrently with CHEM 3111. Prereq: CHEM 2068; Coreq: CHEM 3111. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CHEM 3411 - Organic Chemistry I

Lecture course designed to introduce the study of structure, reactions, properties, and mechanisms of organic molecules. Prereq: CHEM 2061. No co-credit with CHEM 3481. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 3418 - Organic Chemistry Laboratory I

Laboratory course to augment concepts of CHEM 3411, illustrating the practical aspects of organic chemistry. Prereq: CHEM 3411 or 3481. No co-credit with CHEM 3488. Max hours: 1 Credit. **Semester Hours:** 1 to 1

CHEM 3421 - Organic Chemistry II

Lecture course designed to introduce the study of structure, reaction, properties and mechanisms of organic molecules. Note: Continuation of CHEM 3411. Prereq: CHEM 3411. No co-credit with CHEM 3491. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 3428 - Organic Chemistry Laboratory II

Laboratory course to augment concepts of CHEM 3421, illustrating the practical aspects of organic chemistry. Prereq: CHEM 3418; Prereq or Coreq: CHEM 3421 or CHEM 3491. No co-credit with CHEM 3498. Max hours: 1 Credit. **Semester Hours:** 1 to 1

CHEM 3481 - Honors Organic Chemistry I

An accelerated introduction to fundamental structural, analytical, and mechanistic aspects of organic molecules and their reactions. Prereq: CHEM 2061 and CHEM 2068 (or equivalent), and approval of the instructor. No co-credit with CHEM 3411. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 3488 - Honors Organic Chemistry Laboratory I

Honors laboratory class to accompany CHEM 3481. Students will learn the basic techniques of organic synthesis, purification and analysis while carrying out extended experiments. No co-credit with CHEM 3418. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CHEM 3491 - Honors Organic Chemistry II

Second semester organic chemistry. Theoretical concepts and practical aspects of organic structure, mechanism, synthesis and analysis. Note: Required for chemistry majors and open to all students. No joint credit with CHEM 3421. Prereq: CHEM 3411. Coreq: CHEM 3498. No co-credit with CHEM 3421. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 3498 - Honors Organic Chemistry Laboratory II

In small groups, students use the chemical literature to devise multi-step syntheses and determine reaction mechanisms for organic compounds. Note: Laboratory course required for chemistry majors. Open to non-majors on approval of the instructor. Prereq or Coreq: CHEM 3491. No co-credit with CHEM 3428. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CHEM 3510 - Physical Chemistry: Biological Applications.

An introduction to physical chemistry that examines the principles of thermodynamics, equilibrium solutions, and kinetics as they apply to biological systems. Calculus required to learn the principles is presented in the course. Prereq: Chem 2061, Math1120, and Phys 2020. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 3810 - Biochemistry

Introduces the principles of biochemistry for science and health science-oriented majors. Designed to cover the important aspects of modern biochemistry. Prereq: BIOL 2061 and CHEM 3411. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 3840 - Independent Study

Max hours: 6 Credits. **Semester Hours:** 1 to 3

CHEM 3939 - Internship

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and at least a 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

CHEM 4121 - Instrumental Analysis

Surveys instrumental methods of analysis. Emphasis on spectrophotometry, electrochemistry, chromatography and radiochemical techniques. Prereq: CHEM 3111, 3421 or 3491, and PHYS 2331; Coreq for Chemistry majors: CHEM 4128. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4128 - Instrumental Analysis Laboratory

Laboratory practice to accompany CHEM 4121. One hour of discussion and three hours of laboratory, with an emphasis on writing laboratory reports. Note: Required of chemistry majors and open to other students in CHEM 4121. Coreq: CHEM 4121. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CHEM 4511 - Physical Chemistry I

Includes study of the laws of thermodynamics, thermochemistry, chemical equilibria, solutions and statistical mechanics. Prereq: PHYS 2331; Coreq: MATH 3511. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4518 - Physical Chemistry Laboratory I

Instruction in the experimental techniques of physical chemistry with emphasis on the properties of gases, thermodynamics and chemical equilibrium. Prereq: CHEM 3118; Coreq: CHEM 4511. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CHEM 4521 - Physical Chemistry II

Continuation of CHEM 4511, with emphasis on chemical kinetics, quantum mechanics, molecular structure and spectroscopy. Prereq: CHEM 4511 and MATH 3511. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4538 - Physical Chemistry II Laboratory

Instruction in the experimental techniques of physical chemistry with emphasis on quantum chemistry, spectroscopy and chemical kinetics. Prereq: CHEM 4518; Coreq: CHEM 4521. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CHEM 4600 - Advanced Topics in Chemistry

Upper-level majors in chemistry or a related discipline explore a special topic in chemistry or biochemistry. A description of topics to be covered in the current semester is maintained on the Chemistry department website. Max hours: 6 Credits. **Semester Hours:** 1 to 3

CHEM 4700 - Environmental Chemistry

A discussion of the sources, reactions, transport, effects, and fates of chemical species in the water, soil, and air environments. Prereq: CHEM 3111 or 3411. Cross-listed with CHEM 5700. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4810 - General Biochemistry I

Topics include structure, conformation, and properties of proteins; enzymes, mechanisms and kinetics; carbohydrates, lipids and membranes, and energetics. Prereq: CHEM 3421 or 3491. Cross-listed with CHEM 5810. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4820 - General Biochemistry II

Topics include biosynthesis and metabolism of carbohydrates, lipids and amino acids, information processing. Note: continuation of CHEM 4810. Prereq: CHEM 4810. Cross-listed with CHEM 5820. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4828 - Biochemistry Lab

Focuses on modern laboratory techniques for biochemical research, with an emphasis on methods for protein isolation, purification, and identification. Students perform experiments involving (but not limited to) chromatography, electrophoresis, spectrophotometry, and protein activity assays. Prereq: CHEM 3810 or 4810. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CHEM 4835 - Biochemistry of Cancer

Explores the biochemical aspects of cancer causation and treatment. Topics include DNA and protein damage, oncogenes and tumor suppressors, the chemistry of chemotherapeutic agents, and the mechanisms of resistance to anticancer drugs. Prereq: CHEM 3810, 4810, or 5810. Cross-listed with CHEM 5835. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4840 - Independent Study: Chem

Prereq: Permission of instructor required. Max hours: 12 Credits. **Semester Hours:** 1 to 6

CHEM 5010 - Advanced Inorganic Chemistry

Covers the fundamental principles of inorganic chemistry. Topics include atomic structure and periodicity, molecular symmetry, bonding, structural chemistry, main-group chemistry, coordination chemistry, and organometallic chemistry. Prereq: CHEM 3011 and CHEM 4521 or equivalent, or permission of instructor. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 5071 - RM-MSMSP: Atoms and Properties of Matter

Systematic study of the structure of the atom, how atoms interact to form bonds, how matter behaves at the molecular level, the periodic table, and the macroscopic properties of matter. Concepts are linked to other scientific, mathematical, societal, and pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: Permission of project director. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 5072 - RM-MSMSP: Interactions of Elements and Compounds

Systematic study of solubility (physical and chemical properties of solutions and the chemistry of acids, bases, pH, and buffer solutions), oxidation or reduction reactions, reaction energetics (thermodynamics and kinetics), and applications of chemistry to environmental, biochemical, and nutritional problems. Concepts are linked to other scientific, mathematical, societal, and pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: CHEM 5071 (or equivalent) and permission of project director. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 5073 - RM-MSMSP Research Experience for Teachers - Chemistry Cohort

The Research Experience for Teachers (RET) program will be a five-week research exploration in which twelve RM-MSMSP teachers will raise their level of relevant scientific understanding by engaging in a "hands on" workshop, transforming what they have learned into new curricular materials that will improve the scientific abilities of their students and hopefully stimulate them to consider a STEM career. Note: Credit may not apply toward any CLAS degree. Max hours: 6 Credits. **Semester Hours:** 1 to 6

CHEM 5110 - Advanced Analytical Chemistry

Explores the fundamental principles of analytical chemistry. Topics will focus on meteorology (the science of making measurements), measurements based on energy transfer (e.g. spectroscopic analysis), and measurements based on mass transfer (e.g. chemical separations and electrochemistry). Prereq: Undergraduate instrumental analysis or equivalent. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 5130 - Surface Analytical Techniques

Surveys widely used techniques for surface analysis, including thermal desorption, mass spectrometry, X-ray photoelectron spectroscopy, and surface electrochemistry. Applications to catalyst and organic or biological surfaces are included. Prereq: CHEM 4121 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 5250 - Chemometrics: Data Analysis

Provides chemists and environmental scientists with the basic statistical skills for effective data analysis and experimental design. Minimal theoretical detail is provided; practical applications and graphical techniques are emphasized. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 5310 - Advanced Organic Chemistry

An exploration of structure, bonding and reactivity in organic modules that includes extensive analysis of the chemical literature, culminating in written and seminar presentations of individual projects. Prereq: CHEM 3421 and 4521. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 5510 - Computational Chemistry

Classical and ab initio molecular dynamics are covered from theory to application. Students have access to high-performance computational resources and cover current topics in the field. Prereq: CHEM 4521 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 5520 - Molecular Structure and Spectra

Applies quantum mechanics to the understanding of molecular structure and spectroscopy. Prereq: CHEM 4521. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 5530 - Advanced Physical Chemistry

Explores fundamental properties of molecules (bond length and strength, the potential energy surface, reaction rates, etc.) and examines how these properties are measured, using original literature as the primary source, and culminating in written and seminar presentations of individual projects. Prereq: CHEM 4511, 4521 and 4538 or equivalent. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 5550 - Applications of Group Theory in Chemistry

Introduces the basic principles of the group theoretical method as well as its applications in organic, inorganic, and physical chemistry. Covers Mo's for main-group and transition metal compounds, ligand field theory, molecular vibrations, and electron absorption spectroscopy. Prereq: CHEM 4521 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 5600 - Graduate Topics in Chemistry

Graduate students in chemistry or a related discipline explore a special topic in chemistry or biochemistry. A description of topics to be covered in the current semester is maintained on the Chemistry department website. Prereq: graduate standing or permission of instructor required. Max hours: 6 Credits. **Semester Hours:** 1 to 3

CHEM 5700 - Environmental Chemistry

A discussion of the sources, reactions, transport, effects, and fates of chemical species in the water, soil and air environments. Prereq: CHEM 3111, 3411, and graduate standing. Cross-listed with CHEM 4700. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 5710 - Air Pollution Chemistry

Chemical processes occurring in the atmosphere are discussed. Includes application to air pollution problems, including urban air pollution, air quality standards, non-urban air pollution, acid deposition, and stratospheric pollution. Prereq: CHEM 4521 or 4700. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 5720 - Atmospheric Sampling and Analysis

Fundamentals of environmental sampling specifically applied to the atmosphere are discussed. Includes a variety of techniques for the measurement of monitoring gaseous, semi-volatile and particulate air pollutants, techniques for the measurement of criteria pollutants, chemical and physical measurements of particulate and air toxins. Prereq: CHEM 4700 or CHEM 5710 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 5810 - General Biochemistry I

Topics include structure, conformation, and properties of proteins; enzymes, mechanisms and kinetics; carbohydrates, lipids and membranes, and energetics. Prereq: CHEM 3421 or 3491. Cross-listed with CHEM 4810. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 5820 - General Biochemistry II

Topics include biosynthesis and metabolism of carbohydrates, lipids and amino acids, information processing. Note: Continuation of CHEM 5810. Prereq: CHEM 5810. Cross-listed with CHEM 4820. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 5835 - Biochemistry of Cancer

Explores the biochemical aspects of cancer causation and treatment. Topics include DNA and protein damage, oncogenes and tumor suppressors, the chemistry of chemotherapeutic agents, and the mechanisms of resistance to anticancer drugs. Prereq: CHEM 3810, 4810, or 5810. Cross-listed with CHEM 4835. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 5840 - Independent Study

Max hours: 9 Credits. **Semester Hours:** 1 to 3

CHEM 5939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 6

CHEM 5950 - Master's Thesis

Max hours: 8 Credits. **Semester Hours:** 1 to 8

CHEM 6000 - Chemistry Seminar

Faculty and student presentations of CU-Denver research projects and other current chemistry topics. Note: All chemistry students are encouraged to attend, but credit is given only to those who present seminars. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 1 to 3

CHEM 6001 - Master's Research Seminar

Students present a formal seminar to the department describing their master's research work. Note: Required for all students completing a thesis-based master's degree; optional for those completing master's projects. Prereq: Participation in master's thesis or project research; CHEM 6000. Max hours: 1 Credit. **Semester Hours:** 1 to 1

CHEM 6002 - Chemistry Seminar I

The art of listening to and giving a chemistry seminar. Introduces the chemical literature, the pedagogical techniques of seminar giving, and the critical thinking skills required to understand a technical presentation. Note: Seminar presentations by faculty, outside speakers, and advanced graduate students are analyzed by the students participating in the course. Prereq: Graduate standing. Max hours: 1 Credit. **Semester Hours:** 1 to 1

CHEM 6003 - Chemistry Seminar II

Students prepare and give a chemical seminar based on a literature paper. Note: Seminar presentations by students and outside speakers are analyzed by students in the course. Prereq: Graduate standing. Max hours: 1 Credit. **Semester Hours:** 1 to 1

CHEM 6840 - Independent Study: CHEM

Max hours: 9 Credits. **Semester Hours:** 1 to 6

CHEM 6950 - Master's Thesis

Max hours: 6 Credits. **Semester Hours:** 1 to 6

CHEM 6960 - Master's Report

Max hours: 6 Credits. **Semester Hours:** 1 to 6

Chinese

CHIN 1000 - China and the Chinese

A multidisciplinary introduction to Chinese society both past and present. Prehistory, birth of imperial China, literature, philosophy, religion, nationalism, revolution, modernization, contemporary life, social structure, gender, food, family life, population policy, ethnicity, popular culture, economics and politics. Note: This course is taught in English. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-AH1. **Semester Hours:** 3 to 3

CHIN 1010 - Beginning Chinese I

A basic introduction to Chinese language and culture. Students study pronunciation, vocabulary, grammar and simple writing techniques. Note: Students may not enroll in any lower division (1000/2000) language skills course in which their level of proficiency exceeds that of the course. Students placing into a course through any means other than following the regular sequence must consult with an appropriate faculty member of the Dept. of Modern Languages prior to enrollment. No previous study of Chinese is required. Max hours: 5 Credits. **Semester Hours:** 5 to 5

CHIN 1020 - Beginning Chinese II

(Continuation of CHIN 1010.) Further practice of pronunciation, study of vocabulary, grammar, and simple writing techniques. Note: Students may not enroll in any lower division (1000/2000) language skills course in which their level of proficiency exceeds that of the course. Students placing into a course through any means other than following the regular sequence must consult with an appropriate faculty member of the Dept. of Modern Languages prior to enrollment. Prereq: CHIN 1010. Max hours: 5 Credits. **Semester Hours:** 5 to 5

CHIN 1071 - Mandarin Chinese for the Professions

Provides students with language skills and cultural knowledge in the context of conducting business with Chinese. Students develop elementary language skills for communication, cultural awareness and business etiquette via structured thematic units with business scenarios and simulations. Note: Chinese 1071 cannot be taken to fulfill language requirements; nor can it be used to substitute for Chinese 1010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHIN 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

CHIN 2110 - Second Year Chinese I

Continuing development of listening, speaking, reading, and writing skills in practical Chinese, with grammar review and introduction of the Chinese dictionary. In addition to contemporary Chinese, there is some emphasis on Chinese classical materials, such as proverbs. Note: Students may not enroll in any lower division (1000/2000) language skills course in which their level of proficiency exceeds that of the course. Students placing into a course through any means other than following the regular sequence must consult with an appropriate faculty member of the Dept. of Modern Languages prior to enrollment. Prereq: CHIN 1020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHIN 2120 - Second Year Chinese II

(Continuation of CHIN 2110.) Satisfies the fourth semester language requirement at most graduate schools. Note: Students may not enroll in any lower division (1000/2000) language skills course in which their level of proficiency exceeds that of the course. Students placing into a course through any means other than following the regular sequence must consult with an appropriate faculty member of the Dept. of Modern Languages prior to enrollment. Prereq: CHIN 2110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHIN 2840 - Independent Study

Max hours: 3 Credits. **Semester Hours:** 1 to 3

CHIN 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

CHIN 2970 - Contemporary Chinese Cinema

Introduces students to Chinese cinema, one of the most powerful and often controversial modes of representing society, culture, history and politics in China. Note: Taught in English. All films have English subtitles. No previous study of Chinese language or culture is required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHIN 3200 - Contemporary Chinese Society and Culture

Provides students with an overview of the systems in modern China (such as educational, political and economical), its family and interpersonal constructs and the elements of modern China found in popular cultures. It also exposes students to rudimentary and practical use of the Chinese language. Note: This course is taught in English. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHIN 3300 - Special Topics on Chinese Film

Studies the cultural, social and historical conditions that have shaped Chinese cinema. May focus on one Chinese speaking country or more than one (including but not limited to China, Taiwan and Hong Kong). May focus on a particular period (pre-Cultural revolution, for example) or a particular theme (urban cinema or martial arts films, for example). Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHIN 3840 - Independent Study: CHIN

Max hours: 6 Credits. **Semester Hours:** 1 to 3

CHIN 3995 - Travel Study

A travel study abroad course to one or more Chinese speaking countries. Topics of the course will vary depending on the instructor, sites visited and focus of the course. Topics may include intensive language training, film studies, contemporary issues, literary and cultural studies, etc. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHIN 5100 - Methods of Teaching Chinese Immersion

Provides students with an overview of teaching in an immersion environment in Mandarin Chinese. Topics include: immersion models, language/contents and culture, first and second language acquisition, curriculum design, national and state curriculum standards, program management and program assessment. Note: Taught in English. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Chinese Studies

CNST 4000 - Senior Seminar in Chinese Studies

Capstone course in the Chinese studies program in which students design and carry out independent research projects on topics of their choice. Prereq: CNST 1000 and 15 hours in Chinese studies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Civil Engineering

CVEN 1025 - Civil Engineering Graphics and Computer Aided Design

Introduces microcomputer-based, menu-driven, 2-D and 3-D computer-aided design systems; standard Civil Engineering industry details and some three-dimensional modeling of solid objects; principles on engineering drawing and descriptive geometry with applications specifically geared for civil engineers. Prereq: High School Geometry and Algebra. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 1800 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 6

CVEN 1840 - Independent Study

This category is intended for topics which students may wish to pursue on their own initiative, with guidance from a professor who agrees to limited consultation on the work and to award credit when the project is completed. Departmental approval is required. Max hours: 9 Credits. **Semester Hours:** 1 to 6

CVEN 2121 - Analytical Mechanics I

A vector treatment of force systems and their resultants; equilibrium of trusses, beams, frames, and machines, including internal forces and three-dimensional configurations, static friction, properties of areas, distributed loads and hydrostatics. Prereq: PHYS 2311 and MATH 2411. Cross-listed with MECH 2023. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 2200 - Computing Methods in Civil Engineering

Introduces MATLAB computer programming for engineering applications. Students will learn programming concepts such as relational and logical operations, branching statements and loops. They will apply these concepts in the MATLAB platform to write programs to solve several engineering problems. Prereq: CVEN 1025 and MATH 2411. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 2212 - Plane Surveying

Observation, analysis and presentations of basic linear, angular, area and volume field measurements common to civil engineering endeavors. Prereq/Coreq: MATH 1401. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 2800 - Special Topics 2800-283X

Max hours: 9 Credits. **Semester Hours:** 1 to 6

CVEN 2840 - Independent Study

This category is intended for topics which students may wish to pursue on their own initiative, with guidance from a professor who agrees to limited consultation on the work and to award credit when the project is completed. Departmental approval is required. Max hours: 9 Credits.

Semester Hours: 1 to 6

CVEN 3111 - Analytical Mechanics II

A vector treatment of dynamics of particles and rigid bodies, including rectilinear translation, central-force, general motion of particles, kinematics of rigid bodies, the inertia tensor, plane motion of rigid bodies; energy and momentum methods for particles, systems of particles and rigid bodies. Prereq: CVEN 2121. Cross-listed with MECH 2033. Max hours: 3 Credits.

Semester Hours: 3 to 3

CVEN 3121 - Mechanics of Materials

Mechanical properties of materials, stresses and strains in members subjected to tension, compression and shear, combined stresses, flexural and shearing stresses in beams, deflections of beams, column analysis, principal stresses. Prereq: CVEN 2121. Cross-listed with MECH 3043.

Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 3131 - Applied Mechanics

A limited study of particle and rigid body mechanics. Subject coverage introduces vector concepts of force, moment and equilibrium, then concentrates on kinematics and kinetics of particles in motion, including oscillatory and orbital and finally discusses rigid body motion with emphasis on energy and momentum methods. Prereq: MATH 2421 and PHYS 2311. (Not for Civil Engineer or Mechanical Engineer majors.) Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 3141 - Introduction to Structural Materials

Introduces the production, properties, and behavior of common engineering materials. Emphasis is placed on concrete, steel, and wood. Includes the techniques used to determine material properties. Coreq: CVEN 3121. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CVEN 3154 - Water Quality Laboratory

Lecture and lab weekly, discussing techniques and making measurements of water purity parameters. Prereq: CHEM 1130/2031 and 2038; Prereq or Coreq: MATH 2411. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CVEN 3212 - Plane Surveying For GIS Majors

This course will present the concepts and practical materials for surveying instruments, survey data collection methods and data processing with applications in GIS. It will cover the shape of the Earth theory, Map projections, Datum, 2D and 3D coordinate transformation methods and coordinate geometry problems. Prereq: MATH 1401 and 2411. Max hours: 3 Credits. **Semester**

Hours: 3 to 3

CVEN 3313 - Theoretical Fluid Mechanics

Introduces the fundamentals of fluid mechanics. Subject matter includes fluid properties, hydrostatics, the continuity principle, the energy principle, the momentum principle, similitude and dimensional analysis, forces on immersed bodies and laminar and turbulent flow in a closed conduit. Prereq: CVEN 2121. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 3323 - Applied Fluid Mechanics

Applies the principles of fluid mechanics to analysis and design of hydraulic systems involving pressurized pipelines, open channels and pumps. Introduces fluid measurements which includes laboratory demonstrations and experiments. Prereq: CVEN 3313. Coreq: CVEN 2200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 3401 - Introduction to Environmental Engineering

An introductory course that provides a unique systems approach to environmental engineering, examining the source-to-receptor feedback loop for pollution control. Physical, chemical and biological processes are integrated across atmospheric, wastewater and subsurface systems. Laboratory exercises provide direct experiential learning of key concepts. Prereq: CHEM 1130 or equivalent. Cross-listed with CVEN 5401. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 3414 - Design of Water and Wastewater Systems

Covers the design of water distribution and wastewater collection systems. Topics include the design process, estimation of water demand and sewage flows, analysis of pipe networks and sewer systems, cost estimating, and design selection. Field trips are required. Prereq/Coreq: CVEN 3323. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 3505 - Structural Analysis

Principles of structural analysis applied to statically determinate and indeterminate structures. Prereq: CVEN 3121. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 3602 - Transportation Engineering

This course will introduce you to the concepts and methods of transportation engineering, planning and management. This course will emphasize traffic engineering. Topics will include vehicle dynamics, traffic flow fundamentals, accident analysis, signal timing, highway capacity analysis, level of service analysis, freeway operations, and evaluation procedures for alternative transportation projects. Prereq: Junior standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 3708 - Introduction to Geotechnical Engineering

Index properties of soils, soil classification, clay minerals, compaction and other soil improvement methods; shrinkage, swelling and frost action; permeability and seepage analysis, consolidation settlement and time rate of consolidation, shear strength of soils, bearing capacity and lateral earth pressure. Prereq: CVEN 3121. Prereq/Coreq: CVEN 3313. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 3718 - Geotechnical Engineering I

Soil formation, phase diagram, soil constituents and behavior, description of soils, classification, clay minerals, compaction, soil improvement, capillarity, shrinkage, swell, collapsible soil, frost action, flow through porous media, and consolidation. Lab experiments, including specific gravity, grain size analysis, liquid and plastic limits, and consolidation, are to be conducted in concert with the lectures. Prereq: CVEN 3121. Coreq: CVEN 3313. Max hours: 3 Credits.

Semester Hours: 3 to 3

CVEN 3800 - Special Topics: 3800-3839

Max hours: 6 Credits. **Semester Hours:** 1 to 6

CVEN 3840 - Independent Study

This category is intended for topics which students may wish to pursue on their own initiative, with guidance from a professor who agrees to limited consultation on the work and to award credit when the project is completed. Departmental approval is required. Max hours: 9 Credits.

Semester Hours: 1 to 8

CVEN 4000 - Senior Seminar

Required for all Civil Engineering majors. Each student shall take the state-administered Fundamentals of Engineering (F.E.) examination. This course is taken the semester of or prior to graduation. This course will meet once time after the FE exam and prior to the graduation ceremony to review curriculum and examination results. This course is a pass/fail course and failure to attend the meeting of this course will cause a fail, and may delay graduation. Prereq: CVEN 3111, ELEC 3030, senior standing and approved 30 credit hour check. Max hours: 0 Credits. **Semester Hours:** 0 to 0

CVEN 4025 - Advanced Civil Engineering Graphics

Course builds on CVEN 1025. Lectures target industry specific building information modeling software and elevating students knowledge of software to an in-depth understanding. Focusing on the areas of drafting designed systems, producing documentation, and project workflows. Requisite is CVEN 1025, students may skip requisite if they have previously taken a CAD course, at the college level. Approval is subject to Department Advisor approval. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4067 - Senior Design Projects

Senior civil engineering students, working in teams, are assigned significant open-ended design problems requiring the synthesis of material learned in previous engineering courses for solution. Design teams work independently under the supervision of a civil engineering faculty member. Prereq: Graduation Agreement and one design course. Co-req: A second design course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4077 - Engineering Economy

Applies economic and financial principles to evaluation of engineering alternatives. Calculation of annual costs, present worth and prospective rates of return on investment. Review of systems analysis techniques, including simulation, linear programming, and project scheduling. Prereq: Junior standing. Cross-listed with MECH 4147. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4087 - Engineering Contracts

Laws met by the practicing engineer, types of contracts, specification writing, laws on contracts, agency, partnership, sales and property, with primary emphasis on rights and duties of the engineer. Prereq: Senior standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4388 - Site Engineering

Course introduces the fundamentals of site engineering which require understanding and interpreting landforms, slopes, contour lines, grading, drainage, and earthwork to storm water management, hydrology reports, designing roadways, and street networks. Other topics include designing for ADA and concepts of sustainability in site design. Note: CAD experience is recommended. Cross-listed with CVEN 5388. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4405 - Environmental and Water Systems Analysis

The primary focus of this course is on quantitative techniques for environmental systems modeling analysis. The course primarily covers life cycle assessments (LCA) based concepts. The course will review basic steps in conducting an LCA, data collection and data processing. Other concepts such as EIOA, emergy and exergy analysis would be introduced. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4427 - Storm Water System Design

This course covers urban watershed analysis, design rainfall and hydrologic losses, flood frequency and design event, rational method for peak runoff prediction, street hydraulic capacity and safety, culvert hydraulics, street inlet collection system and storm sewer system design and flow analysis. Prereq: CVEN 3323 and senior standing. Cross-listed with CVEN 5427. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4537 - Numerical Methods for Engineers

Introduces numerical analysis. Solution of linear and non-linear equation systems. Numerical methods for ordinary and partial differential equations. Engineering applications. Prereq: CSCI 1410, MATH 3191 and 3200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4565 - Timber Structure Design

Design of wood roof, wall, and floor systems including beams, columns, trusses, diaphragms and shear walls for vertical and lateral loads. Connection design, glued-laminated members, plywood, and engineered lumber are incorporated. Prereq: CVEN 3505 and CVEN 3141. Cross-listed with CVEN 5565. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4575 - Structural Steel Design

Design of structural steel members and their connections. Prereq: CVEN 3505 and CVEN 3141. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4585 - Reinforced Concrete Design

Ultimate strength methods for design of reinforced concrete structures. Prereq: CVEN 3505 and CVEN 3141. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4602 - Highway Engineering

Evaluates alternate highway routes. Discusses highway drainage, finance, maintenance, pavement design, traffic operations and principles of economic analysis. Analyses of the impact of the highway on the environment. Prereq: CVEN 3602 and CVEN 3708. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4718 - Intermediate Soils Engineering

Continuation of CVEN 3708 into selected topics in soils engineering. Laboratory experiments are performed to assess index properties of soils including gradation, soil consistency and specific gravity; moisture/density relations; soil classification, permeability, compressibility; and shear strength of soils. These soil parameters are then used in a design project required for the course. Prereq/Coreq: CVEN 3708. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CVEN 4719 - Design & Construction of Geosynthetic Soil Structures

Theory of reinforced soil; Mechanical and hydraulic properties of geosynthetics; Soil-geosynthetic interaction behavior; Design concepts of GRS structures; Design and construction of GRS retaining walls; Design and construction of GRS embankments and slopes; Design and Construction of GRS foundations. Prereq: CVEN 3718 and 4728. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4728 - Geotechnical Engineering II

Shear behavior and strength, and basic applications of shear strength (such as earth pressure and retaining structures, bearing capacity of footings, and slope stability). Lab experiments, including permeability, direct shear, unconfined compression, and triaxial tests, are to be conducted in concert with the lectures. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CVEN 4738 - Intermediate Foundation Engineering

Applies principles of soil mechanics to the analysis and design of foundations and earth structure. Theories of consolidation, earth pressure, slope stability, and bearing capacity. Studies settlement of structures, shallow and deep foundations, retaining walls and excavations. Prereq: CVEN 3708 and CVEN 3141. Coreq: CVEN 4718. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4780 - Engineering Geology

Studies geology as utilized in engineering and environmental practice. Emphasizes a conceptual integration of geologic materials, processes, and rates of change as a basis for successful application of geologic knowledge to environmental planning and engineering design projects. Prereq: MATH 2411 and CVEN 2121. Cross-listed with CVEN 5780 and GEOL 4780, 5780. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4800 - Special Topics: 4800-4839

Supervised study of special topics of interest to students under guidance of instructor. Prereq: Permission of instructor. Max hours: 9 Credits. **Semester Hours:** 1 to 6

CVEN 4840 - Independent Study

This category is intended for topics which students may wish to pursue on their own initiative, with guidance from a professor who agrees to limited consultation on the work and to award credit when the project is completed. Departmental approval is required. Max hours: 9 Credits. **Semester Hours:** 1 to 6

CVEN 5111 - Structural Dynamics

Vibration and dynamic response of simple linear and nonlinear structures to periodic and general disturbing forces. Frequency domain analysis, response analysis of multi-degree-of-freedom systems. Wind and earthquake effects. Prereq: CVEN 3505. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5121 - Intermediate Mechanics of Materials

Intermediate-level course in the mechanics of deformable bodies. Plane stress and strain; stress-strain relation with emphasis on elastic and inelastic behavior of members, and theories of failure. Discussion of basic methods of structural mechanics, with applications to asymmetric and curved beams, thick walled pressure vessels, torsion of members of noncircular section, and other selected problems in stress analysis. Prereq: CVEN 3121, MATH 3191 and 3200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5201 - Construction Dewatering

Introduction to construction dewatering including removal of ground water and surface water in construction sites, characteristics of groundwater aquifers, groundwater flow, geotechnical investigation of dewatering problems and application of modern dewatering technology. Basic methods for controlling water on a construction project are presented incorporating open flow and pumping of excavations, soil pre-draining, water cutoff and exclusion. Prereq: Theoretical/applied fluid mechanics, Soil mechanics. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5333 - Applied Hydrology

Engineering application of principles of hydrology. Subject matter includes precipitation measurement and data analysis, stream flow measurement and water budget analysis, evaporation and evapotranspiration, infiltration and rainfall-runoff relationships, hydrograph properties and unit hydrograph analysis, flood frequency, analysis and flood routing. Prereq: Permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5334 - Groundwater Hydrology

Topics include groundwater occurrence, hydrologic cycle and budget, interactions with surface waters, principles of groundwater flow, well hydraulics, well field design, regional flow systems, water and pollutant chemistry, computer modeling and groundwater management. Emphasis is on quantitative analysis methods for groundwater resource inventory, design and management. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5335 - Vadose Zone Hydrology

Engineering analysis of the vadose zone, the unsaturated porous media linking the earth surface to groundwater. Darcy's law for flow. Richards equation for moisture content. The advection-dispersion equation for solutes. Analytical solutions and numerical modeling applied to infiltration, evaporation, drainage, and subsurface remediation. Graduate standing in civil engineering or consent of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5336 - Urban Runoff Quality and Quantity Modeling

This course covers rainfall/runoff data base, rain gage under-catch, statistical models for frequency analysis, Unit Graph and Kinematic Wave method for runoff prediction, urban watershed modeling, event-based flood prediction, continuous flow predictions, modeling consistency and sensitivity, impact assessments, master drainage planning, and storm centering technique. Prereq: CVEN 5333 - Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5343 - Open Channel Hydraulics

Engineering analysis and design of natural and artificial open channels. Application of uniform flow concept to design of erodible and non-erodible channels. Application of energy and momentum principles to conditions of gradually varied flow, spatially varied flow and rapidly varied flow. Prereq: CVEN 3323 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5344 - Unsteady Open Channel Hydraulics

Derivation of basic principles of unsteady open channel flow. Application of kinematic wave, diffusive wave and dynamic wave approaches to open channel, including overland flow and flow in a drainage or river network. Introduction of numerical finite difference methods, characteristic method and simplified analytical method for the solution of unsteady open channel flow problems. Evaluation of computer simulation models such as DWOPER and SWMM. Prereq: CVEN 5343 and CVEN 5333 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5345 - Computational Methods for Water Resources

This course covers two major areas: hydrologic and hydraulic numerical routing schemes. The hydrologic routing includes linear and nonlinear reservoir operations using the characteristic curves derived from the reservoir geometry. The hydrologic routing numerical scheme will be applied to optimize the reservoir operations for power generation, irrigation, and flood control. The hydraulic routing covers Dynamic Flood Wave, Diffusive Wave, and Kinematic Wave. The finite difference method is used to develop numerical models to predict flood flows through channels. This course also covers probable maximum precipitation and dam break flow analysis. Prereq: CVEN 3323. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5381 - Introduction to Geographic Information Systems

Provides an overview exposure and experience with various aspects of GIS technology and its uses for natural resource and infrastructure, planning, design and management. This course involves a survey of GIS software and hardware, review of cartographic mapping principles, hands-on applications to environmental impact assessment, municipal facilities management, transportation, water resources and demographics. GIS project management factors are addressed. Prereq: Graduate and/or upper division standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5382 - GIS Spatial Database Development

This second GIS course builds on the introductory course and addresses principles and technologies for development and conversion of spatial databases, including photogrammetry, surveying and geodesy, coordinate systems and transformations, and remote sensing. Prereq: Graduate and/or upper division standing; completion of CVEN 5381 (or equivalent) and MEng-GIS program prerequisites (especially surveying, mapping and computing); background in algebra, calculus fundamentals and facility to compute DOS/UNIX, spreadsheet, and FORTRAN; familiarity with various CAD (e.g. AutoCAD) and GIS (e.g. ArcInfo, GRASS) software is also required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5383 - GIS Analysis -- Theory and Practice

This third course reviews GIS software functions and terminology, including data entry (input, editing), manipulation (projection, merge, window, aggregate), analysis (map algebra, overlay, Boolean, interpolation network, measurements, distance, terrain modeling, statistical analysis), query (spatial, attribute), and display/reporting. Integration of various domain-specific systems analysis models with GIS databases is also addressed. Laboratory activities involve programming applications using available GIS. Prereq: Graduate and/or upper division standing; completion of CVEN 5381 (or equivalent) and completion of MEng-GIS prerequisites (especially applied Statistics); background in algebra, calculus fundamentals, facility to compute DOS/UNIX, OS/UNIX, spreadsheet, and FORTRAN; familiarity with various CAD (e.g., AutoCAD) and GIS (e.g., ArcInfo, GRASS), software is also required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5384 - GIS Management and Policies

This fourth course addresses aspects of GIS planning and development. These include topics of benefit-cost and financial analysis, scheduling, project management, internal and external marketing. Also, addressed are issues of GIS institutional acceptance, the role of computerized spatial data systems indecision making, application of planning techniques for accomplishing resource goals, administrative structure which enhances efficiency of use, and legal considerations involved with development and use of such databases. Prereq: Graduate and/or upper division standing; completion of CVEN 5381 (or equivalent); familiarity with various CAD (e.g. AutoCAD) and GIS (e.g. ArcInfo, GRASS) software is also required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5385 - GIS Relational Database Systems

Introduces relational database management system concepts with emphasis on GIS. Includes examination of relational database systems from conceptual design through relational schema design and physical implementation. Topics include SQL, database design and implementation for large database systems, transaction management, concurrency control, distributed database management systems and the interaction and progressive integration of GIS technologies and RDBMS technologies. Prereq: Graduate and/or upper division standing; completion of CVEN 5381 or equivalent and completion of MEng-GIS program prerequisites. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5386 - GIS Laboratory

Provides in-depth experience with use and programming of a particular GIS software, including ArcGIS and related object-oriented programming languages. Advanced functionality for user authoring of software interface, data management and analysis functions and output generation. Exact content will vary by semester. Prereq: Computing and Introduction to GIS or their equivalent. Max hours: 18 Credits. **Semester Hours:** 3 to 3

CVEN 5387 - Advanced Remote Sensing

Addresses remote sensing concepts including 1) imaging sensors and geo-referencing; 2) image processing for radiometric, multi-spectral image enhancement, and multi-sensor image fusion; and 3) multi-spectral image classification, including feature extraction, supervised and unsupervised classification, and extensions to hyper-spectral data. Prereq: CVEN 5381 and graduate standing or permission from instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5388 - Site Engineering

Course introduces the fundamentals of site engineering which require understanding and interpreting landforms, slopes, contour lines, grading, drainage, and earthwork to storm water management, hydrology reports, designing roadways, and street networks. Other topics include designing for ADA and concepts of sustainability in site design. Note: CAD experience is recommended. Cross-listed with CVEN 4388. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5393 - Water Resources Development and Management

A multidisciplinary exploration of the principles governing water resources planning and development. Emphasis is on the sciences of water (physical, engineering, chemical, biological and social) and their interrelationships. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5394 - Water Resources Systems

Addresses the concepts, general processes, and quantification methods used in planning and analysis of water resource system planning and operations problems and goals, analysis methods, computer simulation and optimization. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5401 - Introduction to Environmental Engineering

Provides a broad overview of the environmental engineering and pollution control system. Offers a unique systems approach to environmental engineering, examining the source-to-receptor feedback loop system of pollution control. Process principles underlying pollutant, transport, abatement, and control are presented in a unified manner, cross-cutting atmospheric, wastewater and subsurface systems. Prereq: Graduate standing in MSCE or MSES programs or permission of instructor. Cross-listed with CVEN 3401. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5402 - Integrated Environmental Modeling

Provides unified understanding of fundamental physical, chemical and biological processes that govern the transport and fate of pollutants in environmental systems - water, air and subsurface. The course focuses on multimedia modeling and model solution methods. The course also introduces exposure and risk assessment techniques. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5403 - Environmental Regulations and Management Systems

Students will receive an overview and understanding of major environmental laws and will be introduced to legal concepts used to develop environmental laws. In addition, students will learn about environmental management systems and their applications to environmental problems. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5404 - Sustainable Water Systems: Physical & Chemical Processes

A comprehensive course that covers the theory and application of chemical (acid base equilibria, redox reactions, chemical equilibrium and kinetics etc.) and physical processes (sedimentation, filtration, adsorption, membrane separation, reactor design) used in water quality engineering, with an emphasis on sustainable treatment options, looking at social, economic and environmental aspects of these technologies. Since numbers of these technologies are energy intensive, emphasis will be placed on life cycle impacts and energy efficiency of these processes. The lectures will integrate source water quality, local, geographical conditions and regulatory requirements into design of the treatment options. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5405 - Systems Analysis for Environment and Sustainability

Focuses on quantitative techniques for environment systems modeling, analysis and assessment. The course primarily covers life cycle assessment (LCA) techniques. The students will learn the various steps for conduction an LCA including goal and scope definition, life cycle inventory (LCI), life cycle impact assessment (LCIA) and interpretation. Mathematical techniques for uncertainty & sensitivity analysis, such as Monte Carlo simulations will be covered. Students will be exposed to several LCA case studies. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5427 - Storm Water System Design

This course covers urban watershed analysis, design rainfall and hydrologic losses, flood frequency and design event, rational method for peak runoff prediction, street hydraulic capacity and safety, culvert hydraulics, street inlet collection system and storm sewer system design and flow analysis. Prereq: CVEN 3323. Cross-listed with CVEN 4427. Max hours: 3 Credits.

Semester Hours: 3 to 3

CVEN 5434 - Sustainable Water Systems: Biological Processes

A comprehensive course that covers the theory and application of biological processes used in water quality engineering, with an emphasis on state-of-the-art water pollution control and waste-to-energy technologies. The initial lectures will introduce material on microbial energetics, diversity, and kinetics. The remainder of the course will involve the application of fundamental principles to treatment and energy recovery processes, including bioreactor configurations and design considerations. Prereq: Graduate standing or permission of instructor. Max hours: 3

Credits. **Semester Hours:** 3 to 3

CVEN 5444 - Design of Solid Residuals and Natural Treatment Systems

Solid residuals treatment topics include thickening, dewatering, digestion, land application and composting. Natural treatment systems topics include slow rate, rapid, and overland flow land treatment systems; and constructed wetlands. Field trip required. Prereq: Graduate standing, MATH 2411, PHYS 2311 and ability to use spreadsheets. Max hours: 3 Credits. **Semester**

Hours: 3 to 3

CVEN 5456 - Engineering Practice

Consulting engineering practice and management. Professional practice and organization. Marketing, ethics, personnel selection, and training. Planning, budgeting, work scheduling, resource allocation, and balancing. Oral and written communication, quality standards, and engineering management. Prereq: Graduate standing or permission of instructor. Max hours: 3

Credits. **Semester Hours:** 3 to 3

CVEN 5457 - Administration of Public Works

A descriptive course concerned with the administration of engineering and planning aspects of urban public works. Prereq: Graduate standing in civil engineering or public administration, or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5460 - Introduction to Sustainable Urban Infrastructure

Focuses on developing uniform vocabulary on sustainable infrastructure across science & technology, architecture & planning, public policy, and health & behavioral sciences. Students learn concepts, principles/pathways and evaluation techniques for promoting the diffusion of sustainable urban infrastructures. Cross-listed with URPL 6399. Max hours: 3 Credits. **Semester**

Hours: 3 to 3

CVEN 5461 - Defining and Measuring Sustainability

Unique cross-disciplinary course that teaches students community engagement strategies to define sustainability goals. Life cycle assessment and material flow analysis tools used to measure environmental sustainability benchmarks. Field work applies both tools to cities in Colorado. Cross-listed with URPL 6548. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5462 - Theories of Sustainable Infrastructure Management

This seminar introduces theories of sustainable infrastructure management from a variety of disciplinary perspectives. Students then apply them to resolution of a variety of actual infrastructure management problems. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5480 - Hazardous Wastes and Site Remediation

Students learn to: (1) define and classify hazardous wastes encountered at hazardous waste-contaminated sites, (2) learn basic principles underlying currently available technologies for site remediation, (3) use EPA's technology screening matrix for technology selection, and (4) provide engineering design for selected remediation systems, e.g. ground-waterpump-and-treat, soil vapor extraction, soil washing, and bioremediation. Prereq: CVEN 5402. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5481 - Sustainable Water Systems Policy and Planning

To provide students with a working knowledge of sustainable urban water systems which are resilient, resource efficient and environment friendly. Students will learn about the various components of urban water and wastewater systems, including water resource management, treatment, transport and reuse, and how to evaluate, develop and design the various components in a sustainable manner. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5494 - Risk Assessment in Environmental Engineering

The process of determining the likelihood and extent of harm that may result from an activity or event. Topics covered are: hazard identification, dose-response evaluation, exposure assessment, and risk characterization. The subjects of risk management, risk perception, and risk communication are also discussed. Prereq: Graduate standing or permission of instructor. Cross-listed with ENVS 6200, HBSC 7340. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5514 - Matrix Analysis of Structures

Matrix analysis of skeletal structures. Systematic formulation of stiffness and flexibility methods of analysis of skeletal structures. Application of modern computational tools to structural analysis, including introduction to the finite element method. Prereq: CVEN 3505. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5515 - Introduction to Finite Element Analysis

Systematic formulation and application of the finite element approximation to the solution of engineering problems. Topics include one- and two-dimensional elasticity problems, two-dimensional heat flow and irrotational fluid flow. Elements considered include triangular and quadrilateral elements formulated by elementary and isoparametric techniques. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5537 - Numerical Methods in Civil Engineering

Introduces numerical analysis. Solution of linear and nonlinear equation systems. Numerical methods for ordinary and partial differential equations. Engineering applications. Differs from CVEN 4537 by the addition of individual student projects. Prereq: CSCI 1100/1410, MATH 3191 and 3200. Cross-listed with ELEC 5210, MECH 5110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5565 - Advanced Timber Structure Design

Design of wood framing systems including beams, columns, trusses, and diaphragms. Wood as a material, framing terminology, connection design, structural composite lumber, glued-laminated members, and plywood are covered. The course will emphasize on preparing students for a career in structural engineering. Prereq: CVEN 3505, Structural Analysis. Cross-listed with CVEN 4565. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5575 - Advanced Topics in Structural Steel Design

Plate buckling, plate girder design and other topics determined by class interest. Prereq: CVEN 4575. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5585 - Advanced Topics in Reinforced Concrete

Advanced topics relating to design and analysis of reinforced concrete structures. Prereq: CVEN 4585. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5602 - Advanced Street & Highway Design

This course delves into the art and science of designing sustainable and context sensitive street and highway facilities. Topics include road classification, transportation planning, road alignments, cross-section design, bicycle and pedestrian facilities, intersections, and street network design. Prereq: Permission of Instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5611 - Traffic and Safety Data Analysis

Covers statistical analysis methods for engineering studies in general, and for highway accident and traffic flow data in particular. Topics include data needs, sampling designs, survey methods, hypothesis testing, tests of proportions, non-parametric tests, analysis of variance, multivariate regression, and other tests of fit. Introductory overview of state and federal accident databases. Comparisons of accident rates by highway type, vehicle speeds, vehicle types, weather conditions and other factors also presented. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5612 - Traffic Impact Assessment

Covers (1) procedures to satisfy state and local requirements for transportation impact studies, (2) methods to perform trip generation, distribution, and traffic assignment for impact analyses, and (3) analysis of transportation impacts on residential communities, mode choice, regional business (downtown or suburban), peak and off-peak travel times, noise, safety, parking and pedestrians. A course project requires students to develop an application of analysis software to a case study area. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5613 - Traffic Flow Theory and Fundamentals

Emphasizes the mathematical and probabilistic aspects of traffic flows on interrupted (signalized) and uninterrupted (unsignalized) roadways. The course examines the properties of vehicle motion in traffic streams, and then examines the traffic interactions affected by the relationship between supply (signal timings and road designs) and demand (vehicle arrival rates and traffic patterns). Both macroscopic and microscopic models of traffic flow characteristics are presented, as well as queuing models and statistical distributions of headways. Prereq: CVEN 5611 and CVEN 5621 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5621 - Highway Capacity Analysis

Covers the principles and applications of highway capacity analysis for freeways and arterials, ramps and interchanges, weave and merge sections, signalized and unsignalized intersections, roundabouts, pedestrian areas and transit. Emphasis is on level-of-service analysis procedures in the Highway Capacity Manual, although other approaches are also discussed. Additional topics include roadway characteristics, vehicle dynamics, human factors, speed and volume studies, travel time surveys and traffic flow characteristics. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5622 - Traffic Operations and Control

Covers principles of traffic flow and analysis methods for surface street traffic systems. Emphasis is on network modeling and simulation of coordinated signal systems, together with unsignalized intersections and freeway junctions using modern software tools. Additional topics include alternative signal timing plans, signal controllers, vehicle detection systems for volume, speed, occupancy and ramp metering. A course project requires students to develop and apply modeling software to a case study area. Prereq: CVEN 5621 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5631 - Transportation Planning Methods

Introduces the urban transportation planning process as conducted by metropolitan planning organizations throughout the U.S. Course covers the four-step modeling process (trip generation, trip distribution, mode split and assignment). Topics also include data needs, survey methods, and statistical models for origin-destination estimation and travel demand forecasting. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5632 - Urban Transportation Modeling

An advanced coverage of urban and regional transportation planning models, procedures and software. Mathematical formulations, properties, and solution algorithms are presented. Additional topics include methods of data acquisition from public domain databases for use in modeling software. A course project requires students to develop an application of modeling software to a case study area. Prereq: CVEN 5631 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5633 - Case Studies in Sustainable Transportation

The course goals are to examine notable topics in sustainable transportation, explore methods of measuring transportation conventionally and with respect to sustainability, and place these ideas into the context of real cities. Prereq: graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5652 - Airport Planning and Design

National airport system plan, air travel demand, geometric design of airport facilities, design of airport pavement and drainage structures, and airport environmental impact. Prereq: CVEN 3602 and graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5662 - Transportation System Safety

Safety aspects of highway, railroad, and airway transportation systems. Accident analysis, accident prevention, economic consequences of accidents. Prereq: CVEN 3602 and graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5682 - Pavement Design

Design of flexible and rigid pavements for highways and airports; stress analysis in flexible and rigid pavements; design of joints and reinforcing steel for rigid pavements; principles of subgrade stabilization. Prereq: CVEN 3141, 3505, and 3708. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5692 - Urban Traffic Workshop

Selected laboratory problems related to urban traffic. Prereq: CVEN 5642 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5708 - Advanced Soils Engineering

A unified treatment of the foundation of soil engineering analysis. Topics include stress-strain-strength of soils; generalized limiting equilibrium analysis; stability analyses of earth-retaining structures, slopes, and shallow foundations; probabilistic approach of stability assessment; computation of settlement of foundations in sand and clay and time-rate of consolidation and critical state concept. Special attention is directed toward the illustration of theory through practical examples. Prereq: CVEN 3708, CVEN 4718, and graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5709 - Settlement Analysis

A unified treatment of settlement analysis on sand and clay. Topics include settlement of shallow foundation, settlement of deep foundation, and settlement of embankments, walls and excavations. Conventional methods of analysis and the finite element method of analysis are covered. Critical design implications are emphasized. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5718 - Engineering Properties of Soils

Engineering properties of soils, including index properties, permeability, stress-strain behaviors, shear strength, compressibility, critical state soil models and their application in interpreting soil behaviors. Attention also is directed to laboratory and in situ tests to examine the validity of shear strength and compressibility theories and their application to stability and settlement analysis. Prereq: CVEN 3708, CVEN 4718, and graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5719 - Design and Construction of Geosynthetic-Reinforced Soil Structures

Theory of reinforced soil; mechanical and hydraulic properties of geosynthetics; soil-geosynthetic interaction behavior; design concepts of GRS structures; design and construction of GRS retaining walls; design and construction of GRS embankments and slopes; design and construction of GRS foundations. Prereq: CVEN 5708. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5728 - Groundwater and Seepage

Principles governing flow of water through soils. Approximate methods for confined and unconfined seepage problems, including flow nets, analog models, numerical methods, and method of finite elements. Analytical solutions for unconfined flow problems. Drainage filter design. Seepage toward wells. Stability of earth structures due to seepage. Prereq: CVEN 3708, CVEN 4718, and graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5738 - Foundation Engineering

Methods of subsurface exploration and sampling of soils, lateral support in open cuts, control of groundwater, analysis and design of shallow foundations, analysis and design of deep foundations, bridge abutments and cofferdams, underpinning, and application of modern computational techniques to analysis and design of foundations. Prereq: CVEN 5708, CVEN 5718, and graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5748 - Design of Earth Embankment Dams

Theory, design, and construction of earth embankments. Use of published data, field exploration, laboratory tests on soils and rock in investigating foundations, and construction materials. Principles of compaction and settlement. Slope stability analysis, landslide, recognition and control, use of benches and beams. Prereq: CVEN 3708, CVEN 4718, and graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5758 - Foundations on Expansive Soils

Expansive soils swell upon wetting because of the swelling nature of constituent clay minerals, particularly montmorillonite. This course studies swelling nature of different clay minerals, effects of wetting, swelling potential, swelling pressures, and design of different foundation systems. Prereq: CVEN 4738, B.S.C.E. or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5768 - Introduction to Rock Engineering

Nature of rock masses, geological exploration, deformability and strength, in situ stresses and deformation, rock hydraulics. Prereq: CVEN 3708, CVEN 4718 and graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5778 - Applied and Experimental Rock Mechanics

Surface exploration and characterization of rock masses, slope stability, analysis of rock masses; rock mass reinforcement; tunnel and shaft designs, design of underground rock chambers; foundations on rocks; and dam design. Prereq: CVEN 5768 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5780 - Engineering Geology

Studies geology as utilized in engineering and environmental practice. Emphasizes a conceptual integration of geologic materials, processes, and rates of change as a basis for successful application of geologic knowledge to environmental planning and engineering design projects. Prereq: MATH 2411 and CVEN 2121. Cross-listed with CVEN 4780 and GEOL 4780/5780. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5788 - Design and Construction of Municipal Solid Waste Disposal Facilities

NIMBY (Not In My Back Yard) and environmental regulations demand that all landfills receive proper engineering design. This course covers regulations, management (reduction, collection, transportation, transformation, recycling, incineration, disposal), and disposal facility design. Prereq: Senior in CVEN, B.S.C.E. or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5792 - Energy Resources and Systems for Sustainability

Introduction to energy resources including coal, oil, natural gas, nuclear, hydro, wind, solar, biomass and geothermal. Resource utilization in power systems incorporating issues of sustainability, demand trends, pollution and future use. Interdisciplinary presentation of engineering, physical science, and economic principles. Prereq: Physics, Engineering Mechanics. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5798 - Dynamics of Soils and Foundations

Principles of vibrations of, and wave propagation in, elastic, homogeneous, isotropic media; laboratory and in situ measurements of soil properties; applications of these principles and properties to the design of foundations subject to dynamic loading generated by machinery, earthquakes, or blasts. Prereq: CVEN 5708, 5718, and graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5800 - Special Topics

Topical courses offered once or on irregular intervals. Typical topics include: computer-aided structural engineering, pre-stressed concrete, non-matrix structural analysis, geotechnical aspects of hazardous waste management, geographic information systems and facility management, groundwater hydrology, engineering project management, structural planning, engineering practice, spreadsheet application, field instrumentation, hazardous wastes engineering, bridge super and substructure design, advanced steel design, hydraulic transients, foundations -- expansive soils, sludge process design. Prereq: Variable. Max hours: 9 Credits. **Semester Hours:** 1 to 6

CVEN 5835 - Advanced Timber Structure Design

Design of wood framing systems including beams, columns, trusses, and diaphragms. Wood as a material, framing terminology, connection design, structural composite lumber, glued-laminated members, and plywood are covered. The course will emphasize on preparing students for a career in structural engineering. Prereq: CVEN 3505, Structural Analysis. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5840 - Independent Study: CVEN

Available only through approval of the graduate advisor. Subjects arranged to fit needs of particular student. Max hours: 6 Credits. **Semester Hours:** 1 to 6

CVEN 5950 - Master's Thesis

Max hours: 8 Credits. **Semester Hours:** 1 to 8

CVEN 5960 - Master's Report

Max hours: 8 Credits. **Semester Hours:** 1 to 8

CVEN 6110 - PhD Seminar

Introduces PhD students to the process of doctoral research, addresses important milestones and hurdles in the PhD process, and provides advanced doctoral students with the opportunity for presenting and discussing their research with peers. Prereq: Admission to the PhD program. Max hours: 0 Credits. **Semester Hours:** 0 to 0

CVEN 6111 - Dynamics of Structures

Linear and nonlinear dynamic matrix analysis of multi-degree-of-freedom structural systems. Analysis and design for wind and earthquake loads including modal analysis and sub structuring techniques. Computer programming. Prereq: CVEN 5111. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 6131 - Theory of Elasticity

Mathematical theory of elasticity and its applications to engineering problems. Discussion of the basic analytical and numerical methods of solutions. Prereq: CVEN 5121. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 6165 - Buckling in Structures

Buckling of columns, beams, frames, plates, and shells in the elastic and plastic range. Post-buckling strength of plates. Beam-columns. Analysis by exact and approximate methods with special emphasis on practical implications and application of solutions. Prereq: CVEN 3121. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 6336 - Urban Flood Control System Design

This course covers urbanization impact on watershed regime, flood control measures, detention and retention system, infiltration basin, sand filter, water quality control basin, wetland preservation, storm water Best Management Practices, low impact development, outlet structure design, pond safety, stream restoration, overflow risk analysis and optimal operation. Prereq: CVEN 5333, 5343 and graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 6353 - Hydraulic Design

Design of small dams, including reservoir sizing, spillways, and energy dissipaters. Design of urban drainage and flood control facilities such as culvert transitions, roadside ditches, street inlets, detention/retention ponds, storm sewer systems, drainage channels, and channel erosion controls including vegetation, concrete, riprap protection. Design of flood plain encroachment, natural channel improvement, and bridge hydraulics. Prereq: CVEN 5333 and 5343. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 6515 - Advanced Theory of Structures

Generalized approaches to the analysis of civil engineering and continuous elastic structures (such as plates and plane stress bodies) by force and displacement methods. Emphasis is on formulation by finite elements and solution by matrix methods. Prereq: CVEN 5515 and basic knowledge of computer programming. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 6738 - Finite Element Method in Geotechnical Engineering

Topics covered include: review of finite element methods, advantages and limitation of FEM for analysis of geotechnical engineering problems, one- and two-dimensional seepage analysis, consolidation analysis, incremental and iterative procedures in nonlinear analysis, no-tension analysis, simulation of construction sequence, simulation of soil behavior, simulation of interface behavior, and load-displacement analysis of earth structures. Prereq: CVEN 5708 and 5515 or consent of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 6840 - Independent Study

Max hours: 6 Credits. **Semester Hours:** 1 to 6

CVEN 7800 - Special Topics

Credit and subject matter to be arranged. Prereq: Variable. Max hours: 6 Credits. **Semester Hours:** 1 to 6

CVEN 7801 - Special Topics

Max hours: 6 Credits. **Semester Hours:** 1 to 6

CVEN 7840 - Independent Study

Available only through approval of the graduate advisor. Subjects arranged to fit needs of particular student. Max hours: 6 Credits. **Semester Hours:** 1 to 3

CVEN 7990 - Doctoral Dissertation

Max hours: 10 Credits. **Semester Hours:** 1 to 10

CVEN 8990 - Doctoral Dissertation

Max hours: 15 Credits. **Semester Hours:** 1 to 15

CLAS Interdepartmental

CLAS 2939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 3

CLAS 3939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 6

CLAS 4840 - Independent Study: CLAS

Max hours: 12 Credits. **Semester Hours:** 1 to 3

Commodities

CMDT 4802 - Foundations of Commodities

This course introduces students to the physical aspects of commodities and connects them to the financial markets in which commodities are traded. Fundamental concepts and terminology necessary for understanding commodity production, transportation, economics, financial analysis and marketing are described. Supply chains for several specific commodities are reviewed in detail, as examples of the production and market structure knowledge needed to be successful professional participants in commodity trading capacities. The course also serves a foundation for more focused education in the specific commodity sectors, as well as the applied use of marketing and financial trading concepts learned in other courses. Cross-listed with CMDT 6802 and FNCE 4802/6802. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CMDT 6482 - Advanced Portfolio Management

This course puts graduate students at the leading edge of managing investment portfolios across multiple asset classes in CU Denver business school's unique, state-of-the-art Commodities and Finance Lab. Bringing to life latest academic theories such as Kaplan's CVaR in the JP Morgan Center for Commodities will ideally prepare graduate students to pursue accelerated careers in asset management, investment advisory or related financial markets positions. Topics covered include: Asset Classes and Financial Markets: Commodities, Equities, Fixed Income, Hedge Funds, Portfolio Optimization (MVO, CVaR), Risk Management, Trade Execution and Ongoing Portfolio Management, Ethics and Code of Conduct in Asset Management. Prerequisite: FNCE 6330. Cross-listed with FNCE 6482. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CMDT 6802 - Foundations of Commodities

This course introduces students to the physical aspects of commodities and connects them to the financial markets in which commodities are traded. Fundamental concepts and terminology necessary for understanding commodity production, transportation, economics, financial analysis and marketing are described. Supply chains for several specific commodities are reviewed in detail, as examples of the production and market structure knowledge needed to be successful professional participants in commodity trading capacities. The course also serves a foundation for more focused education in the specific commodity sectors, as well as the applied use of marketing and financial trading concepts learned in other courses. Cross-listed with CMDT 4802 and FNCE 4802/6802. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Communication

COMM 1001 - Presentational Speaking

Theory and practice of presentational speaking in a variety of contexts to accomplish goals of asserting individuality, building community, securing adherence, discovering knowledge and belief, and offering perspectives. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 1011 - Fundamentals of Communication

Studies communication theory and application. Topics include communication models, interpersonal communication and the concept of self, nonverbal communication, message preparation and analysis, and decision making. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS3. **Semester Hours:** 3 to 3

COMM 1021 - Introduction To Media Studies

Explores the role of contemporary media in shaping our sense of ourselves and our world. The class surveys a broad array of critical approaches to understanding media. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS3. **Semester Hours:** 3 to 3

COMM 1041 - Interpersonal Communication

Focuses on the theory and development of interpersonal relationships. Issues covered include the communication process, self versus others, self-esteem, person perception, the attraction process, nonverbal communication, relationship development and family communication. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 1051 - Topics in Communication

Special classes for faculty-directed experiences examining communication issues and problems not generally covered in the curriculum. Max hours: 3 Credits. **Semester Hours:** 1 to 3

COMM 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

COMM 2000 - Persuasion

Examines influence and communication at individual, group, organizational and societal levels. A theoretical and applied analysis of persuasion, including examination of public opinion, individual attitudes, beliefs, values, sources, credibility, ethics, and certain message and audience variables. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 2020 - Communication, Citizenship, and Social Justice

Introduction to debates about, and means of practicing citizenship and social justice in America. Issues may include democratic participation, electoral politics, community activism, inequality, and environmental degradation. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 2045 - Workplace Communication

Focuses on theories and practices of leadership, teambuilding, relationship development and other workplace communication skills. The goal of the course is to help students develop advanced communication strategies for managing workplace challenges. Max hours: 3 Credits. **Semester Hours:** 2 to 3

COMM 2050 - Business and Professional Speaking

Development of communication skills often used in business and professional settings, with an emphasis on various kinds of presentations. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 2140 - Argumentation

Examines classical through contemporary theories, with special attention to types of propositions, burden of proof, analysis of issues, evidence, reasoning, fallacies, case construction, refutation and ethics. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 2800 - Technology for Workplace Communication

Provides students with skills necessary to apply computer technologies that are currently used in the workplace. Topics include the Internet and software applications in advanced work processing, presentations, spreadsheets and databases. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 2939 - Internship

Max hours: 3 Credits. **Semester Hours:** 1 to 3

COMM 3120 - Technical Communication

Develops students' abilities to prepare and communicate information in diverse media, including written, spoken, graphic and electronic. Technical communication focuses on communication used on the job as opposed to communication in academic settings. Students prepare communications in response to real-world cases and demonstrate the integration of communication through these different media. Prereq: ENGL 1020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 3231 - Famous U.S. Trials

This introduction to the history of the U.S. trial court system will contextualize significant trials in historic and cultural moments. The course will explore the roles of legal communication and mass communication in contemporary and subsequent representations of the trial. Cross-list HIST 3231. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 3271 - Communication and Diversity

Explores the complexities of communication across diverse identities such as race, ethnicity, and gender. Course attempts to seek solutions via sharing meaning and discovering common ground. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 3275 - Family Communication

Explores family communication processes in traditional and nontraditional families through examination of theories and research on the family. Topics include conflict, family secrets, decision-making, and practical guidelines for improved communication in families. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 3620 - Television Production

Introduces basic television production principles, practices, techniques and equipment. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 3650 - Media And Society

Approaches communication from a historical perspective, examining how major revolutions in communication technologies have influenced and impacted society over time. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 3680 - Mass Communication Skills

Instruction in writing and editing skills associated with the production of print, radio, television and film. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 3840 - Independent Study

Max hours: 6 Credits. **Semester Hours:** 1 to 3

COMM 3939 - Internship

Applies communication or technical communication concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

COMM 4000 - Communication and Sport

Examines the language and imagery used in sporting discourse. Considers how sports reflect and refract culture, both positively and negatively. Cross-list COMM 5000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4011 - Research Methods: Quantitative

Examines quantitative techniques used by researchers in communication, including laboratory research, field and survey research, content analysis, and interaction analysis. Objective of the course is to give students enough background to read critically in the social sciences. Cross-listed with COMM 5011. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4015 - Communication and Civility

Examines the central role of communication in the creation of a civil and humane society. The definition, understanding, and practices of civility in public discourse and in professional, social, and personal relationships are explored. Film, literature, music, and other texts are utilized to illustrate key concepts and serve as catalysts for discussion. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4020 - Feminist Perspectives on Communication

Introduces the communication theories of major feminist theorists such as Mary Daly, Bell Hooks, and Sonia Johnson, with a focus on how their theories challenge and transform current understandings of communication. Cross-listed with COMM 5020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4021 - Perspectives on Rhetoric

Introduces major theories of rhetoric from classical through contemporary times, including the theories of Aristotle, Cicero, I. A. Richards, Kenneth Burke, Michel Foucault and Jurgen Habermas. Cross-listed with COMM 5021. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4022 - Critical Analysis of Communication

Surveys research methods used to analyze messages from rhetorical and critical perspectives. Cross-listed with COMM 5022. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4031 - Perspectives on Communication

Overview of major theories and literature in the communication field that serve as the foundation for the study of communication. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4040 - Communication, Prisons, and Social Justice

Examines the U.S. prison-industrial complex and enables students to envision ways of reducing crime and improving democracy by engaging in community service. Note: This course fulfills the communication department's exit class requirement. Prereq: COMM 2020, or permission of instructor. Cross-listed with COMM 5040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4041 - Theories and Methods in Interpersonal Communication

Examines theories and methods used in interpersonal communication and the role of communication in the development, maintenance, and deterioration of personal relationships. Attention is also given to major types of personal relationships, such as marriage and friendship, and how communication reflects and determines the dynamics of those relationships. Cross-listed with COMM 5041. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4045 - Female-Male Friendships

Explores friendships between women and men across the life cycle and the role of communication in those friendships. Topics include how such friendships impact self-concepts, advantages of female-male friendships, and barriers to female-male friendships. Cross-listed with COMM 5045. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4111 - Theories of Leadership

Examines research and applications related to the major theories of leadership. Emphasizes a critical reading of research confirming or denying various theories, and stresses the historical development of theories of leadership behavior and characteristics. Cross-listed with COMM 5111. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4120 - Writing Technical Reports

Studies various aspects of technical reports, including the theoretical applications behind making reports persuasive. Topics include informal and formal reports, progress reports, feasibility reports, empirical reports and recommendation reports. Prereq: COMM 3120. Cross-listed with COMM 5120. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4130 - User Interface Design and Analysis

Introduces graphical user interface design through analysis of empirical studies and hands-on application of human-computer interaction principles. Prereq: COMM 3120. Cross-listed with COMM 5130. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4151 - Group Communication

Analysis of the impact of small groups on individual behavior in social and task settings. Focuses on the dynamics of small groups, including leadership, roles, norms, goals and cohesion. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4210 - Communication and Discourse Analysis

Examines the structural and functional factors affecting the formation, comprehension, and retention of speech. Topics include language norms, speech acts, implicature and meaning, and the analysis of conversations. Cross-listed with COMM 5210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4212 - Software Documentation

Covers all aspects of software documentation, including project management, audience/use analysis, document design, organization, writing and interviewing techniques, editing, production, and diagnostic and usability testing. Prereq: Previous technical writing course, industry experience, or permission of instructor. Cross-listed with COMM 5212. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4215 - Ethics in Communication

Designed to help students identify and address the daily ethical challenges that occur in private, social, and professional contexts. Focus is on recognizing, analyzing, and resolving real-world ethical dilemmas using diverse approaches to ethical decision making. Cross-listed with COMM 5215. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4220 - Human Information Processing

Considers the formation of attitude, mental set, and perception as a response to discourse organization. Examines several methods to analyze human responses to linguistic, graphic, and mathematical/statistical representations. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4221 - Research Methods: Qualitative

Applies qualitative research methods to human communication practices, including the processes of designing qualitative studies, collecting data, analyzing and interpreting data, and reporting results. Cross-listed with COMM 5221. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4222 - Professional Communication

Provides strategies for analyzing workplace situations, constructing clear and persuasive arguments and narratives to bring about positive change in organizations, and assessing the effectiveness of communication. Prereq: COMM 3120, industry experience or permission of instructor. Cross-listed with COMM 5222. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4230 - Nonverbal Communication

Studies nonverbal behaviors that accompany or replace verbal communication, including macrospace, proxemics, kinesics, facial expression, eye contact, gestures, vocal characteristics, touch and personal adornment. Cross-listed with COMM 5230. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4240 - Organizational Communication

Relationships among such communication factors as flow, media, channel, diversity, information delivery and organization functioning, morale, and productivity. Cross-listed with COMM 5240. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4245 - Advanced Organizational Communication

Explores critical theoretical perspectives on communication in complex organizations, including issues and standpoints that have not been included in mainstream theory and research. Analyzes assumptions and pragmatic solutions associated with these theories. Cross-listed with COMM 5245. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4255 - Negotiations and Bargaining

Designed to allow students to study theories and apply concepts that explain the influences of various forms of mediating, reducing, and/or resolving conflict among individuals, groups, organizations, nations and cultures. Cross-listed with COMM 5255. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4260 - Communication and Conflict

Studies the influence of communication on intrapersonal, interpersonal, intragroup and intergroup conflict situations. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4262 - Mediation

Explores theoretical and practical aspects of mediation in a variety of contexts ranging from divorce mediation to labor-management disputes. Cross-listed with COMM 5262. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4265 - Gender and Communication

Explores the relationship between gender and communication, including how language treats women and men differently and verbal and nonverbal differences in women's and men's communication. Cross-listed with COMM 5265. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4268 - Communication and Diversity in U.S. History

Explores issues of diversity and community in the construction of U.S. culture. Emphasis on legal and historical texts that codify or challenge majoritarian notions of difference and systems of social control. Cross-listed with COMM 5268. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4270 - Intercultural Communication

Examines the philosophy, process, problems, and potentials unique to communication across cultural boundaries. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4280 - Communication and Change

Examines the role of communication in change processes of various kinds, including social change and diffusion of innovations. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4282 - Environmental Communication

Studies the communication processes involved in policies and practices affecting natural and human environments. Cross-listed with COMM 5282. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4285 - Communication Processes in Technology Transfer

Surveys research addressing technology transfer processes. Students examine and critique models of technology transfers and the role of individuals, artifacts, and small teams in technology transfers. Cross-listed with COMM 5285. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4290 - Web Design

Covers writing web pages in HTML, beginning Photoshop, style sheets, bitmapped animations, issues of usable layout, navigability, structure, typography, and color on the web. Projects require students to develop static web sites. Prereq: COMM 3120 or permission of instructor. Cross-listed with COMM 5290. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4300 - Multimedia Authoring

Analysis and evaluation of components of multimedia development and hands-on instruction featuring computer animation for advertising, training, and educational projects. Cross-listed with COMM 5300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4310 - Advanced Multimedia Authoring

Builds upon the fundamentals of multimedia authoring to develop advanced skills and theory. Students concentrate on developing advanced multimedia applications for education or industry. Prereq: COMM 4300, COMM 5300, previous multimedia experience, or permission of instructor. Cross-listed with COMM 5310. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4320 - Content Management

Centers on large-scale documentation development using XML. Students learn "Single-source" documentation management, a cost-effective way to centralize information and extend it across different platforms and different audiences. Prereq: COMM 4290, COMM 5290 or permission of instructor. Cross-listed with COMM 5320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4330 - Dynamic Web Design Workshop

Introduces large-scale website development using XML and PHP. Students learn "Single-source" documentation management, a cost-effective way to centralize information and extend it across different platforms (wireless, browsers, help files) and audiences (specialists, managers, customers). Note: Independently taught modules may be taken separately or concurrently. Prereq: COMM 4290, 5290 or knowledge of HTML, CSS, and Photoshop. Cross-listed with COMM 5330. Max hours: 3 Credits. **Semester Hours:** 1 to 1

COMM 4340 - Advanced Web Design

Focuses on user interface design for the World Wide Web using Dynamic HTML, pre-designed CGI scripts downloadable from the Web, animated vector and bitmapped graphics. Note: continuation of COMM 4290, 5290. Prereq: COMM 4290, 5290 or knowledge of HTML, CSS, and Photoshop. Cross-listed with COMM 5340. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4410 - Science Writing

An intensive practice in composing for diverse science publication genres and venues and practice in analyzing the ways consumers obtain and process information about scientific developments and controversies. Prereq: at least one writing or composition course at the 3000 level or above. Cross-listed with COMM 5410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4500 - Health Communication

Examines the role of communication in a wide range of health contexts. Topics include cultural constructions of health and illness, public health communication campaigns, client-provider interactions, telemedicine, community-based health programs and medical journalism. Cross-listed with COMM 5500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4510 - Usability Testing

Teaches students how to evaluate technical documentation testing needs, evaluate testing options for their feasibility and costs/benefits, design and carry out a usability testing plan, evaluate and write up test results for actual client documents and products. Prereq: COMM 3120 or permission of instructor. Cross-listed with COMM 5510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4525 - Health Communication and Community

This course provides a broad knowledge base about health disparities and culturally competent frameworks in healthcare by enabling students to engage in service-learning projects with local health-related community groups. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4550 - Rhetorics of Medicine & Health

This senior seminar/bridge class investigates persuasion in contemporary medicine/health care from clinical settings through mass media. Case studies explore contagion, health policy, the body, death, and biopower. The course requires extensive discussion of readings and an original research project. Cross-listed with COMM 5550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4600 - Media Theory

Surveys a broad array of critical and interpretive approaches to the study of media. Approaches include political economic, semiotic, rhetorical, psychoanalytic, feminist, and cultural. Cross-listed with COMM 5600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4601 - You Are What You Eat: Food as Communication

Because food provides a communication channel for much of who we are as individuals, as a community and as a society this course analyzes food as a form of communication. Cross-listed with COMM 5601. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4605 - Rhetorical Theory for Technical Communication

Examines the principles of rhetorical theory and its relationship to technical communication. Students analyze traditional and contemporary rhetorical theories and apply them to contemporary issues of document design. Prereq: COMM 3120, COMM 3650, COMM 4021, COMM 4120, COMM 4200, COMM 4240, COMM 4215, or permission of instructor. Cross-listed with COMM 5605. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4620 - Health Risk Communication

Acquaints students with contemporary theory, research, and practice in health risk communication. Prereq: COMM 3120, COMM 4011, COMM 4200, COMM 4500, or permission of instructor. Cross-listed with COMM 5620, HBSC 5620, ENVS 5620, and PBHL 4620. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4621 - Visual Communication

Explores the social, cultural, and behavioral effects of visual images in a variety of contexts, including graffiti, film, advertising, art and architecture. Cross-listed with COMM 5621. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4635 - Principles of Public Relations

Introduces theory and practice in the field of public relations, including topics such as effects upon society, public opinion, target audiences, adaptation to the media, uses, laws and ethics. Cross-listed with COMM 5635. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4640 - Advanced Public Relations

Examines key public relations practices in private, not-for-profit and public sectors. Strategic planning processes, research methods, evaluation, reports, and collateral development are addressed, with an emphasis on the intersection of theory and practice. Prereq: COMM 4635. Cross-listed with COMM 5640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4665 - Principles of Advertising

Provides a fundamental understanding and appreciation of advertising in today's global society, including consumer motivation, buying behavior, research, creative development and media planning. Cross-listed with COMM 5665. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4680 - Mass Media Law And Policy

Covers issues of mass communication and the law and ethics, including issues of the First and Fourth Amendments, communication regulations, intellectual property, public access and obscenity. Cross-listed with COMM 5680. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4681 - Communication Issues in Trial Court Practices and Processes

Introduces students to communication and language research aimed at improving the fairness, reliability, and validity of court and judicial processes, including lawyer-client interviews, interrogatories, jury selection, jury instructions, witness examination, and the use of language evidence in court. Prereq: ENGL 2030 or equivalent. Cross-listed with COMM 5681. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4682 - Political Communication

Examines the communication processes involved in mediated political events. Topics include the stages of the campaign process, media coverage of the political campaign process, and literacy skills needed to understand political advertising. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4683 - Media in the Courtroom

Critically examines the complex issues raised by media involvement in criminal court cases, including effects of pre-trial publicity, cameras in the courtroom, participants who argue their stories to the media, the CSI effect, and other phenomena relevant to media influence. Max hours: 6 Credits. **Semester Hours:** 3 to 3

COMM 4688 - Senior Seminar: Transitioning from College to Career

Synthesis experience for communication majors designed to prepare students to enter the job market and to integrate and reflect on their experience in communication. Prereq: Communication major status. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4690 - Applied Communication

Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4700 - Writing Practicum

Methods course focused on strategies of research design and writing for undergraduate students working on theses for Latin honors and for master's students seeking to complete a major research paper or thesis. Cross-listed with COMM 5700. To be eligible to enroll in this course you must be a senior majoring in communication, have a cumulative GPA of 3.0 and have a GPA in your communication coursework of 3.5. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4710 - Topics in Communication

Special classes for faculty-directed experiences examining communication issues and problems not generally covered in the curriculum. Cross-listed with COMM 5710. Max hours: 15 Credits. **Semester Hours:** 1 to 3

COMM 4720 - Dynamics of Global Communication

Explores the word "global" in a communication context by analyzing the relationships between world media, international events, economics and the geopolitics of culture. This analysis is supported by the application of mass, human and cultural communication theory. Cross-listed with COMM 5720. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4750 - Legal Reasoning and Writing

Introduces the fundamentals of legal reasoning and legal argumentation through intensive class discussion, formal debate and writing. Attention is given to the relationship between case and statutory law and their application in trial and appeals courts in the United States. Prereq: ENGL 1020, 2030, and any one 3000-level English/writing course or COMM 3120. Cross-listed with COMM 5750, PSCI 4757, 5747. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4755 - Universal Internet Usability

Beginning web design course that introduces students to writing websites for non-native English speakers and for users with disabilities. Students learn HTML, style sheets, basic Photoshop, layout, navigability, and usability for these groups. Prereq: COMM 3120 (or equivalent) or permission of instructor. Cross-listed with COMM 5755. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4760 - New Media

Analysis and discussion of the nature, use, and effects of computer-mediated communication in interpersonal, work, educational, societal and international contexts. Focus is on the social aspects of computer-mediated communication rather than on specific software or hardware technologies. Prereq: COMM 2800 or permission of instructor. Cross-listed with COMM 5760. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4805 - Graphics

Instructs technical communicators in designing information that communicates visually as well as verbally. Students focus on document design; illustration; information retrieval; desktop publishing using Quark Xpress; and working with typesetters, printers and graphic artists. Prereq: COMM 3120. Cross-listed with COMM 5805. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4830 - Visual Principles in Technical Communication

Explores the rhetoric and usability of typography and text displays, tables and charts, data graphics, technical pictorials, page and screen layout, and other visual elements of technical communication. The course focuses on principles and research, not software training. Prereq: COMM 3120. Cross-listed with COMM 5830. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4840 - Independent Study

Prereq: Permission of instructor. Max hours: 12 Credits. **Semester Hours:** 1 to 3

COMM 4995 - Travel Study

Students study various topics in a foreign country led by a CU-Denver instructor; register through the Office of International Education. Cross-listed with COMM 5995. Max hours: 15 Credits. **Semester Hours:** 1 to 15

COMM 5000 - Communication and Sport

Examines the language and imagery used in sporting discourse. Considers how sports reflect and refract culture, both positively and negatively. Cross-list COMM 4000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5011 - Research Methods: Quantitative

Examines quantitative techniques used by researchers in communication, including laboratory research, field and survey research, content analysis, and interaction analysis. Objective of the course is to give students enough background to read critically in the social sciences. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4011. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5015 - Communication and Civility

Examines the central role of communication in the creation and humane society. The definition, understanding, and practices of civility in public discourse and in professional, social, and personal relationships are explored. Film, literature, music, and other texts are utilized to illustrate key concepts and serve as catalysts for discussion. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5020 - Feminist Perspectives on Communication

Introduces the communication theories of major feminist theorists such as Mary Daly, Bell Hooks, and Sonia Johnson, with a focus on how their theories challenge and transform current understandings of communication. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5021 - Perspectives on Rhetoric

Introduces major theories of rhetoric from classical through contemporary times, including the theories of Aristotle, Cicero, I. A. Richards, Kenneth Burke, Michel Foucault and Jurgen Habermas. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4021. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5022 - Critical Analysis of Communication

Surveys research methods used to analyze messages from rhetorical and critical perspectives. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4022. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5025 - Philosophy of Communication

Surveys critical, epistemological, social, scientific, pedagogical, philosophical, and legal perspectives on communication, exploring the constitutive relationship between communication and knowledge formation. Students engage communication scholarship as a social activity and become acclimated to the function of a discipline in creating a professional identity. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5040 - Communication, Prisons, and Social Justice

Examines the U.S. prison-industrial complex and enables students to envision ways of reducing crime and improving democracy by engaging in community service. Note: This course fulfills the communication department's exit class requirement. Prereq: COMM 2020, or permission of instructor. Cross-listed with COMM 4040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5041 - Theories and Methods in Interpersonal Communication

Examines theories and methods used in interpersonal communication and the role of communication in the development, maintenance, and deterioration of personal relationships. Attention is also given to major types of personal relationships, such as marriage and friendship, and how communication reflects and determines the dynamics of those relationships. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4041. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5045 - Female-Male Friendships

Explores friendships between women and men across the life cycle and the role of communication in those friendships. Topics include how such friendships impact self-concepts, advantages of female-male friendships, and barriers to female-male friendships. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4045. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5111 - Theories of Leadership

Examines research and applications related to the major theories of leadership. Emphasizes a critical reading of research confirming or denying various theories, and stresses the historical development of theories of leadership behavior and characteristics. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4111. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5120 - Writing Technical Reports

Studies various aspects of technical reports, including the theoretical applications behind making reports persuasive. Topics include informal and formal reports, progress reports, feasibility reports, empirical reports and recommendation reports. Prereq: COMM 5405. Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4120. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5130 - User Interface Design and Analysis

Introduces graphical user interface design through analysis of empirical studies and hands-on application of human-computer interaction principles. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4130. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5140 - Argumentation

Examines classical through contemporary theories, with special attention to types of propositions, burden of proof, analysis of issues, evidence, reasoning, fallacies, case constructions, refutation and ethics. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5151 - Group Communication

Analysis of the impact of small groups on individual behavior in social and task settings. Focuses on the dynamics of small groups, including leadership, roles, norms, goals and cohesion. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5205 - Empirical Research Methods for Communication

Provides exposure to empirical research methods involved in communication research: surveys, experimental design, research reviews and meta-analysis, case study, ethnography, textual analysis, process tracing, others. Basic quantitative data analysis methods (correlation, chi-square, t-tests, ANOVA) are introduced. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5210 - Communication and Discourse Analysis

Examines the structural and functional factors affecting the formation, comprehension, and retention of speech. Topics include language norms, speech acts, implicature and meaning, and the analysis of conversations. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5212 - Software Documentation

Covers all aspects of software documentation, including project management, audience/use analysis, document design, organization, writing and interviewing techniques, editing, production, and diagnostic and usability testing. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Previous technical writing course or industry experience. Cross-listed with COMM 4212. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5215 - Ethics in Communication

Designed to help students identify and address the daily ethical challenges that occur in private, social, and professional contexts. Focus is on recognizing, analyzing, and resolving real-world ethical dilemmas using diverse approaches to ethical decision making. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4215. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5220 - Human Information Processing

Examines the formation of attitude, mental set, and perception as a response to discourse organization. Examines several methods to analyze human responses to linguistic, graphic, and mathematical or statistical representations. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5221 - Research Methods: Qualitative

Applies qualitative research methods to human communication practices, including the processes of designing qualitative studies, collecting data, analyzing and interpreting data, and reporting results. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4221. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5222 - Professional Communication

Provides strategies for analyzing workplace situations, constructing clear and persuasive arguments and narratives to bring about positive change in organizations, and assessing the effectiveness of communication. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4222. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5230 - Nonverbal Communication

Studies nonverbal behaviors that accompany or replace verbal communication, including macrospace, proxemics, kinesics, facial expression, eye contact, gestures, vocal characteristics, touch and personal adornment. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4230. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5240 - Organizational Communication

Relationships among such communication factors as flow, media, channel, diversity, information delivery and organization functioning, morale, and productivity. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4240. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5245 - Advanced Organizational Communication

Explores critical theoretical perspectives on communication in complex organizations, including issues and standpoints that have not been included in mainstream theory and research. Analyzes assumptions and pragmatic solutions associated with these theories. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4245. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5250 - Difference Matters and Organizational Communication

Explores theoretical and practical issues regarding relationships between communication processes in contemporary U.S. organizations and socially constructed aspects of individuals' identity (e.g., race, gender, sexual orientation, class, ability and age). Prereq: Undergraduates with senior standing may enroll with permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5255 - Negotiations and Bargaining

Designed to allow students to study theories and apply concepts that explain the influences of various forms of mediating, reducing, and/or resolving conflict among individuals, groups, organizations, nations and cultures. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4255. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5260 - Communication and Conflict

Studies the influence of communication on intrapersonal, interpersonal, intragroup and intergroup conflict situations. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5262 - Mediation

Explores theoretical and practical aspects of mediation in a variety of contexts ranging from divorce mediation to labor-management disputes. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4262. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5265 - Gender and Communication

Explores the relationship between gender and communication, including how language treats women and men differently and verbal and nonverbal differences in women's and men's communication. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4265. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5268 - Communication and Diversity in U.S. History

Explores issues of diversity and community in the construction of U.S. culture. Emphasis on legal and historical texts that codify or challenge majoritarian notions of difference and systems of social control. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4268. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5270 - Intercultural Communication

Examines the philosophy, process, problems, and potentials unique to communication across cultural boundaries. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5280 - Communication and Change

Examines the role of communication in change processes of various kinds, including social change and diffusion of innovations. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5282 - Environmental Communication

Studies the communication processes involved in policies and practices affecting natural and human environments. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4282. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5285 - Communication Processes in Technology Transfer

Surveys research addressing technology transfer processes. Students examine and critique models of technology transfers and the role of individuals, artifacts, and small teams in technology transfers. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4285. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5290 - Web Design

Covers writing web pages in HTML, beginning Photoshop, style sheets, bitmapped animations, issues of usable layout, navigability, structure, typography, and color on the web. Projects require students to develop static web sites. Prereq: COMM 5405, COMM 5505, COMM 5805. Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4290. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5300 - Multimedia Authoring

Analysis and evaluation of components of multimedia development and hands-on instruction featuring computer animation for advertising, training, and educational projects. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5310 - Advanced Multimedia Authoring

Builds upon the fundamentals of multimedia authoring to develop advanced skills and theory. Students concentrate on developing advanced multimedia applications for education or industry. Prereq: COMM 5300, COMM 4300, previous multimedia experience. Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4310. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5320 - Content Management

Centers on large-scale documentation development using XML. Students learn "Single-source" documentation management, a cost-effective way to centralize information and extend it across different platforms and different audiences. Prereq: COMM 5290, COMM 4290. Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5330 - Dynamic Web Design Workshop

Introduces large-scale website development using XML and PHP. Students learn "Single-source" documentation management, a cost-effective way to centralize information and extend it across different platforms (wireless, browsers, help files) and audiences (specialists, managers, customers). Note: Independently taught modules may be taken separately or concurrently. Prereq: COMM 5290, COMM 4290 or knowledge of HTML, CSS, and Photoshop. Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4330. Max hours: 3 Credits. **Semester Hours:** 1 to 1

COMM 5340 - Advanced Web Design

Focuses on user interface design for the World Wide Web using Dynamic HTML, pre-designed CGI scripts downloadable from the Web, animated vector and bitmapped graphics. Note: continuation of COMM 5290, 4290. Prereq: COMM 5290, COMM 4290 or knowledge of HTML, and CSS, and Photoshop. Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4340. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5405 - Technical Communication: Writing

Provides intensive practice in technical writing using simulations of professional writing situations. Students analyze diverse audience and communication problems, including those with challenging technical content. Special emphasis is placed on the document- design process and techniques of self-editing. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5410 - Science Writing

An intensive practice in composing for diverse science publication genres and venues and practice in analyzing the ways consumers obtain and process information about scientific developments and controversies. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5500 - Health Communication

Examines the role of communication in a wide range of health contexts. Topics include cultural constructions of health and illness, public health communication campaigns, client-provider interactions, telemedicine, community-based health programs and medical journalism. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5505 - Technical Communication: Editing

Provides intensive practice in editing technical documents. Emphasis is on contextual editing (i.e., editing parts of a document as they relate to the whole document and the communication purpose). Students discuss the editor's role, review editing strategies, and examine methods of increasing document usability and readability. Prereq: COMM 5405. Undergraduates with senior standing may enroll with permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5510 - Usability Testing

Teaches students how to evaluate technical documentation testing needs, evaluate testing options for their feasibility and costs/benefits, design and carry out a usability testing plan, evaluate and write up test results for actual client documents and products. Prereq: COMM 5405. Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5550 - Rhetorics of Medicine & Health

This senior seminar/bridge class investigates persuasion in contemporary medicine/health care from clinical settings through mass media. Case studies explore contagion, health policy, the body, death, and biopower. The course requires extensive discussion of readings and an original research project. Cross-listed with COMM 4550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5600 - Media Theory

Surveys a broad array of critical and interpretive approaches to the study of media. Approaches include political economic, semiotic, rhetorical, psychoanalytic, feminist, and cultural. Cross-listed with COMM 4600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5601 - You Are What You Eat: Food as Communication

Because food provides a communication channel for much of who we are as individuals, as a community and as a society this course analyzes food as a form of communication. Cross-listed with COMM 4601. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5605 - Rhetorical Theory for Technical Communication

Examines the principles of rhetorical theory and its relationship to technical communication. Students analyze traditional and contemporary rhetorical theories and apply them to contemporary issues of document design. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4605. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5620 - Health Risk Communication

Acquaints students with contemporary theory, research, and practice in health risk communication. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4620, HBSC 5620, ENVS 5620, and PBHL 4620. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5621 - Visual Communication

Explores the social, cultural, and behavioral effects of visual images in a variety of contexts, including graffiti, film, advertising, art and architecture. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4621. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5635 - Principles of Public Relations

Introduces theory and practice in the field of public relations, including topics such as effects upon society, public opinion, target audiences, adaptation to the media, uses, laws and ethics. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4635. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5640 - Advanced Public Relations

Examines key public relations practices in private, not-for-profit and public sectors. Strategic planning processes, research methods, evaluation, reports, and collateral development are addressed, with an emphasis on the intersection of theory and practice. Prereq: COMM 4635 or COMM 5635. Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5665 - Principles of Advertising

Provides a fundamental understanding and appreciation of advertising in today's global society, including consumer motivation, buying behavior, research, creative development and media planning. Prereq: Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4665. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5680 - Mass Communication Law and Policy

Covers issues of mass communication and the law and ethics, including issues of the First and Fourth Amendments, communication regulations, intellectual property, public access and obscenity. Prereq: Undergraduates with senior standing may enroll by permission of instructor. Cross-listed with COMM 4680. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5681 - Communication Issues in Trial Court Practices and Processes

Introduces students to communication and language research aimed at improving the fairness, reliability, and validity of court and judicial processes, including lawyer-client interviews, interrogatories, jury selection, jury instructions, witness examination, and the use of language evidence in court. Prereq: Undergraduates with senior standing may enroll by permission of instructor. Cross-listed with COMM 4681. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5682 - Political Communication

Examines the communication processes involved in mediated political events. Topics include the stages of the campaign process, media coverage of the political campaign process, and literacy skills needed to understand political advertising. Prereq: Undergraduates with senior standing may enroll by permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5700 - Writing Practicum

Methods course focused on strategies of research design and writing for undergraduate students working on theses for Latin honors and for master's students seeking to complete a major research paper or thesis. Cross-listed with COMM 4700. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5710 - Topics in Communication

Special classes for faculty-directed experiences examining communication issues and problems not generally covered in the curriculum. Prereq: Undergraduates with senior standing may enroll by permission of instructor. Cross-listed with COMM 4710. Max hours: 15 Credits. **Semester Hours:** 1 to 3

COMM 5720 - Dynamics Global Communication

Explores the word "global" in a communication context by analyzing the relationships between world media, international events, economics and the geopolitics of culture. This analysis is supported by the application of mass, human and cultural communication theory. Cross-list COMM 4720. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5750 - Legal Reasoning and Writing

Introduces the fundamentals of legal reasoning and legal argumentation through intensive class discussion, formal debate and writing. Attention is given to the relationship between case and statutory law and their application in trial and appeals courts in the United States. Prereq: Undergraduates with senior standing may enroll by permission of instructor. Cross-listed with COMM 4750, PSCI 4757, 5747. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5755 - Universal Internet Usability

Beginning web design course that introduces students to writing websites for non-native English speakers and for users with disabilities. Students learn HTML, style sheets, basic Photoshop, layout, navigability, and usability for these groups. Prereq: COMM 3120 (or equivalent). Undergraduates with senior standing may enroll by permission of instructor. Cross-listed with COMM 4755. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5760 - New Media

Analysis and discussion of the nature, use, and effects of computer-mediated communication in interpersonal, work, educational, societal and international contexts. Focus is on the social aspects of computer-mediated communication rather than on specific software or hardware technologies. Prereq: Undergraduates with senior standing may enroll by permission of instructor. Cross-listed with COMM 4760. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5805 - Graphics

Instructs technical communicators in designing information that communicates visually as well as verbally. Students focus on document design; illustration; information retrieval; desktop publishing using Quark Xpress; and working with typesetters, printers and graphic artists. Prereq: COMM 5405. Undergraduates with senior standing may enroll by permission of instructor. Cross-listed with COMM 4805. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5830 - Visual Principles in Technical Communication

Explores the rhetoric and usability of typography and text displays, tables and charts, data graphics, technical pictorials, page and screen layout, and other visual elements of technical communication. The course focuses on principles and research, not software training. Prereq: COMM 5405. Undergraduates with senior standing may enroll by permission of instructor. Cross-listed with COMM 4830. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5840 - Independent Study

Prereq: Permission of instructor. Max hours: 9 Credits. **Semester Hours:** 1 to 3

COMM 5939 - Internship

Applies communication or technical communication concepts and skills in supervised employment situations. Max hours: 9 Credits. **Semester Hours:** 1 to 6

COMM 5995 - Travel Study

Students study various topics in a foreign country led by a CU-Denver instructor; register through the Office of International Education. Prereq: Undergraduates with senior standing may enroll by permission of instructor. Cross-listed with COMM 4995. Max hours: 15 Credits. **Semester Hours:** 1 to 15

COMM 6013 - Introduction to Graduate Work in Communication

Designed to familiarize students with the philosophical, ideological, and methodological bases of study in communication. Note: Required of all graduate students in M.A. program in communication. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 6200 - Communication and Critical Theory

This course offers students an introduction to the intellectual history and current status of the relationship between communication and critical theory; canonical thinkers (Marx, Freud, Adorno, etc.) are coupled with contemporary communication scholars who work on questions of social justice. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 6300 - Educational Perspectives on Communication

Explores various relationships between education and communication. Note: May repeat this course up to three times with differing topics. Max hours: 9 Credits. **Semester Hours:** 3 to 3

COMM 6400 - Communication, Globalization and Social Justice

This course offers students an introduction to the intersections of communication as a discipline, globalization as a world process, and social justice as a contested, ever-evolving goal of activists. Max Hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 6410 - Usability Test Design Project

Students collaborate with faculty and client to design and implement a usability test and evaluate its results, focusing upon an actual computer interface, or instructional documentation (in online form, hard copy, or both). Prereq: COMM 5510 and COMM 6205. Max hours: 6 Credits.

Semester Hours: 3 to 6

COMM 6950 - Master's Thesis

Max hours: 6 Credits. **Semester Hours:** 1 to 6

COMM 6960 - Master's Project

Max hours: 3 Credits. **Semester Hours:** 1 to 3

Computer Science

CSCI 1350 - Introduction to Computing in Society

This is an introductory course for individuals who would like to learn about the field of computer science, how modern computing is affecting society, and the basics of computer programming. We will explore how computing has changed society, how intertwined in our daily lives computer programs have become, and how these programs are created. We will explore these topics while learning the basics of computer programming with the Java programming language. Prereq: High School Algebra. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 1410 - Fundamentals of Computing

First course in computing for those who will take additional computer science courses. Covers the capabilities of a computer, the elements of the computer language C++, and basic techniques for solving problems using a computer. Coreq: CSCI 1411. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 1411 - Fundamentals of Computing Laboratory

This laboratory is taken with CSCI 1410 and will provide students with additional help with problem solving and computer exercises to compliment the course material covered in CSCI 1410. Prereq: Freshman status. Coreq: CSCI 1410. Max hours: 1 Credit. **Semester Hours:** 1 to 1

CSCI 1510 - Logic Design

The design and analysis of combinational and sequential logic circuits. Topics include binary and hexadecimal number systems, Boolean algebra and Boolean function minimization, and algorithmic state machines. Lecture/lab includes experiments with computer-aided design tools. Students must be Calculus I ready in order to take the course. Prereq: MATH 1120 or 1130 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 1800 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

CSCI 2132 - Circuits and Electronics

This course is designed to serve as the basic course in CSE curriculum for second year bachelor students. It introduces the fundamentals of the analog and digit circuit abstraction and applications. Topics include: resistive elements, networks, sources, switches, MOS transistors, digital abstraction, amplifiers, energy storage elements. A web-based laboratory will allow students to have hands-on experiments. Prereq: MATH 2411, PHYS 2331, and CSCI 1510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 2312 - Intermediate Programming

Programming topics in the C++ language. The emphasis is on problem solving using object oriented and Generic Programming. Topics include advanced I/O, classes, inheritance, polymorphism and virtual functions, abstract base classes, exception handling, templates, and the Standard Template Library. Prereq: CSCI 1410 and CSCI 1411. Coreq: CSCI 2421. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 2421 - Data Structures and Program Design

Topics include a first look at an algorithm, data structures, abstract data types, and basic techniques such as sorting, searching, and recursion. Programming exercises are assigned through the semester. Prereq: ENGL 1020, CSCI 1410 and 1411. Coreq: CSCI 2312. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 2511 - Discrete Structures

Covers the fundamentals of discrete mathematics, including: logic, sets, functions, asymptotics, mathematical reasoning, induction, combinatorics, discrete probability, relations and graphs. Emphasis on how discrete mathematics applies to computer science in general and algorithm analysis in particular. Prereq: MATH 1401. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 2525 - Assembly Language and Computer Organization

Topics include computer architecture, program execution at the hardware level, programming in assembly language, the assembly process, hardware support of some high-level language features, and a program's interface to the operating system. Programming exercises are assigned in this course. These exercises involve the use of specific hardware in designated laboratories. Prereq: CSCI 1410 and 1510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 2571 - Fundamentals of UNIX

Introduces the UNIX operating system and its family of related utility programs. History and overview, versions, and common features. File operations, utilities, shells, editors, filters and data manipulation. Shell programming communications and networking, windowing environments, mail and Internet. Programming tools. Simple system administration. Credit will not count toward BSCSE degree. Prereq: Familiarity with operating systems and/or a programming course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 2800 - Special Topics

Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 2930 - Practical System Administration

Introduces students to essential system administration topics including, but not limited to, IT design and configuration methodologies, desktop support, building and configuring production level servers, network technologies and troubleshooting, security, virtualization, storage, and server operating systems. Prereq: CSCI 1410 or an equivalent introductory computer programming course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 3287 - Database System Concepts

Introduces database design, database management systems, and the SQL standard database language. Includes data modeling techniques, conceptual database design, theory of object-relational and relational databases, relational algebra, relational calculus, normalization and database integrity. Prereq: CSCI 2421. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 3320 - Advanced Programming

A continuation of programming and problem solving methodologies. The focus will be on generic programming with C++ templates and the standard template library, and will be supplemented with object-oriented programming and top-down design. Prereq: CSCI 2421. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 3412 - Algorithms

Design and analysis of algorithms. Asymptotic analysis as a means of evaluating algorithm efficiency. The application of induction and other mathematical techniques for proving the correctness of an algorithm. Data structures for simplifying algorithm design, such as hash tables, heaps and search trees. Elementary graph algorithms. Assignments include written work and programming projects. Prereq: CSCI 2421 and CSCI 2511. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 3415 - Principles of Programming Languages

Introduces programming language design concepts and implementation issues. Includes language concepts such as control structures and data types, formal language specification techniques, and syntactic and semantic implementation issues. Prereq: CSCI 2421 and 2525. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 3453 - Operating System Concepts

Covers the principles of computer operating systems and the essential components of an operating system. Topics include: I/O devices, file systems, CPU scheduling and memory management. Prereq: CSCI 3412 (Algorithm). Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 3508 - Introduction to Software Engineering

Introduces principles and practices of software engineering: software life-cycle models, requirements engineering, analysis and design tools, human factors risk management, program certification, project management and intellectual property rights. Prereq: ENGL 1020 and CSCI 3412. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 3511 - Hardware-Software Interface

Hardware and software techniques needed to control and program device interfaces. Input and output devices, computer peripherals, device drivers and interfaces are introduced. Specific programmable devices are used in class projects. Prereq: CSCI 2525. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 3560 - Probability and Computing

Events and probability. Discrete random variables and expectation. Moments and deviations. Chernoff bounds. The probabilistic method. Markov chains and random walks. Continuous distributions and the Poisson process. Entropy, randomness and information. Randomized algorithms. Statistical inference. Prereq: MATH 2411 and CSCI 2511. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 3800 - Special Topics

Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 3840 - Independent Study: CSCI

Max hours: 9 Credits. **Semester Hours:** 1 to 3

CSCI 3920 - Java Applications

This course introduces students to core Java, with a focus on design and implementation of GUI's using JFrames and event driven programming. Topics include Java Collections Framework, java.io package, and topdown design of solutions to engineering applications.

Prereq: CSCI 3320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 3963 - Network Structures

This interdisciplinary course examines how the technological, social and economic worlds are connected and how the study of networks sheds light on these connections. Topics include: how opinions spread through society; the robustness and fragility of financial networks; the technology and economics of Web information and on-line communities. Prereq: MATH 2411.

Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4034 - Theoretical Foundations of Computer Science

Introduces abstract models for computation, formal languages and machines. Topics include: automata theory, formal languages, grammars and Turing machines. Prereq: CSCI 3412. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4202 - Introduction to Artificial Intelligence

Topics include heuristic search, games playing algorithms, application of predicate calculus to AI, introduction to planning, application of formal grammars to AI. Prereq: CSCI 3412. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4287 - Embedded Systems Programming

Embedded Systems Programming happens across a spectrum of Domains. Embedded Systems Programming in the Small is characterized by the creation of small applications in high volumes. Embedded Systems Programming in the Large is characterized by the creation of medium to large applications in one-off or low volumes using specialized Operating Systems such as Real-time Operating Systems. Students will current languages, and are expected to have basic Operating Systems understanding. Prereq: CSCI 3453 Operating Systems Concepts. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4408 - Applied Graph Theory

Introduces discrete structures applications of graph theory to computer science, engineering and operations research. Topics include connectivity, coloring, trees, Euler and Hamiltonian paths and circuits. Matching and covering problems, shortest route and network flows. Prereq: MATH 3000 or CSCI 2511. Cross-listed with MATH 4408. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4411 - Computational Geometry

Many practical and aesthetic algorithmic problems have their roots in geometry. Applications abound in the areas of computer graphics, robotics, computer-aided design, and geographic information systems, for example. A selection of topics from convex hull, art gallery problems, ray tracing, point location, motion planning, segment intersection, Voronoi diagrams, visibility and algorithmic folding will be covered. Prereq: CSCI 3412. Cross-listed with CSCI 5411. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4501 - Java

Comprehensive course on Java programming. Coverage of programming language constructs of Java and the core libraries that come with Java: coverage of advanced topics, including technologies for building distributed applications, and interacting with a database. Prereq: CSCI 2421. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4555 - Compiler Design

Introduces the basic techniques used in translating programming languages: scanning, parsing, symbol table management, code generation, code optimization and error recovery. Prereq: CSCI 3412 and 3415. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4565 - Introduction to Computer Graphics

Introduces two and three dimensional computer graphics. Topics include scan conversion, geometric primitives, transformation, viewing, basic rendering, and illumination. Emphasis is on programming using "C" and "C++" Open GL. Prereq: CSCI 3412 and MATH 3191 or 3195. Cross-listed with CSCI 5565. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4591 - Computer Architecture

Deals with how assembly language maps to hardware, and basic hardware techniques implemented in computers. Topics include logic design of arithmetic units, data control path processor logic, pipelining, memory systems, and input-output units. The emphasis is on logic structure rather than electronic circuitry. Students must know basic control logic design and be familiar with an assembly language before taking this course. Prereq: CSCI 2525 or ELEC 2651. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4630 - Linguistic Geometry

Linguistic Geometry (LG) is a type of Game Theory in Artificial Intelligence, which permits to overcome combinatorial explosion and generate optimal strategies in real time. LG is currently changing the paradigm of military command and control in the USA and abroad. Prereq: CSCI 3412 or permission of instructor. Cross-listed with CSCI 5619. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4640 - Universal Compiler: Theory and Construction

Theoretical foundations and step-by-step hands-on experience in the development of a compiler, which can tune itself to a new programming language. This is a must-take course for future software developers as well as those interested in applications of the theory of Computer Science. Cross-listed with CSCI 5640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4650 - Numerical Analysis I

Methods and analysis of techniques used to resolve continuous mathematical problems on the computer. Solution of linear and nonlinear equations, interpolation and integration. Prereq: MATH 2411, MATH 3191 or MATH 3195, and programming experience. Cross-listed with CSCI 5660, MATH 4650, and MATH 5660. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4660 - Numerical Analysis II

Numerical differentiation and integration, numerical solution of ordinary differential equations, and numerical solutions of partial differential equations as time allows. Prereq: MATH 3195 or both 3191 and 3200; MATH or CSCI 4650 or 5660; or programming experience. Cross-listed with CSCI 5661, MATH 4660 and 5661. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4738 - Senior Design I

This is an advanced practical course in which students design, implement, and document and test software systems for use in industry, non-profits, government and research institutions. The course offers practical experience by working closely with project sponsors. It also offers extensive experience in oral and written communication throughout the software life cycle. Prereq: CSCI 3287, 3453, and 3508. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4739 - Senior Design II

This course is a continuation of Senior Design I. Students must have taken Senior Design I in order to enroll for Senior Design II. In this course, the projects begun in Senior Design I are completed and presented. Prereq: CSCI 4738. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4740 - Computer Security

Introduces basic knowledge from the computer security area. Concepts and techniques of cryptography, including history of codes and ciphers, basic cryptography techniques like data encryption standards, public key systems and digital signatures. Prereq: MATH 1120. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4761 - Introduction to Computer Networks

Introduction and overview of computer networks. Topics include protocols, quality of services and performance issues. Prereq: CSCI 2421. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4771 - Introduction to Mobile Computing

Provides an in-depth understanding of the fundamentals in mobile computing and studies the existing and proposed solutions for ubiquitous computing. This course focuses on systems and networking issues involved with supporting mobility. Prereq: CSCI 3453 and 4761. Cross-listed with CSCI 5771. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4788 - Bioinformatics

Provides a broad exposure to the basic concepts and methodologies of bioinformatics and their application to analyzing genomic and proteomic data. Topics may include dynamic programming algorithms, graph theoretic techniques, hidden Markov models, phylogenetic trees, RNA/protein structure prediction and microarray analysis. Prereq: CSCI 1410 and MATH 3195 or 3191. Cross-listed with MATH 4788, PHYS 4788. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4800 - Special Topics

Credit and subject matter to be arranged. Prereq: As determined by instructor. Max hours: 9 Credits. **Semester Hours:** 3 to 3

CSCI 4840 - Independent Study

For seniors majoring in computer science. Max hours: 9 Credits. **Semester Hours:** 3 to 3

CSCI 4910 - User Experience Design

A how-to course for any technologist who has endured difficult interfaces and wants to design effective user interfaces that respect and advance the user experience. Course includes: Psychology, HCI personas, scenarios, prototyping, and evaluation for desktop and mobile applications. Prereq: CSCI 2312 - Intermediate Programming. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4920 - Computer Game Design and Programming

Computer Game Design and Programming introduces practical and example driven approaches to modern 3D game development. Topics include 3D modeling, character animation, UI design, scripting, texture mapping, and sound effect. Prereq: CSCI 2421. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4939 - Internship

Faculty or employer-supervised employment in industry. Enrollment is limited to students who fully completed a contract for cooperative education credit by the last day of the drop or add period. Prereq: CSCI 3415. Max hours: 9 Credits. **Semester Hours:** 1 to 3

CSCI 5098 - Computer Science for Bioscientists

Provides a broad but detailed overview of the computer science field to graduate students in the biosciences, with emphasis on web technologies, programming languages, algorithms and database systems. No credit for CS graduate students. Prereq: Working knowledge of programming language (e.g., Java). Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5217 - Information Theory

Introduces information theory and its application in computer science, communication theory, coding and applied mathematics. Entropy, mutual information, data compression and storage, channel capacity, rate distortion, hypothesis testing. Error detecting and correcting codes, block codes and sequential codes. Prereq: CSCI 4535. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5255 - Object Oriented Design

Software system design using object-oriented techniques, responsibility driven design and agile development practices. Topics include objects, classes, interfaces, inheritance, polymorphism, exception handling and testing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5408 - Applied Graph Theory

Introduces discrete structures applications of graph theory to computer science, engineering and operations research. Topics include connectivity, coloring, trees, Euler and Hamiltonian paths and circuits. Matching and covering problems, shortest route and network flows. Prereq: MATH 3000 or CSCI 2511. Cross-listed with MATH 4408. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5409 - Graph Theory and Graph Algorithms

Studies geometric graphs and other geometric objects, both analysis and algorithmic construction, leads to interesting connections among VLSI design, graph theory and graph algorithms. Studies a subset of the recent literature, with special emphasis on visibility graphs, thickness of graphs, graph coloring and the surprising and elegant connections among them all. Other topics are introduced as time permits. Prereq: CSCI 3412, CSCI 4408, CSCI 5451 or MATH 4408 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5411 - Computational Geometry

Many practical and aesthetic algorithmic problems have their roots in geometry. Applications abound in the areas of computer graphics, robotics, computer-aided design, and geographic information systems, for example. A selection of topics from convex hull, art gallery problems, ray tracing, point location, motion planning, segment intersection, Voronoi diagrams, visibility and algorithmic folding will be covered. Prereq: CSCI 3412. Cross-listed with CSCI 4411. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5446 - Theory of Automata

Studies the relationships between classes of formal languages (regular, context-free, context-sensitive, phrase-structure) and classes of automata (finite-state, pushdown, Turing machines). Additional topics include decidability and computability issues. Prereq: CSCI 3412. Cross-listed with MATH 5446. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5451 - Algorithms

Advanced design and analysis techniques: dynamic programming, greedy algorithms, amortized analysis. Advanced data structures: Fibonacci heaps, union-find data structures. Study of variety of special topics, which may include: graph algorithms, optimization problems, Fast Fourier Transform, string matching, geometric algorithms, NP-completeness and approximation algorithms. Prereq: CSCI 3412. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5542 - Neural Networks

Parallel distributed representations, dynamics of Hopfield-style networks, content addressable memories, and Hebbian learning are the major topics of the first half. The last half consists of simulated annealing back propagation, competitive learning, and self-organizing networks. Prereq: CSCI 3412. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5551 - Parallel and Distributed Systems

Examines a range of topics involving parallel and distributed systems to improve computational performance. Topics include parallel and distributed programming languages, architectures, networks, algorithms and applications. Prereq: Graduate standing. Cross-listed with CSCI 7551. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5552 - Advanced Topics in Parallel Processing

Examines the advances of sequential computers for gaining speed and application of these techniques to high-speed supercomputers of today. Programming methodologies of distributed and shared memory multiprocessors, vector processors and systolic arrays are compared. Performance analysis methods for architectures and programs are described. Prereq: CSCI 5551. Cross-listed with CSCI 7552. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5559 - Database Systems

Introduces database system concepts, with examination of relational database systems from conceptual design through relational schema design and physical implementation. Topics include database design and implementation for large database systems, transaction management, concurrency control, object-oriented and distributed database management systems. Prereq: CSCI 3287. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5565 - Introduction to Computer Graphics

Introduces two and three dimensional computer graphics. Topics include scan conversion, geometric primitives, transformation, viewing, basic rendering, and illumination. Emphasis is on the programming using C and C++ Open GL. Prereq: CSCI 3412 and MATH 3191/3195. Cross-listed with CSCI 4565. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5573 - 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. 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. Prereq: Graduate Standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5574 - Advanced Topics in Operating Systems

Covers the advanced topics in operating systems by examining functionality and performance issues in CPU Scheduling, communications, distributed file systems, distributed operating systems, shared-memory multiprocessors and real-time operating systems. In addition to studying papers, reviews and presentations, students carry out a semester long team project within the scope of one of the above topics. Prereq: CSCI 3453 or CSCI 5573. Cross-listed with CSCI 7574. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5582 - Artificial Intelligence

Approaches to design of systems for solving problems usually solved by humans, especially those related to intelligent decision making. Emphasis on various types of knowledge representation. Cross-listed with CSCI 7582. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5585 - Advanced Computer Graphics

An in-depth study of active research topics in computer graphics. Topics include advanced rendering, global illumination, scientific visualization, geometric modeling, simulation and animation. Emphasis is on readings from literature and on a term project. Prereq: CSCI 5565 or 4565. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5593 - Advanced Computer Architecture

Important concepts in the structural design of computer systems are covered. Topics include memory hierarchy, super pipelining and super scalar techniques, dynamic execution, vector computers and multiprocessors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5595 - Computer Animation

This course introduces the state of the art techniques for modern computer animation focused on a practical, example driven approach to learning the unique art of 3D animation. Topics include modeling, kinematics, rigging, textures, physically based dynamics, and rendering. Prereq: CSCI 3412. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5610 - Computational Biology

Designed to introduce a broad range of computational problems in molecular biology. Solution techniques draw from several branches of mathematics: combinatorics, probability, optimization, and dynamical systems. No prior knowledge of biology is critical, but it would be at least helpful to have the equivalent of BIOL 5099. Prereq: CSCI 2421. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5619 - Complex Intelligent Systems

Presents the cutting-edge results of research in AI: advanced topics in linguistic geometry. LG is an approach to construction of mathematical models for reasoning about large-scale multi-agent concurrent games. The purpose of LG is to provide strategies to guide the participants of a game to reach their goals. Prereq: CSCI 4630. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5630 - Linguistic Geometry

Linguistic Geometry (LG) is a type of Game Theory in Artificial Intelligence, which permits to overcome combinatorial explosion and generate optimal strategies in real time. LG is currently changing the paradigm of military command and control in the USA and abroad. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5640 - Universal Compiler: Theory and Construction

Theoretical foundations and step-by-step hands-on experience in the development of a compiler, which can tune itself to a new programming language. This is a must-take course for future software developers as well as those interested in applications of the theory of Computer Science. Cross-listed with CSCI 4640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5654 - Algorithms for Communication Networks

Algorithmic and mathematical underpinnings of communication networks. A taxonomy of data-packet networks depending on modes of communication: fixed-interconnection networks, radio networks and multiple-access channel. Algorithms to implement packet routing and broadcasting. Prereq: CSCI 3412. Cross-listed with CSCI 7654. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5660 - Numerical Analysis I

Methods and analysis of techniques used to resolve continuous mathematical problems on the computer. Solution of linear and nonlinear equations, interpolation and integration. Prereq: MATH 2411, MATH 3191 or MATH 3195, and programming experience. Cross-listed with CSCI 4650, MATH 4650, and MATH 5660. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5661 - Numerical Analysis II

Numerical differentiation and integration, numerical solution of ordinary differential equations, and numerical solutions of partial differential equations as time allows. Prereq: MATH 3195 or both 3191 and 3200; MATH or CSCI 4650 or 5660; or programming experience. Cross-listed with CSCI 4660, MATH 4660 and 5661. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5667 - Introduction to Approximation Theory

Normed linear spaces, convexity, existence and uniqueness of best approximations. Tchebychev approximation by polynomials and other related families. Least squares approximation and splines. Prereq: MATH 4320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5682 - Expert Systems

Reviews and analyzes many expert systems documented in the literature, such as Mycin, Macsyma, and Xcon. Emphasis is given to the design of rule-based systems, the use of uncertain and incomplete information and system shells. Prereq: CSCI 3412. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5690 - Knowledge Representation for Intelligent Systems

An in-depth study of different types of knowledge representation in artificial intelligence for the efficient control of complex real-world systems like autonomous robots, space vehicles, and military units. Major emphasis is on search algorithms and heuristics, logical representation with applications to planning, formal linguistic representation. At the conclusion, all the theories studied are combined in the form of introduction to the state-of-the-art linguistic geometrical representation of complex control systems. Prereq: CSCI 3412. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5701 - High-Performance Communication Systems and Network Analysis

Protocols and architectures related to high performance communication systems as well as network performance analysis techniques are covered. Topics include Integrated Services Digital Networks (ISDN), Broadband ISDN, protocols such as ATM and SONET, and high performance network architectures such as optical networks. Analytical analysis of network performance includes queuing theory and stochastic processes. Prereq: CSCI 4761 or 5761. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5702 - Data Mining

Introduces data mining and knowledge discovery. Topics include: preprocessing, clustering, machine learning, neural networks, fuzzy sets, and evolutionary computation. Prereq: CSCI 3412 and MATH 3191/3195. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5704 - Introduction to Distributed Systems

Studies design, implementation and management of distributed systems, including communication issues, security reliability, resource sharing, and remote execution. Prereq: CSCI 3453 and 4591. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5728 - Software Engineering

Groups of students plan, analyze and design large software projects. Prereq: CSCI 3412 and 3415. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5765 - Computer Networks

An in-depth study of active research topics in computer networks. Topics include: Internet protocols, TCP/UDP, congestion and flow control, IP routings, mobile IP, P2P overlay networks, network security, performance, and other current research topics. Prereq: Graduate standing. Cross-listed with CSCI 7765. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5771 - Introduction to Mobile Computing

Provides the fundamentals of mobile computing. Studies existing and proposed solutions for ubiquitous computing. This course focuses on systems and networking issues involved with supporting mobility. Prereq: CSCI 3453 and 4761. Cross-listed with CSCI 4771. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5780 - Theory of Distributed Computing

Elements of the theory of distributed computing through fundamental algorithmic ideas, lower bound techniques, and impossibility results. Timing assumptions (asynchrony and synchrony), simulations between models (message passing and shared memory), failure types (crash and Byzantine). Prereq: CSCI 3412. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5799 - Topics in Networked Computing

Studies in-depth active research topics in network based computing such as Cluster Computing, Grid Computing, Cloud Computing, P2P Computing, Pervasive Computing, Workflow Systems, and Social Network Computing. Students will study key research articles, and submit a term project report. Prereq: Graduate standing. Cross-listed with CSCI 7799. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5800 - Special Topics

These special topics courses cover recent developments in an aspect of computer science. Prereq: As determined by instructor. Max hours: 9 Credits. **Semester Hours:** 3 to 3

CSCI 5840 - Independent Study

For graduate computer science students. Max hours: 8 Credits. **Semester Hours:** 1 to 3

CSCI 5941 - Directed Study: Programming Project

Software development project supervised by a faculty member approved by the Center for Computational Biology. Used towards a certificate in Computational Biology. Counts as an independent study. Prereq: CSCI 5451 and CSCI 5610. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 6595 - Computational Methods in Nonlinear Programming

Introduces fundamental algorithms and theory for nonlinear optimization problems. Topics include Newton, quasi-Newton and conjugate directional methods; line search and trust-region methods; active set, penalty and barrier methods for constrained optimization; convergence analysis and duality theory. Prereq: MATH 4320, MATH 5718. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 6664 - Numerical Linear Algebra

Offered every other year. Solution of linear equations, eigenvector and eigenvalue calculation, matrix error analysis, orthogonal transformation, iterative methods. Prereq: MATH 5660 and 5718. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 6950 - Master's Thesis

Max hours: 12 Credits. **Semester Hours:** 1 to 9

CSCI 6960 - Master's Report

Students seeking a Master of Science in computer science, who do not choose to do a thesis, must complete an individual project of an investigative and creative nature under supervision of a full-time CS graduate faculty. Student must present their results to a faculty committee. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 7002 - Computer Security

A broad overview of computer security, roughly divided into three unequal components: a) the history of codes and ciphers; b) basic cryptographic techniques, for example, symmetric cryptography, authentication techniques, and asymmetric crypto systems, and; c) applications to current and future computer-related technologies, for example, network security, wireless communication, quantum cryptography, and more. Prereq: CSCI 5451. Cross-listed with ISMG 7002. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 7173 - Computational Complexity and Algorithms

A solid, in-depth theoretical foundations in computing, computational complexity, and algorithmics. Various algorithms, including both discrete and non-discrete problem domains. NP-complete and other complete classes of problems/languages. Prereq: CSCI 3412 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 7200 - Advances in Management Information Systems

Provides a broad coverage of research on the management of information technology. The course covers the systems-oriented research, organizational-oriented research, and information systems economics research. Prereq: PhD standing. Cross-listed with ISMG 7200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 7210 - Topics in Analytical Research in Management Information Systems

Covers a variety of analytical research topics of interest to the IS research community including the evaluation of data mining algorithm performance, cost sensitive learning and outlier detection. Prereq: Admission to the CSIS PhD program. Cross-listed with ISMG 7210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 7211 - Topics in Behavioral-Organizational Research in Management Information Systems

Provides in-depth exposure to some key behavioral, management and organizational theories and models used in Information Systems research. Covers topics in socio-technical, trust, computer self-efficacy, organizational transformation, organizational learning, resource-based and coordination theories. Prereq: Admission to the CSIS PhD program. Cross-listed with ISMG 7211. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 7502 - Research Methods

Promotes research skills. Involves presenting a research topic and discussions of its merits, reviewing journal articles, writing a paper and/or a proposal in the NIH/NSF format in the student's area of research. Prereq: PhD student standing or permission of instructor for MS students who are writing a thesis. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 7551 - Parallel and Distributed Systems

Examines a range of topics involving parallel and distributed systems to improve computational performance. Topics include parallel and distributed programming languages, architectures, networks, algorithms and applications. Prereq: Graduate standing. Cross-listed with CSCI 5551. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 7552 - Advanced Topics in Parallel Processing

Examines the advances of sequential computers for gaining speed and application of these techniques to high-speed supercomputers of today. Programming methodologies of distributed and shared memory multiprocessors, vector processors and systolic arrays are compared. Performance analysis methods for architectures and programs are described. Cross-listed with CSCI 5552. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 7574 - Advanced Topics in Operating Systems

Covers the advanced topics in operating systems by examining functionality and performance issues in CPU Scheduling, communications, distributed file systems, distributed operating systems, shared-memory multiprocessors and real-time operating systems. In addition to studying papers, reviews and presentations, students carry out a semester long team project within the scope of one of the above topics. Prereq: CSCI 3453 or CSCI 5573. Cross-listed with CSCI 5574. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 7582 - Artificial Intelligence

Approaches to design of systems for solving problems usually solved by humans, especially those related to intelligent decision making. Emphasis on various types of knowledge representation. Cross-listed with CSCI 5582. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 7595 - Computer Animation

This course introduces the state of the art techniques for modern computer animation focused on a practical, example driven approach to learning the unique art of 3D animation. Topics include modeling, kinematics, rigging, textures, physically based dynamics, and rendering. Prereq: CSCI 3412. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 7654 - Algorithms for Communication Networks

Algorithmic and mathematical underpinnings of communication networks. A taxonomy of data-packet networks depending on modes of communication: fixed-interconnection networks, radio networks and multiple-access channel. Algorithms to implement packet routing and broadcasting. Prereq: Permission of instructor. Cross-listed with CSCI 5654. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 7711 - Bioinformatics I

(BIOL 7711-Offered on a semester basis from H.S.C.) What is Bioinformatics and why study it? How is large-scale molecular biology data generated, where and how can researchers gain access to it, what computational analyses are possible and computational techniques for solving inference problems in molecular biology? Prereq: Permission of instructor. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CSCI 7712 - Bioinformatics II

(BIOL 7712-offered on a semester basis from H.S.C.) Inference problems and computational techniques for molecular biology, with emphasis on machine learning approaches. Use of computational induction techniques focused on information extraction from biomedical literature, inference of biochemical networks from high-throughput data and prediction of protein function. Estimation, clustering, discrimination and regression. Prereq: CSCI 7711. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CSCI 7765 - Computer Networks

An in-depth study of active research topics in computer networks. Topics include: Internet protocols, TCP/UDP, congestion and flow control, IP routings, mobile IP, P2P overlay networks, network security, performance, and other current research topics. Prereq: Graduate standing. Cross-listed with CSCI 5765. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 7799 - Topics in Networked Computing

Studies the active research topics in network based computing such as Cluster, Grid computing, P2P Computing, Pervasive Computing. Workflow system and Cloud Computing. Students will study key papers in the literature, and submit a research term project. Prereq: Graduate standing. Cross-listed with CSCI 5799. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 7800 - Special Topics

These special topics courses cover recent developments in an aspect of computer science. Prereq: As determined by instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 7840 - Independent Study

Offers doctoral students opportunity for independent, creative work under supervision of a CSE full-time graduate faculty. Max hours: 6 Credits. **Semester Hours:** 1 to 6

CSCI 8990 - Doctoral Dissertation

Max hours: 9 Credits. **Semester Hours:** 1 to 9

Counseling Psych/Counselor Ed

CPCE 5000 - Human Sexuality

Students will become familiar with human sexuality across the life span. Ecological and family systems theories will provide an understanding of human sexuality from a systemic perspective. Implications for working with individuals, families, and couples will be examined. Prereq: CPCE 5010. Cross-listed with HDFR 4000. **Semester Hours:** 3 to 3

CPCE 5010 - Counseling Theories

Focuses on counseling theories: Psychodynamic, Adlerian, Person-Centered, Existential, Behavioral, including DBT, Cognitive Behavioral, Gestalt, & Reality Therapy. Also includes an overview of the history of the counseling profession and the role and function of counselors in various settings. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5100 - Techniques of Counseling

Students practice basic counseling skills, develop therapeutic intervention strategies, and improve the effectiveness of their communication by practicing listening and responding. Videotaped role-plays are utilized. Prereq: CPCE 5010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5110 - Group Counseling

Learn group theory and dynamics. Practice facilitating a group. Learn about screening, group membership and styles, roles and behavior, termination of groups. Extensive practice in laboratory setting. Prereq: CPCE 5010 and CPCE 5100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5120 - Counseling Grief and Loss

This elective course is an introduction and study of the field of bereavement in counseling. Studies focus on relating to client's experience with grief, loss and/or trauma through lectures, speakers, videos, readings, experiential in-class simulations, self-discovery and introspection. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5150 - Family Therapy Theory

Introduces couple and family theories and intervention strategies. Emphasis on historical development of systems theory. Prereq: CPCE 5010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5160 - Techniques in Family Therapy

Intervention strategies with families. Emphasis on application of techniques evolving from treatment models. Video-taped role plays are utilized. Prereq: CPCE 5150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5170 - Issues In Family Studies

A systemic overview of current family configurations and issues families face in today's society, including gender, intimate partner violence, step-families, grief, loss, divorce, homelessness and others. The course includes life cycle approaches and normal family processes. Prereq: CPCE 5010 and CPCE 5150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5180 - Counseling Couples

A didactic and experiential course dealing with techniques of couples counseling. Emphasis is on assessment, diagnosis and treatment of couples' problems. Special topics include gay and lesbian couples, cross-cultural couples, remarried couples, cohabiting couples and the effectiveness of couple therapy. Prereq: CPCE 5010, 5100, 5150 and 5160. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5280 - Addictions Counseling

Includes treatment strategies for clinicians in addressing varieties of addictive behaviors including substance, abuse, eating disorders, gambling and sexual addiction. Cultural dimensions of addictions are also considered. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5330 - Counseling Issues and Ethics

An in-depth examination of ethical and legal issues in the field. Topics include working with individuals and family systems, licensure, professional associations, record keeping and statutory requirements. Prereq: CPCE 5010 and CPCE 5100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5400 - Career Development

Development of competencies in career development counseling. Theories of work systems, psychological dynamics, information systems, and decision making models are covered. Interacting with work or family systems and other subsystems is emphasized. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5425 - Developing & Implementing a School Counseling Program: ASCA

The course is specifically designed to provide training for school counselors and related professionals to develop and implement a comprehensive counseling and guidance program, which incorporates the ASCA National Model. Prereq: CPCE 5010, 5100, 5110, 5330, 5400, 5810, 5815, 6250 and RSEM 5200, 5300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5500 - Diversity, Inclusion, Social Justice in Higher Education

An examination of society, media, and public and educational policy and their impact on higher education access and persistence for marginalized groups. Students are called to consider how student affairs professionals might promote social justice for marginalized student groups. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5810 - Multicultural Counseling Issues for Individuals and Families

Students engage in an in-depth racism, White privilege and other "isms," and assumptions as applied to ethnic-racial populations. Students learn alternative approaches to counseling African Americans, Asian Americans, Latino(a)s, American Indians, women, gays and lesbians. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5815 - Introduction to School Counseling

This course emphasizes the unique and varied role of the school counselor and school counseling programs in diverse public schools. The course focus will be on learning the various skills necessary to meet the needs of school age students and others in the school community. In addition, the course will cover The ASCA model of comprehensive developmental school counseling activities, and focus on practical resources for counseling students in diverse school settings. Prereq: CPCE 5010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5820 - Strategies of Agency Counseling

Students learn the role and function of the counselor in community agency settings. Intervention strategies, consultation, administration of community mental health agencies. Prereq: CPCE 5010. Max hours: 6 Credits. **Semester Hours:** 3 to 6

CPCE 5825 - The Business Of Private Practice

This course is designed to teach students how to start and manage a successful private practice in counseling. Emphasis is placed on understanding and navigating the business side of professional counseling. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5830 - Special Topics

Specific topics vary from semester to semester. Intervention strategies with children, issues in abuse, violence, incest, legal issues, adult counseling, grief, death and dying, private practice. Max hours: 6 Credits. **Semester Hours:** 1 to 6

CPCE 5835 - Gender And Sexual Orientation

Investigates constructions of gender and sexuality in the systemic context of individuals, relationships, families, and culture. Emphasis will be placed on developing critical thinking and clinical skills that engage diverse clients in a respectful, ethical, and effective manner in therapy. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5840 - Independent Study: CPCE

Individually directed research activity on special topics not covered by course offerings. Degree students only, with advance approval by major, professor and department chair. Max hours: 9 Credits. **Semester Hours:** 1 to 4

CPCE 5910 - Practicum in CPCE

Supervised counseling practice in the counseling lab and appropriate settings (150 clock hours). Emphasis on individual and group counseling techniques and therapeutic intervention strategies. Prereq: all counseling course work must be completed. Max hours: 6 Credits. **Semester Hours:** 6 to 6

CPCE 5915 - Practicum in School Counseling

This class will provide school track students with 3 credits of fieldwork at a developmental level of their choice. The course will require students to work with a school counselor activities that the counselor is assigned under supervision. Students will develop skills in needs assessment, developing classroom guidance activities and running the activities; they will sit in on IEP conferences, help conduct college fairs, administer career assessment inventories and standardized assessments, learn to place students in appropriate classes, and provide responsive counseling services on an as needed basis. Prereq: CPCE 5010, CPCE 5110, CPCE 5400, CPCE 5420, CPCE 5810, CPCE 5815, CPCE 6220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5917 - School Counseling Practicum

This class will provide school counseling track students with 6 credits of practicum experience. Prereq: CPCE 6230. Max hours: 6 Credits. **Semester Hours:** 6 to 6

CPCE 5930 - Internship in Counseling

Psychology and Counselor Education. Supervised internship of 600 clock hours. Intern performs activities of a regularly employed professional in an approved community site. Prereq: Satisfactory completion of CPCE 5910. Max hours: 12 Credits. **Semester Hours:** 1 to 6

CPCE 6000 - Introduction to Sex Therapy

Provides an overview of human sexuality over the life cycle, addressing social, psychological, and physiological aspects of human sexuality. Etiology of human sexuality diagnoses and treatment of problems related to human sexuality are addressed. Note: This course is a component in the couple and family program and required for MFT licensure. Prereq: CPCE 5010, CPCE 5100, CPCE 5150 and CPCE 5160 may be taken concurrently. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 6100 - Spiritual Dimensions of Counseling

A didactic and experiential course involving the following content areas: theories of spiritual development, a survey of religious traditions, assessment, ethical issues, self-of-the-therapist issues, and treatment interventions and strategies in working with clients' values. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 6140 - Counseling Children, Adolescents and Their Parents

A didactic and experiential course addressing child, adolescent, and parental/family issues. Counseling techniques, including play therapy, and parent education are taught and practiced. Assessment tools and specific strategies are used to increase positive family relationships. Prereq: CPCE 5010, CPCE 5100, CPCE 5150 and EPSY 6200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 6160 - Advanced Assessment: Theory and Treatment in Family Systems

Emphasis is on family diagnosis or assessment and treatment and psychological processes. Major family therapy assessment methods and instruments are covered, as well as experiential application of advanced intervention strategies. Prereq: CPCE 5010, 5100, 5150, 5160 and RSEM 5300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 6220 - Youth Challenges and Resiliency

Provides the student with theory and practical exposure to contemporary youth at risk. Focuses on prevention and intervention with youth at risk from a counseling perspective. Prereq: CPCE 5010 and 5100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 6230 - Developmental Counseling in Schools: Prevention & Intervention

This course offers the tools to provide developmental counseling services in the schools, including prevention through classroom counseling activities linked with the curriculum, and responsive services. Prereq: CPCE 5010, 5100, 5110, 5330, 5400, 5425, 5810, 5815, RSEM 5200, 5300, EPSY 6200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 6240 - Consultation Strategies

Focuses on the development of consultation skills and implementation of strategies. Students are exposed to major theories of the consultation process. In addition, this course provides the opportunity to practice consultation and implementation strategies within a system: an agency, business setting, or educational setting. Prereq: CPCE 5010 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 6250 - Mental Health Diagnosis

Students develop a professional level of understanding of the major disorders commonly subsumed under the term "psychopathology." Classification of disorders in the DSM IV is utilized. Treatment alternatives are discussed. Prereq: CPCE 5010 and CPCE 5100 or permission of instructor. Cross-listed with EPSY 6250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 6330 - Advanced Seminar in Counseling and Psychotherapy

Professional analysis of major trends in counseling and psychotherapy. Specific emphasis topics identified. Prereq: CPCE 5010, 5100 and 5330. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 6350 - Theories of Personality Development and Change

An advanced course in personality theory with a focus on assumptions of each theory and each as a mechanism for change. Implications of each theory for personal growth and therapy's addressed. Cross-listed with EPSY 6350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 6810 - Advanced Multicultural Counseling

Offers essential preparation for competent multicultural counseling practice with racially diverse clients in an urban setting. Students learn, build and practice effective multicultural counseling skills. Explores the impact of race and ethnicity on individual behavior, interpersonal relationships and learn techniques for addressing these issues in counseling. Prereq: CPCE 5810. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 6840 - Independent Study

Max hours: 4 Credits. **Semester Hours:** 1 to 4

CPCE 6910 - Advanced Practicum in Counseling

Max hours: 12 Credits. **Semester Hours:** 3 to 6

CPCE 6950 - Master's Thesis

Max hours: 4 Credits. **Semester Hours:** 4 to 4

CPCE 7100 - Advanced Theories and Techniques in Psychotherapy

Learn and practice advanced techniques for addressing adult and adolescent clinical problems. Examine efficacy research on specific counseling techniques as associated with particular approaches in counseling. Prereq: CPCE 5010, 5100, 5820 and 6250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 7800 - Supervision in Counseling and Psychotherapy

Examines training principles, processes, and practices in clinical supervision. Emphasis on individual and family therapy supervision. Prereq: CPCE 5010, 5100, 5910 and 5930. Max hours: 12 Credits. **Semester Hours:** 3 to 3

Criminal Justice

CRJU 1000 - Criminal Justice: An Overview

This course is designed to provide an overview of the criminal justice process and the criminal justice system in general. Concepts of crime, deviance and justice are discussed and general theories of crime causality are examined. Special emphasis is placed on the components of the criminal justice system: the police, the prosecutorial and defense functions, the judiciary and the field of corrections. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 1111 - Freshman Seminar

This course explores contemporary issues and cases in the criminal justice system. Topical issues cover various forms of crime; including environmental hazards, mass murder, and sexual assault. The course also focuses on current controversies in policing, courts, corrections, and the juvenile justice system. Prereq: Open only to new Freshmen. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 2041 - Crime Theory and Causes

This course provides a general survey of the nature and causes of crime and efforts of the criminal justice system to predict, prevent, modify and correct this behavior. This course involves a critical appraisal of various theories of crime causation, including an examination of biological, psychological, economic and sociological perspectives that explain crime and deviance. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3100 - Criminal Justice Research Methods

This course introduces students to the formulation of research questions covering crime and justice, research designs, data collection and the interpretation and reporting of these data in criminological and justice-system settings. Course content also includes experimental and non-experimental research designs, probability and non-probability sampling techniques and construction of scales and indexes for research purposes. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3150 - Statistics for Criminal Justice

This course serves as an introduction to descriptive and inferential statistics and the computer analysis of criminal justice data. Course content includes hypothesis testing and the basic analysis of continuous and discrete dependent variables. Emphasis is placed on the examination of issues in the field of criminal justice. Prereq: CRJU 3100 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3160 - White-Collar Crime

This course introduces students to a variety of topics and issues in white-collar crime including types, causes and the measurement of white-collar crime. The class examines the debate surrounding the definition of white-collar crime, provides an overview of the costs of white-collar crime and corporate crime to society, considers competing theories that explain white-collar criminality and explores the use of criminal sanctions to deter misconduct involving corporations and elite offenders. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3220 - Community-Based Corrections

This course focuses on innovative community-based strategies for dealing with criminal offenders. Correctional alternatives to imprisonment discussed in this course include probation and parole and various community programs such as day reporting centers, electronic monitoring, half-way houses and boot camp programs. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3250 - Violence in Society

This course examines various aspects of violence including distribution over time and space, situations and circumstances associated with violent victimization and offending and how social institutions, community structure and cultural factors shape violent events. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3251 - Crime and Media

This course surveys the relationships between mass media, crime, offenders, victims and criminal justice. It explores how the criminal justice system is portrayed in the media and the influence of these portrayals on society, public policy, and the criminal justice system. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3252 - Violent Offenders

This course consists of a historical overview of violence in American society. Course content includes an examination of violent crime rates over time, societal explanations for changes in rates and an examination of the theoretical causes and preventative strategies for acts of violence. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3310 - Police in Contemporary Society

This course examines law enforcement's role in contemporary society and the impact of police interaction on other segments of the criminal justice system. Special attention is paid to controversies related to police training and education, career development and community relations. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3320 - Police-Community Relations

This course focuses on the police and community response to crime. Course content includes an overview of the major concepts and issues involved in what many consider to be a major fundamental shift in the approach and operations of modern policing. The origins, meaning, development and experiences of community policing and various assessments of the advantages and disadvantages of community policing are emphasized. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3410 - Probation and Parole

This course is appropriate for students who have a specific interest in the role of probation and parole as correctional sanctions in community settings. Particular attention is paid to evaluations research evidence on the success of probation and parole, factors that contribute to the successful completions of probation and parole and the role that the community and citizens play in the community corrections process. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3420 - Pleas, Trials and Sentences

This course focuses on analysis of case materials involving pleas, trials and sentences. Course content includes an examination of the basic dimensions of criminality, the specific elements of major crimes, the use of confessions, fair trial procedures and the nature of criminal sanctions including cruel and unusual punishments. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3510 - Drugs, Alcohol and Crime

This course looks at the socially constructed nature of drugs and drug policy. The course explores the connection between drugs and crime within the socio-historical context of contemporary U.S. drug policy. Special emphasis is placed on the relationships between drugs and alcohol abuse and criminal offending, including the historical and contemporary criminal justice system responses to illegal substances. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3520 - Juvenile Justice Administration

This course examines the development, change and operation of the American juvenile justice system and the social factors that shape the identification and treatment of juvenile offenders. Special emphasis is placed on the nature of juvenile law and methods of dealing with youthful offenders. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3540 - Crime and Delinquency Prevention

This course provides students with an overview of issues related to crime and delinquency prevention, both from criminological and criminal justice points of view. Crime prevention programs that encompass both the individual and community levels are examined. Responses to juvenile offenders-ranging from prevention and diversion to institutional corrections and after care are explored in context of youth policy generally. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4042 - Corrections

This course consists of an overview of the field of penology and corrections. Attention is paid to conflicting philosophies of punishment, criminological theory as it applies to the field of corrections, the selectivity of the process through which offenders move prior to their involvement in correctional programs, alternative correctional placements and empirical assessments of the short and long-term consequences of one's involvement in correctional programs. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4043 - Law Enforcement

This course presents an overview of the role of police in the United States. Attention is placed on the origins of policing, the nature of police organizations and police work, patterns of relations between the police and the public, discretion and police role in a sociolegal context. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4044 - Courts and Judicial Process

This course examines the basic functions, structure and organization of the federal and state court system, with special attention on the criminal court system. This course also focuses on the influence of judicial behavior on the court process by examining judges' policy preferences, legal considerations, group processes within courts and courts' political and social environments. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4120 - Race, Class and Crime

This course examines the relationships between race, social class and crime. Attention is given to theoretical explanations, empirical research and patterns of criminal behavior and focuses on historical frameworks that are relevant to current perspectives on the impact and interactions of race, class and crime in the field. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4121 - Ethics in Criminal Justice

This course is designed to begin preparing students in identifying and critically examining ethical issues in the criminal justice system by applying ethical decision models. This course also provides students with the unique opportunity to analyze how they would resolve these issues according to their own values and beliefs while staying within the boundaries of the law and professional codes ethics. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4130 - Poverty and Crime

This course involves an economic analysis of crime and the criminal justice system. Topics include empirical and theoretical analysis of the economic causes of criminal behavior, the social costs of crime and its prevention and the design of crime enforcement policies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4140 - Domestic Violence and Crime

This course examines the criminal justice systems response to intimate partner violence by focusing on the interactions between victims, offenders and the individual components of the criminal justice system. By exploring the dynamics of intimate partner violence this course addresses the theory, history, research, legislation and policy implications related to the criminal justice system's response to violence against women. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4150 - Sex Offenders and Offenses

This course will explore historical and current practices of the criminal justice system to address sex offenders and offenses. Topics include the history of sexual abuse, etiology of offenders, victims issues, juvenile sex offenders, risk assessments, and treatment/supervision approaches. Prereq: CRJU 1001. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4170 - Victim Studies

This course involves the scientific study of crime victims and focuses on the physical, emotional and financial harm people suffer at the hands of criminals. Focus is placed on the victim-offender relationships, interactions between victims and the criminal justice system and connections between victims and other social groups and institutions. The theory, history, research, legislation and policy implications related to the social construction of "the victim" are explored. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4171 - Murder In America

This course examines the types, extent, nature and repercussions of homicide in the United States. Specific types of homicide including justifiable homicide, infanticide, femicide, as well as serial, mass and spree murder are examined. Focus will be given to pertinent theories about murder as well as an in-depth look at some of the most notorious murderers in the United States. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4180 - Comparative Study of Criminal Justice Systems

This course analyzes the dynamics of criminality and the social response to criminality across countries. Special emphasis is placed on the methods of comparative legal analysis utilized to examine international differences in crime and justice, international cooperation in criminal justice and crime and development. Prereq: CRJU 1001. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4190 - Women and Crime

This course explores issues surrounding women as offenders and victims, and investigates explanations for the involvement of women in illegal activities. The course also examines the participations of women in criminal justice professions, including law enforcement, corrections, judicial processes, and law. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4230 - Corrections and Treatment

This course examines the origins and historical development of prisons and jails in America. Particular attention is given to the impact of reform movements, the rise of centralized correctional systems and regional variations in the practice of punishment. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4252 - Criminal Offenders

This course will introduce the core principles of evidence based programming and tools of motivational interviewing as it is used currently with the offender population. In addition, students will learn how to utilize these skills working with specific offender populations. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4310 - Leadership Roles in Criminal Justice

The course is designed to enhance interest, experience and knowledge in leadership that promotes professionalism and ethical behavior. Individual and organizational dynamics are explored through a critical perspective, focusing on criminal justice roles and responsibilities. The class teaches effective leadership skills in areas such as team building, strategic planning, and decision making. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4410 - Criminal Law and Constitutional Procedures

This course focuses on substantive criminal law and constitutional rights of the accused in criminal proceedings. Course content includes legal aspects of the investigation and arrest processes as well as the rules governing the admissibility of evidence in court. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4430 - Law and Society

This course introduces students to the scholarly study of law. Students will become familiar with social science perspectives of the law, legal institutions, the legal process and the impact of law on behavior, with particular emphasis on the study of criminal behavior and the criminal justice process in American society. Additional topics include theories of law and legality, comparative legal systems, lawyers, judges and juries and the use of social science in the courts. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4440 - Courts and Social Policy

This course involves the study of emerging trends and issues in the administration of the courts, the emerging role of the judiciary in the administration of programs in the public and private sectors and the implications of court administration on social policy. Course content includes the history of the judicial approaches to the criminal justice administrative process and substantive social policy. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4450 - Homeland Security

This course is an in-depth analysis of homeland security in the U.S. Topics include the initial concepts and strategies of securing land borders, seaports, and airports, the establishment of the Department of Homeland Security, and the functions and operations of the DHS today and in the future. Prereq: CRJU 1001. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4520 - Gangs and Criminal Organizations

This course traces the origins and historical development of the activities known as "organized crime." These crimes are some of the most dangerous to American society and range from the commonly known offenses of gambling and narcotics to the more subtle and sophisticated, less understood but equally serious, crimes of extortion, commercial bribery and political corruption. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4530 - Families and Intergenerational Crime

This course focuses on the family as the primary institutional mechanism of social control. The course is structured around social learning theory and explores the relationships between exposure to childhood violence and violence in dating relationships during adolescence and later violent marital relationships. The "cycle of violence" is also discussed in terms of the impact on early childhood violence on juvenile delinquency, adult criminality and violent behavior in general. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4600 - Special Topics in Criminal Justice

This highly specialized seminar addresses cutting-edge and emerging developments in the field of criminal justice and provides students and faculty with the opportunity to explore significant themes, issues and problems from a broad interdisciplinary perspective. Topics vary from semester to semester. Prereq: CRJU 1001 and CRJU 2041 or permission of instructor. Max hours: 18 Credits. **Semester Hours:** 3 to 3

CRJU 4840 - Independent Study: CRJU

This course consists of faculty-guided research in an area of mutual interest to the student and instructor. Students are responsible for selecting their area of inquiry prior to contacting the instructor. Permission of instructor is required. Max hours: 6 Credits. **Semester Hours:** 1 to 6

CRJU 4939 - Internship

Internships involve a career-related supervised experiential course in a criminal justice agency. Permission to enroll must be preceded by an application for an internship. Permission of instructor and advisor is required for undergraduate students. Max hours: 6 Credits. **Semester Hours:** 1 to 6

CRJU 5001 - CJ Systems, Policies/Practice

This course examines the salient, current critical issues in the justice system affecting law enforcement, courts, corrections, and recent social developments related to personnel. The class includes in-depth explorations of the development, implementation, and analysis of public policy in the field of criminology. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5002 - Criminological Theory

Explores the origins of criminal behavior and the impact of crime on society. The course examines theories of deviant, delinquent, and criminal behavior. Additionally, practical implications and application of theoretical constructs are analyzed through current research paradigms and empirical research. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5003 - Research Methods

Provides an assessment of research through an examination of applied designs and analytical models. The logic and rationale of these strategies are contrasted and their relative merits are critiqued. Research problems in the system are utilized to illustrate the applications and interpretation of alternative strategies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5004 - Statistics

This course covers principles of descriptive and inferential statistics and provides tools for understanding research findings. Topics include: hypothesis testing and point estimation; bivariate and multivariate measures of association; inferential statistics; ordinary least square regressions, logistic regression analyses. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5005 - Law & Society

Introduces a variety of topics related to law's varying functions and societal implications. The course focuses on social/ legal theory and analyzes law and legal institutions from a critical perspective. Materials provide content on how to evaluate law and legal institutions, especially in relation to equality, justice, and fairness. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5200 - Wrongful Convictions

This seminar examines the dark figure of the criminal justice system; wrongful convictions of innocent people. This course explores the continuum of justice-system errors ranging from persons who are falsely accused (arrested, prosecuted, and tried) to those who are wrongly convicted and imprisoned, to death row inmates who are erroneously executed. Cross-listed with CRJU 7200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5210 - Prisoner Reentry

This seminar examines the harsh realities of prisoner reentry and offers solutions to prepare inmates for release, reduce recidivism, and restore them to adjustment once back in the community, while simultaneously meeting the demands of public safety. Cross-listed with CRJU 7210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5220 - The American Jury System

This seminar examines historical and current issues in jury decision making and dynamics. The course explores issues such as jury size, eyewitness testimony, and jury reform. Court decisions are examined as a comprehensive understanding of jurors and their role. Cross-listed with CRJU 7220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5250 - Criminal Offenders

Crime can have a devastating effect on the lives of victims, families and communities with extraordinary costs to society as a whole. Documented evidence suggests that community safety is best achieved though promoting rehabilitation of offenders rather than relying solely on prisons and containment. This course introduces the core principles and tools of motivational interviewing as it is used currently with the offender population. Students learn how to utilize these skills working with specific offender populations and how to motivate these often resistive clients to change their thinking patterns and behaviors. Cross-listed with CRJU 7250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5260 - Crime and Literature

This seminar focuses on non-fiction literature as it relates to criminality and the Criminal Justice System. A substantial number of people in the United States form impressions and evaluate the effectiveness of the Criminal Justice System based on accounts presented within various types of nonfiction literature, either as social commentary or in biographical/autobiographical form. This course explores samples of these types of commentary, in order to more fully understand and appreciate their impact on shaping public opinion of the Criminal Justice System. Cross-listed with CRJU 7260. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5270 - Case Studies in Crim Justice

This seminar attempts to examine the lives of people who live on the margins of a society that perceives them as outsiders. Ethnographic studies which utilized observation, participant observations and interviews as their primary research methodology are assigned in order to develop a critical understanding of the social marginalization and cultural aspects of the lives of real human beings living on the constant edge of the law. Cross-listed with CRJU 7270. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5280 - Computer Crime

The course is designed to enhance interest, experience and knowledge in leadership that promotes professionalism and ethical behavior. Individual and organizational dynamics are explored through a critical perspective, focusing on criminal justice roles and responsibilities. The class teaches effective leadership skills in areas such as team building, strategic planning, and decision making. Cross-listed with CRJU 7280. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5301 - Crime and Media

This course surveys the relationship between mass media and the U.S. criminal justice system. Special attention is given to the role of media in the social construction of reality. Emphasis is placed on the application of social constructionism to criminal justice related social problems. Cross-listed with CRJU 7301. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5320 - Police Administration

Considers the major issues confronting police executives, such as professionalism, recruitment, selection, training, deployment, innovation, evaluation, and charges of brutality, inefficiency, and corruption. Cross-listed with CRJU 7320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5325 - Qualitative Methods for Criminal Justice

Focuses on qualitative methods applicable to research in the field of criminal justice. The primary focus is on ethnographic approaches employing such fieldwork techniques as observation, participant observation, interviews, content analysis, life histories and case studies. Cross-listed with CRJU 7325. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5330 - Gangs and Criminal Organizations

This course examines extent, nature and trends of gangs and criminal organizations. We focus on contemporary studies and theories of gang behavior and organized crime. The course examines types of crime, gender and race issues, transnational violence, and public policies regarding criminal organizations. Cross-listed with CRJU 7330. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5361 - Capstone Seminar

In this seminar, students demonstrate their mastery of the knowledge and skills acquired in core courses, as applied to either their chosen program concentration or individualized program, by conducting a Program Integration Project. The PIP may be either an independent research project or client-oriented project. Students also make a juried oral presentation of the professional paper which reports project findings. This is the cumulative opportunity for students to apply concepts and theory to professional practice, and thus should be taken at or near the end of a student's program of study. Prereq: CRJU 5000, CRJU 5100, CRJU 5120, CRJU 5321. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5391 - Sex Offenders and Offenses

This course will focus on challenges practitioners face in the management of sex offenders. It covers development of programs and partnerships that can effectively assess, inform, manage and treat sex offenders through all phases of the system and reduce recidivism. Cross-listed with CRJU 7391. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5410 - Victimology

This course examines victim-offender relationships, the interactions between victims and the criminal justice system and the connections between victims and other social groups and institutions among various populations. This course addresses the theory, history, research, legislation and policy implications related to the social construction of "the victim." Cross-listed with CRJU 7410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5420 - Violence in Society

This course examines various aspects of violence including distribution over time and space, situations and circumstances associated with violent victimization and offending, and how social institutions, community structure and cultural factors shape violent events. Cross-listed with CRJU 7420. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5430 - Drugs, Alcohol and Crime

This course provides an interdisciplinary overview of theory, research and policy issues surrounding the relationship between drugs, alcohol and crime; and the criminal justice system response. The course explores the socially constructed nature of illegal substances and connections to U.S. drug policy. Cross-listed with CRJU 7430. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5510 - Contemporary Issues in Law Enforcement

Examines current thinking and experience with respect to changing and reforming police programs and practices. The course focuses primarily on the American police experience, reviewing major innovations, exploring their rationale, and examining organizational impediments to their implementation. Cross-listed with CRJU 7510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5520 - Corrections

Provides a critical examination of the development and implementation of correctional systems in America. The course presents the origins of correctional efforts and the evolution of the prison; reviews punishment and rehabilitation rationales in the context of sentencing models; examines the social organization of the prison, including inmate subcultures and staff work strategies; and assesses the inmates' rights movement and the impact of judicial intervention in correctional settings. Cross-listed with CRJU 7520. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5530 - Community Corrections

Analyzes the theories and practices of probation and parole, responses of paroling authorities to public pressures and court controls, and their implications for rehabilitation. Efforts to bridge institutional settings and community life, as well as the feasibility and effectiveness of treating individuals under sentence in the community, are reviewed. Cross-listed with CRJU 7530. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5540 - Juvenile Justice Administration

Examines the policies and practices of agencies in processing youthful offenders through the juvenile court system, reviews trends in juvenile justice policymaking, and assesses changes in response to juvenile crime by both the juvenile justice and criminal justice systems. Cross-listed with CRJU 7540. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5550 - Criminal Justice Policy and Planning

Provides a survey of conceptual and design strategies in criminal justice policy analysis. The logic and rationale of these various strategies are contrasted, and their relative merits are critiqued. Selected policy issues in the criminal justice system are utilized to illustrate the application and interpretation of alternative strategies. Cross-listed with CRJU 7550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5551 - Courts, Law & Justice

Analyzes judicial organization, court administration, and criminal court judicial decision making practices within the context of the broader operation of the criminal justice system. Special attention is paid to the social organization of the courtroom, examining the special roles of judges, prosecutors, and defense attorneys. Cross-listed with CRJU 7551. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5552 - Criminal Justice Ethics

Offers a normative framework within which to explore ways to increase sensitivity to the demands of ethical behavior among criminal justice personnel. The application of a normative perspective enhances the possibility that moral problems are better understood, more carefully analyzed, and rendered more tractable applied ethics forces a reflection not just on ethics, but also on the nature and operation of the criminal justice system itself. Cross-listed with CRJU 7552. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5553 - Women and Crime

Explores issues surrounding women as offenders, victims, and criminal justice professionals. Investigates explanations for the involvement of women in illegal activities. Analyzes the plight of battered women, rape victims, and other female victims. Examines the participation of women in law enforcement judicial processes, corrections and lawmaking. Cross-listed with CRJU 7553. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5555 - Profiling Criminal Behavior

This seminar examines the dynamics of individual criminal acts utilizing inductive and deductive methodology to profile criminal behavior, offender characteristics, crime scene investigation, evidence collection, and case linkage of specific categories of crimes. Topical areas in this seminar will include homicide, serial crime, stalking. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5571 - The Social Organization of Crime

Explores the relationship of neighborhood social disorganization to the dynamics of crime from a social ecology perspective. The course examines the underlying social causes of phenomena such as criminal victimization, violent and property crime, neighborhood fear, neighborhood deterioration, and recidivism. The course examines social, structural, and ecological characteristics of neighborhoods and communities in affecting crime. Cross-listed with CRJU 7571. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5572 - Race, Crime and Justice

Examines the role of race in criminal justice processing. This course examines the research findings, interpretations, issues, and implications in assessing the impact of race in the administration of criminal justice. Explores the policy implications concerning the nature and extent of racial disparities in the criminal justice system and lays out a research agenda to more strategically address these issues within criminal justice policy making. Cross-listed with CRJU 7572. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5574 - White Collar Crime

Employs both the social science and legal approaches to examine crime committed by corporations as well as by individuals in white collar occupations. The course covers how such crimes are socially defined, who commits them, who is victimized by them, which social contexts promote them, and how society and the criminal justice system respond to them. Cross-listed with CRJU 7574. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5575 - The Mentally Disordered Offender

Examines the offender who may be mentally disordered. A survey is made of the various phases of the criminal justice system where psychiatrists are involved, e.g., diversion, fitness, insanity and sentencing. Dangerous sex offender legislation, "not guilty by reason of insanity" and "guilty but mentally ill" statutes, and issues concerning confidentiality, informed consent, and treatment are addressed. Cross-listed with CRJU 7575. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5576 - Social Science in the Criminal Justice System

Examines the use of social science as a tool for legal analysis within the criminal justice system. The course examines how social science research is used to resolve relatively simple factual disputes, then moves on to more complex issues that arise when social science is invoked to make or to change law, both constitutional law (particularly the First, Sixth, Eighth, and Fourteenth amendments) and common law, particularly the construction of procedural rules that govern the operations of the criminal justice system. Cross-listed with CRJU 7576. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5910 - Nature and Scope of Interpersonal Violence

This course will analyze the social, historical, political, legal, and psychological aspects of gender based violence. Topics addressed include: definitions of the problem, demographics, children and youth exposed, national and global perspectives. Strategies for prevention, intervention, treatment, and social change are explored. Cross-listed with CRJU 7910, PUAD 5910 and 7910. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5920 - The Psychology of Interpersonal Violence

This class addresses the contributions and limitations of current empirical and clinical psychological literatures about interpersonal violence (IPV). The primary focus of the course is on the effects of IPV on adult and child survivors, on their psychological needs, and on the contribution of psychological knowledge to practice in IPV. Cross-listed with CRJU 5920, PUAD 5920 and 7920. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5930 - Interpersonal Violence Law and Public Policy

This course provides insight into public policy and law affected by or affecting interpersonal violence, (welfare reform, child maltreatment, criminal and civil court responses). Students will understand the role of law enforcement agents and the practice of victim advocacy, and describe and engage in methods to change law and policy. Cross-listed with CRJU 7930, PUAD 5930 and 7930. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5940 - Interpersonal Violence Advocacy and Social Change

Students will gain an understanding of different models of social change and the various approaches to public address, including social movements and campaigns, that accomplish change. Strategies for engaging diverse individuals, systems and communities to address interpersonal violence will be examined at individual to societal levels. Cross-listed with CRJU 7940, PUAD 5940 and 7940. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 6600 - Special Topics in Criminal Justice

This highly specialized seminar addresses cutting-edge and emerging developments in the field of criminal justice and provides students and faculty with the opportunity to explore significant themes, issues, and problems from a broad interdisciplinary perspective. Topics vary from semester to semester. Course may be taken for credit more than once, provided subject matter is not repeated. Cross-listed with CRJU 7600. Max hours: 7 Credits. **Semester Hours:** 3 to 3

CRJU 6840 - Independent Study: C J

Affords the student the opportunity to pursue creative research activities under the individual supervision of a full-time faculty member. No more than six semester hours of credit for independent study may be applied toward the MCJ degree. MCJ Prereq: 12 semester hours of criminal justice course work and permission of instructor. Max hours: 9 Credits. **Semester Hours:** 1 to 3

CRJU 6910 - Field Study in Criminal Justice

For students who have not had practitioner experience, a full- or part-time internship is required. Prereq: 18 hours of criminal justice course work and permission of instructor and/or advisor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 6950 - Master's Thesis

Independent original research project supervised and evaluated by a thesis committee. Prereq: 33 semester hours of course work and permission of MCJ director, program advisor and thesis chair. Max hours: 6 Credits. **Semester Hours:** 3 to 6

CRJU 7200 - Wrongful Convictions

This seminar examines the dark figure of the criminal justice system; wrongful convictions of innocent people. This course explores the continuum of justice-system errors ranging from persons who are falsely accused (arrested, prosecuted, and tried) to those who are wrongly convicted and imprisoned, to death row inmates who are erroneously executed. Cross-listed with CRJU 5200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7210 - Prisoner Reentry

This seminar examines the harsh realities of prisoner reentry and offers solutions to prepare inmates for release, reduce recidivism, and restore them to adjustment once back in the community, while simultaneously meeting the demands of public safety. Cross-listed with CRJU 5210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7220 - The American Jury System

The aim of this seminar is to raise most of the issues that have to be considered by anyone who wants to understand the American jury. This course attempts to determine what kind of complex matrix of legal functions, social symbols, practical reforms, political philosophy and human psychology the jury can be located. Cross-listed with CRJU 5220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7250 - Criminal Offenders

Crime can have a devastating effect on the lives of victims, families and communities with extraordinary costs to society as a whole. Documented evidence suggests that community safety is best achieved through promoting rehabilitation of offenders rather than relying solely on prisons and containment. This course introduces the core principles and tools of motivational interviewing as it is used currently with the offender population. Students learn how to utilize these skills working with specific offender populations and how to motivate these often resistive clients to change their thinking patterns and behaviors. Cross-listed with CRJU 5250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7260 - Crime and Literature

This seminar focuses on non-fiction literature as it relates to criminality and the Criminal Justice System. A substantial number of people in the United States form impressions and evaluate the effectiveness of the Criminal Justice System based on accounts presented within various types of nonfiction literature, either as social commentary or in biographical/autobiographical form. This course explores samples of these types of commentary, in order to more fully understand and appreciate their impact on shaping public opinion of the Criminal Justice System. Cross-listed with CRJU 5260. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7270 - Case Studies in Criminal Justice

This seminar attempts to examine the lives of people who live on the margins of a society that perceives them as outsiders. Ethnographic studies which utilized observation, participant observations and interviews as their primary research methodology are assigned in order to develop a critical understanding of the social marginalization and cultural aspects of the lives of real human beings living on the constant edge of the law. Cross-listed with CRJU 5270. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7280 - Leadership in the Modern Criminal Justice System

The course is designed to enhance interest, experience and knowledge in leadership that promotes professionalism and ethical behavior. Individual and organizational dynamics are explored through a critical perspective, focusing on criminal justice roles and responsibilities. The class teaches effective leadership skills in areas such as team building, strategic planning, and decision making. Cross-listed with CRJU 5280. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7301 - Crime and Media

This course surveys the relationship between mass media and the U.S. criminal justice system. Special attention is given to the role of media in the social construction of reality. Emphasis is placed on the application of social constructionism to criminal justice related social problems. Cross-listed with CRJU 5301. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7320 - Seminar: Police Administration

Considers the major issues confronting police executives, such as professionalism, recruitment, selection, training, deployment, innovation, evaluation, and charges of brutality, in efficiency and corruption. Cross-listed with CRJU 5320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7325 - Qualitative Methods for Criminal Justice

Focuses on qualitative methods applicable to research in the field of criminal justice. The primary focus is on ethnographic approaches employing such fieldwork techniques as observation, participant observation, interviews, content analysis, life histories and case studies. Cross-listed with CRJU 5325. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7330 - Gangs and Criminal Organizations

This course examines extent, nature and trends of gangs and criminal organizations. We focus on contemporary studies and theories of gang behavior and organized crime. The course examines types of crime, gender and race issues, transnational violence, and public policies regarding criminal organizations. Cross-listed with CRJU 5330. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7391 - Sex Offenders and Offenses

This course will focus on challenges practitioners face in the management of sex offenders. It covers development of programs and partnerships that can effectively assess, inform, manage and treat sex offenders through all phases of the system and reduce recidivism. Cross-listed with CRJU 5391. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7410 - Victimology

This course examines victim-offender relationships, the interactions between victims and the criminal justice system and the connections between victims and other social groups and institutions among various populations. This course addresses the theory, history, research, legislation and policy implications related to the social construction of "the victim." Cross-listed with CRJU 5410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7420 - Violence in Society

This course examines various aspects of violence including distribution over time and space, situations and circumstances associated with violent victimization and offending, and how social institutions, community structure and cultural factors shape violent events. Cross-listed with CRJU 5420. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7430 - Drugs, Alcohol and Crime

This course provides an interdisciplinary overview of theory, research and policy issues surrounding the relationship between drugs, alcohol and crime; and the criminal justice system response. The course explores the socially constructed nature of illegal substances and connections to U.S. drug policy. Cross-listed with CRJU 5430. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7510 - Seminar: Contemporary Issues in Law Enforcement

Examines current thinking and experience with respect to changing and reforming police programs and practices. The course focuses primarily on the American police experience, reviewing major innovations, exploring their rationale, and examining organizational impediments to their implementation. Cross-listed with CRJU 5510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7520 - Seminar: Corrections

Provides a critical examination of the development and implementation of correctional systems in America. The course presents the origins of correctional efforts and the evolution of the prison; reviews punishment and rehabilitation rationales in the context of sentencing models; examines the social organization of the prison, including inmate subcultures and staff work strategies; and assesses the inmates' rights movement and the impact of judicial intervention in correctional settings. Cross-listed with CRJU 5520. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7530 - Seminar: Community Corrections

Analyzes the theories and practices of probation and parole, responses of paroling authorities to public pressures and court controls, and their implications for rehabilitation. Efforts to bridge institutional settings and community life, as well as the feasibility and effectiveness of treating individuals under sentence in the community, are reviewed. Cross-listed with CRJU 5530. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7540 - Seminar: Juvenile Justice Administration

Examines the policies and practices of agencies in processing youthful offenders through the juvenile court system, reviews trends in juvenile justice policy making, and assesses changes in response to juvenile crime by both the juvenile justice and criminal justice systems. Cross-listed with CRJU 5540. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7550 - Seminar: Criminal Justice Policy Analysis

Provides a survey of conceptual and design strategies in criminal justice policy analysis. The logic and rationale of these various strategies are contrasted, and their relative merits are critiqued. Selected policy issues in the criminal justice system are utilized to illustrate the application and interpretation of alternative strategies. Cross-listed with CRJU 5550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7551 - Courts, Law & Justice

Analyzes judicial organization, court administration, and criminal court judicial decision making practices within the context of the broader operation of the criminal justice system. Special attention is paid to the social organization of the courtroom, examining the special roles of judges, prosecutors and defense attorneys. Cross-listed with CRJU 5551. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7552 - Seminar: Criminal Justice Ethics

Offers a normative framework within which to explore ways to increase sensitivity to the demands of ethical behavior among criminal justice personnel. The application of a normative perspective enhances the possibility that moral problems are better understood, more carefully analyzed, and rendered more tractable. Applied ethics forces a reflection not just on ethics, but also on the nature and operation of the criminal justice system itself. Cross-listed with CRJU 5552. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7553 - Seminar: Women and Criminal Justice

Explores issues surrounding women as offenders, victims, and criminal justice professionals. Investigates explanations for the involvement of women in illegal activities. Analyzes the plight of battered women, rape victims, and other female victims. Examines the participation of women in law enforcement, judicial processes, corrections and lawmaking. Cross-listed with CRJU 5553. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7571 - Advanced Seminar: The Social Organization of Crime

Explores the relationship of neighborhood social disorganization to the dynamics of crime from a social ecology perspective. The course examines the underlying social causes of phenomena such as criminal victimization, violent and property crime, neighborhood fear, neighborhood deterioration and recidivism. The course examines social, structural, and ecological characteristics of neighborhoods and communities in affecting crime. Cross-listed with CRJU 5571. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7572 - Advanced Seminar: Race, Crime and Justice

Examines the role of race in criminal justice processing. This course examines the research findings, interpretations, issues, and implications in assessing the impact of race in the administration of criminal justice. Explores the policy implications concerning the nature and extent of racial disparities in the criminal justice system and lays out a research agenda to more strategically address these issues within criminal justice policy making. Cross-listed with CRJU 5572. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7574 - Advanced Seminar: White Collar Crime

Employs both the social science and legal approaches to examine crime committed by corporations as well as by individuals in white collar occupations. The course covers how such crimes are socially defined, who commits them, who is victimized by them, which social contexts promote them, and how society and the criminal justice system respond to them. Cross-listed with CRJU 5574. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7575 - Advanced Seminar: The Mentally Disordered Offender

Examines the offender who may be mentally disordered. A survey is made of the various phases of the criminal justice system where psychiatrists are involved, e.g., diversion, fitness, insanity and sentencing. Dangerous sex offender legislation, "not guilty by reason of insanity" and "guilty but mentally ill" statutes, and issues concerning confidentiality, informed consent, and treatment are addressed. Cross-listed with CRJU 5575. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7576 - Advanced Seminar: Social Science in the Criminal Justice System

Examines the use of social science as a tool for legal analysis within the criminal justice system. The course examines how social science research is used to resolve relatively simple factual disputes, then moves on to more complex issues that arise when social science is invoked to make or to change law, both constitutional law (particularly the First, Sixth, Eighth and Fourteenth Amendments) and common law, particularly the construction of procedural rules that govern the operations of the criminal justice system. Cross-listed with CRJU 5576. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7600 - Special Topics in Criminal Justice

This highly specialized seminar addresses cutting-edge and emerging developments in the field of criminal justice and provides students and faculty with the opportunity to explore significant themes, issues, and problems from a broad interdisciplinary perspective. Topics vary from semester to semester. Course may be taken for credit more than once, provided subject matter is not repeated. Cross-listed with CRJU 6600. Max hours: 7 Credits. **Semester Hours:** 3 to 3

CRJU 7910 - Women and Violence: a Sociological Perspective

This course is a sociological, feminist analysis of violence against women and girls that addresses the intersection of sexism and other forms of oppression such as racism, classism and heterosexism within historical, cultural, social and institutional contexts. Topics covered focus on overt and covert forms of sexual coercion, harassment and assault, battering and stalking. Cross-listed with CRJU 5910, PUAD 5910 and 7910. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7920 - Psychology of Violence Against Women

This class addresses the contributions and the limitations of current empirical and clinical psychological literatures about domestic violence. Topics covered include: distinguishing among mental health professionals regarding work with DV clients; the psychological impacts of domestic violence; services useful for responding to the needs of women and children; and an introduction to the psychology and treatment of batterers. Cross-listed with CRJU 5920, PUAD 5920 and 7920. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7930 - Battered Women and the Legal System

This course provides a practical understanding of how the following relate to battered women and their children; a) major developments in federal, state, tribal, administrative, statutory and case law; b) the role and responses of the law enforcement, judges, attorneys, victim assistance providers and other legal system agents; and c) the role and process of victim advocacy. Cross-listed with CRJU 5930, PUAD 5930 and 7930. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 7940 - Domestic Violence Social Change and Advocacy

Info on theories & strategies behind contemp social change movements & skills necessary to organize & implement actions to influence public awareness & policy. Values of US society are complex & require advocates/activists to develop a heightened sense of self, community, & ethical framework while confronting sexism, racism & oppressions. Cross-listed with CRJU 5940, PUAD 5940 and 7940. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 8840 - Independent Study

Affords the student the opportunity to pursue creative research activities under the individual supervision of a full-time faculty member. No more than six semester hours of credit for independent study may be applied toward the PhD degree. Prereq: 12 semester hours of criminal justice course work and permission of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 3

CRJU 8990 - Doctoral Dissertation

Upon admittance to candidacy, students must be continuously registered for dissertation credit each fall and spring semester or be automatically dropped from the program. Students must register for 7.0 credit hours per semester. In cases where students will not be using any university resources during a particular semester, they may petition the PhD director to register for only 3.0 credit hours to maintain continuous enrollment. Students must be registered for dissertation credit during the semester they have a colloquium or defense. Max hours: 10 Credits. **Semester Hours:** 1 to 10

Cultrly & Lingstcly Dvrse Educ

CLDE 4030 - Language Development and Acquisition

This course is designed to help future teachers understand the processes of language and literacy acquisition. The focus is on both first and second language acquisition, and on the acquisition of literacy in children. This course is cross-listed with SPED 5530 and CLDE 5030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 4160 - Historical, Legal & Cultural Foundations For The Educator

This course includes an overview of U.S. and Colorado history and legislation related to bilingual education and second language education, as well as current and historical immigration issues as they impact students, families, communities, schools, and educators. This course is cross-listed with CLDE 5160. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 4810 - Orientation to Bilingual Education

This academy provides a basic introduction to bilingual education programs. The content consists of introductory material regarding the legal and historical foundations of bilingual education, bilingual and ESL program model overviews, materials to address cultural issues in the classroom, and introductory information regarding human growth and development. Max hours: 1 Credit. **Semester Hours:** 1 to 1

CLDE 4820 - Language Development and Acquisition

This academy provides a basic introduction to bilingual and English as a second language education programs. The content consists of introductory material regarding second language acquisition theories and stages, factors that influence learning a second language in schools and informal assessment among other. Max hours: 5 Credits. **Semester Hours:** 1 to 5

CLDE 4825 - Techniques in Teaching English as a Second Language

Develops skills in using a variety of classroom techniques to teach English as a second language. The course is a practical presentation of ESL methods and techniques. Examples of classroom practices are taken from the full educational spectrum, from public schools to pre-university intensive courses on adult education. Cross-listed with CLDE 5820. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 4830 - Instructional Delivery Methods for Second Language Learners

This academy provides more in-depth information on different instructional methods and how to apply them in working with English language learners. It looks into practical strategies for modifying lessons using sheltered instruction in order to accommodate the students' linguistic and academic needs (dominance vs. proficiency). Max hours: 1 Credit. **Semester Hours:** 1 to 1

CLDE 4910 - CO-TOP Practicum

The CO-TOP Paraeducator Certification requires 2 credit hours of field experience, each credit hour representing at least 90 hours in the field. Field experiences should balance out a person's previous experience to create a more marketable set of skills and a range of skills across ages, disabilities, grade levels and types of programs or philosophical bases. Each practicum participant is provided a practicum handbook. The handbook outlines all components of the practicum experience. The handbook is made available to each participant at the time of registration for the experience. Prereq: students need to have taken at least 10 CO-TOP academies before they are eligible to take the practicum course. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CLDE 5010 - Foundations of Language, Literacy and Culture

Designed for veteran and novice teachers to gain an understanding of the broad fields of literacy and language education. Participants examine key educational philosophies based on the writings of important scholars in the field, on topics such as the politics of literacy, the nature of literacy and literacy/cultural identity. The course examines current thought concerning literacy and language learning and teaching from a variety of perspectives and contexts, including classroom, school and community. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5030 - Language & Literacy Acquisition Div Lrn

This course investigates the relationship between language and literacy acquisition. In the context of first and second language acquisition across the lifespan, the course focuses on bilingual and second language development, and on the acquisition of literacy by young children. Cross-listed with SPED 5530 and CLDE 4030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5035 - Language and Literacy: Acquisition, Processes, and Cognition, Part II

This course is the second of a two-part sequence in language and literacy. Students examine research and develop practices relating to language and literacy acquisition, in particular by linguistically diverse learners in community and classroom contexts. Focuses on learners' development of academic literacy and participation in a second language and culture. Prereq: LALC 5030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5050 - Assessment & Advocacy for Diverse Learners

The purpose of this course is to prepare teachers to gather and use assessment results within a strengths-based framework to advocate for appropriate programming, placement and instruction, and ongoing progress monitoring for students who are culturally and linguistically diverse. Cross-listed with SPED 5050. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5070 - Linguistic Analysis of English: Implications for Teaching

A descriptive linguistic approach to English grammar with a functionalist view of language and discourse processing. The course examines the historical evolution of English from its origins and the impact this has had on its grammar and syntax. A sociolinguistic perspective is included focusing on language variation and status. Provides a framework for understanding, identifying and describing the major features of English (in particular) and language (in general). Students gain a working knowledge of English grammar, including grammatical terms, categories, patterns and rules - especially those forms and functions that are important and/or problematic for second language learners of English. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5140 - Multicultural Education

Develops an understanding of the pluralistic nature of U.S. society and the role of the school within this social context. Examines the legal and cultural history of language education in Colorado and the U.S. as well as the impact of changing demographics on schools. Participants study themselves and their students as cultural beings and develop an understanding of how their own cultural identity affects their teaching. This course fulfills the culture requirement for SEHD "core courses." It also fulfills the culture requirement for the Colorado LDE Endorsement and the LDE Master's Concentration. It may also serve as an elective in the LDE Master's concentration. Note: LALC 5140, 5150, 5160. Each of these three courses satisfies the requirements for the Colorado Endorsement in Linguistically Diverse Education and the LDE Master's concentration. The content of the courses are related, but the focus of each course is sufficiently different that students in the Master's program may use Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5150 - Culture of the Classroom

Provides a classroom-focused examination on linguistic and cultural diversity. The legal history of language and literacy education in the U.S., Colorado and local school districts is studied with a focus on implications for instructional practice. Participants become familiar with research and theory on the roles of cultures in the classroom and gain skills that support differentiated instruction for diverse students. This course fulfills the culture requirement for the Colorado LDE Endorsement and the BESL Master's concentration. It may also serve as an elective in the BESL Master's concentration. Note: LALC 5140, 5150, 5160. Each of these three courses satisfies the requirements for the Colorado Endorsement in Linguistically Diverse Education and the BESL Master's concentration. The content of the courses are related, but the focus of each course is sufficiently different that students in the Master's program may use a second or third course in the sequence as an elective. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5160 - Historical, Legal And Cultural Foundations For The Education Of Immigrant And Language Minority Stdn

This course includes an overview of U.S. and Colorado history and legislation related to bilingual education and second language education, as well as current and historical immigration issues as they impact students, families, communities, schools, and educators. Cross-listed with CLDE 4160. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5170 - Race, Class and Culture in Public Schools

This course will focus on understanding culture and diversity, recognizing the role of inherited power and privilege in both individual and institutional interactions and developing a philosophy of social justice and equity in education. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5180 - Working with Communities and Families

This course will focus on the importance of understanding and connecting with the community and families of the students in a school, by exploring the socio-cultural histories of students and communities. We will develop practical strategies and activities to uncover the rich resources that diverse students and families bring to schools as well as to connect and collaborate with the community organizations and activities to increase student engagement and relevance. Prereq: LALC 5170. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5190 - Culturally Responsive Pedagogy and Practices

This course focuses on developing practical tools for culturally responsive, inclusive instructional strategies, classroom management and curriculum and lesson planning. Prereq: LALC 5170 and 5180. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5430 - Gender as Culture

Examines ways some implicit conceptual and value systems regarding gender are manifested in schools, homes and work places. Provides students with knowledge and insight from interdisciplinary scholarship of gender in society. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5800 - Sociolinguistics: Language Variation and Implications for Teaching

Provides an introduction to the field of educational sociolinguistics and research of classroom discourse. Students are introduced to the collection and analysis of oral and written language in educational contexts. Basic concepts and key issues regarding the form-function relationships of language use in instructional settings are discussed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5820 - Techniques in Teaching English as a Second Language

Develops skills in using a variety of classroom techniques to teach English as a second language. The course is a practical presentation of ESL methods and techniques. Examples of classroom practices are taken from the full educational spectrum, from public schools to pre-university intensive courses on adult education. Cross-listed with CLDE 4825. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5821 - English Phonology for TESOL

Provides ESL teachers with a basic understanding of the English sound system and the implications for teaching. Designed for teachers with a limited background in phonetics and phonology. An understanding of some of the basic concepts in linguistics is advantageous, though not required. Students collect speech data from non-native speakers and use their analysis to develop instructional materials and strategies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5822 - Internet for ESL Teachers

Provides teachers with the opportunity to explore Internet resources for instructional use and professional development. While learning how to access, navigate, and write for the Internet, class participants examine and devise instructional uses of the Internet in English language teaching. Issues of equity of access and pedagogical value are discussed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5825 - Methods and Materials of Language Teaching

Provides an in-depth study of curriculum options for learners of English as a second language. Participants examine and apply strategies and materials for developing linguistic and academic capabilities of language learners. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5826 - Language Teaching Lab

Provides participants with a classroom-based examination of language teaching based on theoretical tenets of language acquisition and language teaching methods. Students develop lessons around particular language points and work with the professor and peers to implement insights in their classrooms or the classrooms of collaborating language teachers. Language focus varies from phonology, morphology, syntax and discourse features. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5830 - Workshop in Multicultural Education

Provides students with the experiences in multicultural methodology training. How to utilize community members, para-professionals, and peers to facilitate learning in a multicultural environment. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5835 - Special Topics: Literacy and Language

Specific topics vary but will include the exploration of literacy development and instruction in particular populations or with specific focuses. Max hours: 3 Credits. **Semester Hours:** 0.5 to 3

CLDE 5840 - Independent Study: CLDE

Max hours: 4 Credits. **Semester Hours:** 1 to 4

CLDE 5920 - Readings in Multicultural Education

Provides students with an opportunity to examine the current literature as it relates to trends in contemporary issues in the area of multicultural education. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 6090 - Research Seminar

An advanced course which focuses on specific issues in language, language acquisition and language teaching. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 6713 - Introduction to Language Policy

The legal, ideological, and historic foundations of language policies are examined. Also examined are connections with related topics such as language rights, language and power, and issues from the sociology of language, such as language loyalty. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 6840 - Independent Study: CLDE

Max hours: 4 Credits. **Semester Hours:** 1 to 4

CLDE 6912 - Seminar and Practicum in Literacy and Language, ESL and Bilingual Education

Provides opportunities for advanced students in the M.A. program to apply concepts acquired in course work and other educational experiences to specific situations. Students will work in schools, classrooms, administrative offices, or community centers (according to experience, interests, and current teaching positions; sites to be identified before course begins) to study the potential for change in schools and society and reflect upon their own roles as change agents in the field. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 6950 - Master's Thesis

An advanced course focusing on Master's Thesis development and presentation. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CLDE 7410 - Communication and Control in Systems Change

Examines educational settings -- classrooms, schools, school districts, corporate and clinical settings, church basements and community centers -- as systems, and explores strategies for change. Participants draw on interdisciplinary perspectives of individual and group behavior as they develop personal theories of change and apply these to their own situations. Prereq: EDLI 7100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Decision Sciences for Business

DSCI 3780 - Supply Chain Management

Over the last decade businesses have started to understand how the design and operation of their supplier network can be a source of competitive advantage. Supply chain management is concerned with the activities around communication, managing inventory, warehousing, transportation and facility location. The course objectives are to understand a supply chain/network from the strategic, planning and operations perspectives and to develop skills that allow you to analyze the responsiveness and effectiveness of the network. Prereq: DSCI 2010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSCI 4840 - Independent Study

Max hours: 9 Credits. **Semester Hours:** 3 to 3

DSCI 5939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 3

DSCI 6440 - Quality and Process Improvement

Studies the identification, measurement and improvement of quality and the practical management issues related to implementing quality systems within organizations. Topics include historic and contemporary views of quality, statistical quality control tools including Six SigmaSM, work design and measurement and process flow and design. Prereq: BUSN 6530 with a grade of "C" or better . Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSCI 6822 - Services Operations

Examines the unique issues involved in the management of service operations. Operations management principles specific to service industries are given in-depth. In addition, simulation is introduced as a technique for studying service industries. Prereq: BUSN 6530 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Design & Planning

DSPL 7011 - Research Design

Students are provided with a 'hands on' understanding of methodological issues to become both intelligent consumers of social science research and competent producers of empirically based knowledge. The course moves through the research process covering hypothesis formulation, research design, data collection, measurement, and some fundamentals of statistical inference. Prereq: Admission to the PhD program in Design and Planning or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSPL 7012 - Theories of Planning

Examines theories of planning and problems of plan implementation. Review and assesses a range of theories of intervention - market imperfections, political economy, regulations, community, rationality, and communication - relying on examples from students research as well as case studies developed by students. Prereq: Admission to the PhD program in Design and Planning or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSPL 7013 - Environment and Behavior

Explores contributions of social research to understanding what facilitates and motivates people's adoption of sustainable environmental behaviors. It examines personal and collective behaviors, at scales that range from buildings to global environmental change, in the developed and developing world. Prereq: Admission to the PhD program in Design and Planning or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSPL 7014 - Colloquium

Presentations of research projects by students, college faculty members and visitors. Max hours: 9 Credits. **Semester Hours:** 1 to 3

DSPL 7015 - Historiography and Architecture

Advanced seminar concerning the study of the written record of the past and how it is established. Readings focus on canonic texts formative to the discipline and the strategies they

offer for historical research. Prereq: "Course is offered to doctoral students but masters students may enroll with instructor approval." Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSPL 7016 - Architecture, in Theory

Explores theories and texts that have influenced the analysis and the production of architectural form. The focus is on the expressive potential of architectural forms and the modalities of the realization of this potential. Prereq: "Course is offered to doctoral students but masters students may enroll with instructor approval." Cross-listed with ARCH 6254. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSPL 7017 - Pro-Seminar

Advanced, graduate-level course (seminar, independent-study, or other) addressing the history of architecture, landscape, or urbanism. Prereq: "Course is offered to doctoral students but masters students may enroll with instructor approval." Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSPL 7686 - Special Topics in Design and Planning

Various topical areas in design and planning are studied, including those in history, theory, methods, and practice. Max hours: 18 Credits. **Semester Hours:** 1 to 3

DSPL 7840 - Independent Study: DSPL

Studies initiated by students or faculty and sponsored by a faculty member to investigate a special topic or problem related to design and planning. Prereq: Permission of instructor. Max hours: 18 Credits. **Semester Hours:** 1 to 3

DSPL 7950 - Doctoral Thesis Research

Conducting research for doctoral dissertation, including data collection, analysis and presentation of findings. Prereq: Completion of core of PhD program. Max hours: 30 Credits. **Semester Hours:** 1 to 10

Doctoral Studies in Educ Prog

DSEP 6000 - Academic Writing for Doctoral Students

Tailored for graduate students in education. Focuses on techniques for improving academic writing, particularly planning, organizing, drafting, revising, and editing papers, i.e. course assignments, portfolio products, doctoral proposals or dissertation chapters. Prereq: Admission to doctoral program. Max hours: 3 Credits. **Semester Hours:** 1 to 1

DSEP 6010 - APA Conventions in Academic Writing

This workshop, specifically directed to doctoral students, concentrates on practical issues involved in documenting sources and following conventions for other text features using the current Publication Manual of the American Psychological Association and updates posted on the APA Web site. Prereq: Admission to the doctoral program. Max hours: 1 Credit. **Semester Hours:** 1 to 1

DSEP 6020 - Advanced Academic Writing for Doctoral Students

This workshop is designed for doctoral students in education. Focuses on practical strategies for managing, organizing, revising and editing academic papers, especially complex writing projects such as dissertation proposals and dissertation chapters. Prereq: DSEP 6000 or permission of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 1

DSEP 6994 - Introduction to Academic Discourse

Designed to be taken prior to beginning the doctoral program. Discusses the process of writing-emphasizing reading research articles critically with a focus on selecting and organizing sources into a review, developing a conceptual framework, and identifying the connectivity between frameworks and conclusions. Covers principles involved in critically reviewing the literature, including an examination of the purpose of the literature review, its structures and an analysis of examples. Furthers the development of a scholarly writing culture, and set expectations for the type of writing necessary to be successful in the doctoral program and to be contributing members of the academic community of practice. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSEP 7010 - Dissertation Planning and Design

Provides doctoral students with conceptual, methodological, and social support during the early stages of the doctoral dissertation. Course content and discussion focuses on the first three chapters of the dissertation, including: posing research questions and hypotheses, conceptual and theoretical frameworks, literature reviews, and methodological (design, sampling, measurement, analysis) plans. Prereq: completion of all required course work; successful completion or scheduled doctoral comprehensive examination during the semester in which this course is taken. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSEP 7200 - Administrative Leadership and Values Appraisals

Examines the core values underlying the program in education administration: value development in individuals as they relate to the purpose of public schooling in today's society. Prereq: permission of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 6

DSEP 7210 - Education Policy Making in a Democratic Society

Provides students with relevant theories, research, and practice related to administrative policy making educational organizations. Focuses on ways of thinking about societal and schooling tensions, and includes a focus on governance, planning, community participation, politics, working with groups, policy arenas, conflict management and the change process. Prereq: permission of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 6

DSEP 7220 - Leadership and Power

Part of a planned sequence of experiences for a cohort group of advanced doctoral students preparing for careers as senior policy administrators in education. Prereq: permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSEP 7230 - Organizational Performance In Educational Contexts

Explores connections between organizational behaviors and outcomes as well as external and internal factors influencing organizational behavior. The course focuses on how education organizations learn, how they can use that learning to improve performance, and what techniques are available to help understand present performance and affect future performance. Prereq: permission of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 6

DSEP 7240 - Problems/Practices in Integrated Services

Examines the specific systems at local, state, and national levels that provide services and support for children, youth, and families including the regulatory and statutory criteria for program administration and funding, the nature and scope of services offered, and the goodness-of-fit between overlapping program mandates and existing needs of families. Prereq: admission to the Ph.D. program in educational leadership or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSEP 7250 - Nature of Work in Schools

Policies and educational reforms affecting the technical core of schooling: curriculum, teaching, learning, assessment, and organization. Students develop research and policy analysis skills and investigate social and political factors affecting what is taught and learned in schools. Prereq: DSEP 7000 and 7100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSEP 7260 - Managing Integrated Services

Examines the dynamics of managing public policies and programs that support integrated services for children and families. Course focuses on managerial skills needed in a complex, multi-disciplinary setting. Course examines federal, state, and local government agency policies and their administrative implications. Prereq: core course in Integrated Services emphasis of the Ph.D. program in Educational Leadership and Innovation. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSEP 7300 - Individual and Organizational Change

Covers theory and practice of psychological change as this change relates to systems and individuals within organizations. Addresses the knowledge, understanding, and application of the change process. Prereq: permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSEP 7400 - Epistemologies: Ways Knowing, Res Paradigms, & Counter-Epistemologies

Epistemologies addresses conceptions and approaches to ways of knowing including intellectual traditions and their history as well as epistemological counter-stories of marginalized and subaltern ways of knowing that expose the contingency and bias of dominant forms of knowing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSEP 7410 - Power and Privilege: The Social Construction of Difference

This course will focus on understanding culture and diversity, recognizing the role of power and privilege in both individual and institutional interactions, and developing a philosophy of social justice and equity. Prereq: Doctoral Student Status. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSEP 7420 - Foundations of Education in Urban and Diverse Communities

This course focuses on the complex relationship between schools and the larger society of which they are a part. It emphasizes historical, political, and sociological perspectives as we explore the large questions about why we have public schools and examine the interplay of social systems in education (economic, political, social, health, legal). This course will analyze education policies and subsequent implementation as the intended and unintended consequences of many processes: ideological, social, judicial, scientific, political, and economic. Prereq: Doctoral Student Status. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSEP 7430 - Working with Families and Communities

Designed for veteran and novice teachers and administrators to add to their present understanding of the function of families and communities in contemporary society. Participants examine key theoretical texts of important scholars in the field of human development, with an emphasis on topics such as the politics of everyday life, the salience of linguistic & cultural identity in the life of families/communities, and the political-economic and social factors that shape the "life course" of families/communities. Prereq: Doctoral Student Status. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSEP 7500 - Strategic Human Capital Development

This course focuses on understanding and leveraging the personnel function of an educational organization. You will learn how to strategically align and maximize your human capital with organizational strategic objectives. Cross-listed with EDUC 7500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSEP 7510 - Strategic Organizational Management

An effective partnership between the board, community and institutional leader is essential to fulfilling the mission of an educational organization. This course examines the importance of strategic visioning, strategic planning, and specific communication strategies. Cross-listed with EDUC 7510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSEP 7520 - Strategic System Improvement

The fundamental purpose of educational organizations (schools, districts, community colleges, higher education, non-profits) is to ensure high levels of learning for all. This course addresses topics such as data development and management, accountability, curriculum assessment and instruction, continuous improvement, and professional learning. Cross-listed with EDUC 7520. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSEP 7700 - Doctoral Pro Seminar

First semester students in DSEP are introduced to the faculty and the elements of the program. Prereq: admission to the Ph.D. program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

DSEP 7710 - Theoretical Bases of Instructional Technology

Seminar on the theoretical foundations of the field of instructional technology, including behavioral, cognitive, and systems theories. Prereq: acceptance into the doctoral program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSEP 7711 - Curriculum Reform in a Democracy

Students address major themes in curriculum improvement. Prereq: permission of instructor.
Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSEP 7830 - Special Topics

Special topics that reflect current research and scholarly exploration of leadership and innovation. Max hours: 9 Credits. **Semester Hours:** 1 to 6

DSEP 7833 - Culture and Critical Theory

Provides an introduction to critical inquiry. General topics include: the development and of the concept of culture, the development and application of critical theory, critical race theory and critical pedagogy. Through the course, students are guided to explore critical theory work in their own field. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSEP 7834 - Divergent Scholarly Work on Identity & Voice

This seminar is to prepare individuals to integrate theoretical and practical knowledge by cultivating habits of analysis, inquiry and judgment. Students formulate ways of constructing voice for their own individual sense of identity as a leader and innovator in response to social and political pressures. Prereq: DSEP 7831. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DSEP 7840 - Independent Study: DSEP

Max hours: 9 Credits. **Semester Hours:** 1 to 4

DSEP 7930 - Doctoral Internship: Aspiring

This internship provides students with an opportunity to apply coursework to real life situations, work with a mentor/professional colleague, and refine and/or reconstruct ideas of theories of student interest. Max hours: 9 Credits. **Semester Hours:** 3 to 3

DSEP 7931 - Doctoral Internship: Complementary

In this internship students apply their academic preparation, experience, and interests to curriculum development, instructional models, policy development, and/or leadership/supervision activities. Max hours: 9 Credits. **Semester Hours:** 3 to 3

DSEP 8994 - Doctoral Dissertation

Doctoral dissertation coursework toward the completion of a EdD or PhD degree in Education. Max hours: 30 Credits. **Semester Hours:** 1 to 10

Early Childhood Education

ECED 2931 - ECE Field Experience I

Includes a classroom seminar (5 sessions--15 clock hours) and placement in a child care/educational setting (90 clock hours-14 weeks at 6-7 hours per week). Supervised placement provides the student with the opportunity to observe children, to practice appropriate interactions, and to observe effective guidance and management techniques. Coreq: ECED 4000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 2932 - ECE Field Experience II

Opportunity to supplement course work with practical hands-on experience (45 clock hours) in early childhood classroom-apply knowledge and practice skills learned in educational program. Students work under the immediate supervision of experienced personnel in an early childhood education setting. Prereqs: PSYC 3205, ECED 4000 (or ECE 101), ECED 2931 (or ECE 102), ECED 4102. Coreq: ECED 2932 may be completed concurrently with ECED 4102. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ECED 4000 - ECE as a Profession

Overview of the early childhood profession and the philosophical and historical foundations of services to young children and their families. Standards for early childhood care and education, professionalism, code of ethical conduct, and key areas of ECE professional knowledge are examined. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4010 - Social Studies & Creative Arts

Value of play and creative arts in early childhood; integration of visual arts, music, dance/movement, drama and social studies into the K-3 classroom curriculum; instructional design; authentic assessment, and evidence-based practice for adapting the curriculum for diverse learners. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4020 - Science for P-2 Classrooms

Focuses on teaching science in preschool, kindergarten and primary grades, including knowledge of state and district science content standards, process standards, assessment, effective instructional strategies, evidence-based practice for adapting the curriculum for diverse learners, and appropriate use of materials. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4030 - Nutrition, Health, and Safety

This course focuses on nutrition, health, and safety as a key factor for optimal growth and development of young children. Content includes nutrient knowledge, menu planning, food program participation, health practices, management and safety, appropriate classroom activities and communication with families. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4040 - Administration of Early Childhood Care and Education Programs

Knowledge and skills required of administrators to effectively lead and manage early childhood programs: Colorado's licensing requirements, quality standards, program philosophy, organization infrastructure, policies, budget, staffing, and marketing. Director's administrative skills and role in community collaboration and advocacy. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4060 - Working with Families, Professionals, and Communities

Focuses on the human relations component of an early childhood professional's responsibilities including director-staff relationships, staff development, leadership strategies, family-centered practice, culturally-responsive practices, family involvement, parent-professional partnerships, and community interaction. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4070 - Development and Education of Infant and Toddlers

Focuses on the growth and development of infants and toddlers; responsive caregiving practices; observing development; relationship-based approach to curriculum and guidance; health, safety, and nutrition issues. Investigates state requirements for licensed infant/toddler homes and centers and accreditation and quality standards. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4102 - Developmentally Appropriate Curriculum Methods and Techniques

Overview of early childhood curriculum development including processes for planning and implementing developmentally appropriate environments, materials, and experiences. Examines curriculum models and approaches for promoting development and learning in all developmental domains. Evidence-based practices for assessing young children. Prereq: PSYC 3205, ECED 4000 (or ECE 101), ECED 2931 (or ECE 102). Coreq: ECED 4102 may be completed concurrently with ECED 2932. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4200 - Assessment for Early Childhood Classrooms

Purpose and methods of observation and assessment in infant, toddler, preschool, kindergarten, and primary classrooms. Defines measurable outcomes and progress monitoring and use of assessment data to improve early intervention, curriculum planning, intentional teaching, instructional design, and monitor child outcomes. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4202 - Classroom Management to Promote Prosocial Behavior

Presents evidence-based classroom management strategies to promote social competence and reduce/prevent behavior problems. Topics include: social/emotional development of young children, prosocial skills, application of evidence-based techniques, the environment, using responsive relationships, positive behavior support and intervention. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4300 - Exceptional Learners in the Early Childhood Classroom

Educating young children with disabilities in the early childhood setting: typical and atypical development, theoretical models, policy and legal requirements, evidence based research related to instructional design, intervention/curriculum planning and implementation. Introduction to embedded instruction and inclusive environments. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4410 - Foundation & Organization Of Coaching

This course will train early childhood coaches using material from research-based sources and program experiences. Participants will learn best practices in coaching early childhood and develop a systematic, individualized approach to effective coaching. Cross-listed with ECED 5410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4420 - Connecting Awareness With Application & Deepening Of Practice

This course will identify effective ongoing support strategies for individuals providing coaching. Participants will integrate skills from ECED 5410 with effective application in real life coaching experiences. Prereq: ECED 4410 or instructor permission. Cross-listed with ECED 5420. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4430 - Attuning For Personal And Organizational Change

This course is designed to support the coach in creating a social learning climate where a synergy of shared learning and reflective dialogue about practice are examined, analyzed and refined.

Prereq: ECED 4410 & 4420 or instructor permission. Cross-listed with ECED 5430. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4910 - Student Teaching: Infant Toddler

Teacher candidates apply learning from coursework to practice in the care and education of infants and toddlers, working in their infant toddler placement setting two days per week for eight weeks or one day per week for 16 weeks. Max hours: 2 Credits. **Semester Hours:** 2 to 2

ECED 4912 - Student Teaching: Preschool

Culminating student teaching project to provide evidence of proficiency on Performance-Based Standards for Colorado Teachers and Early Childhood Education competencies. Teacher candidates work in preschool setting two days per week for eight weeks or one day per week for 16 weeks. Successful completion of all ECED courses prior to semester of student teaching and passing score on ECE PLACE exam. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4914 - Student Teaching: Primary K-3

Culminating student teaching project to provide evidence of proficiency on Performance-Based Standards for Colorado Teachers and Early Childhood Education competencies. Teacher candidates work in primary setting 4-5 days per week for 16 weeks. Successful completion of all ECED courses prior to semester of student teaching and passing score on ECE PLACE exam. Max hours: 6 Credits. **Semester Hours:** 6 to 6

ECED 5000 - The Early Childhood Profession

The first in the required sequence of early childhood courses. It provides an overview of the early childhood profession and philosophical, historical, and legal foundations of services to young children and their families. State and national standards for early childhood education and professional code of ethical conduct are examined. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ECED 5010 - Curriculum and Program Development in Early Childhood Education

Review of principles of early childhood curriculum and program development. Linkages are made between theoretical bases of development and curriculum planning. Curriculum areas considered include language, pre-academics, motor, social-emotional, science, social studies and aesthetic development. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 5020 - Approaches to Young Children's Learning

Review of approaches for facilitating the learning and development of young children. Examined are programs for children from infancy through age eight. Approaches are considered in terms of (1) their differing views of intellectual, social, and physical development of young children; (2) their operation, activities and procedures; and (3) their effects on children's learning. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 5030 - Directing Programs for Young Children

Analysis of organizational factors and instructional events in the classroom, facilitation of teacher effectiveness through supervisory feedback and in-service development. Special attention is given to supervisor or teacher relationships, parent-school-community relationships, and processes for feedback. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 5040 - Administrative Seminar

Emphasis on those topics required of administrators and collaborator or consultants for early childhood socially inclusive classrooms or programs, such as philosophy, finance, programming, management, community or parent relations, supervision, ethical issues, teaming, professionalism, public policy and legislation, in service development and service coordination. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 5060 - Working with Parents and Families

Review of historical factors and research related to current trends in working with parents and families of children with or without disabilities. The course presents content concerning family systems theory, various community services available to families, abused and neglected children, and attributes of successful programs that serve parents and families in early childhood. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 5070 - Social Competence & Classroom Supports

Focuses on the cognitive and social development of infants and young children and problems that may occur during the process. Emphasizes intervention approaches for preschool children with cognitive and social-emotional disabilities. Implications for intervention from current research are considered. Cross-listed with ECED 7070. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5080 - Language and Literacy in Young Children

Overview of normal language and literacy development through age 5, language components and pertinent research relating to language and literacy acquisition. Emphasis is placed on language only disorders commonly demonstrated by young children with disabilities and appropriate intervention strategies. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 5090 - Neuromotor Development and Disorders in Young Children

Provides an overview of normal and abnormal motor and neurological development in the infant and young child. Current treatment approaches for children with neuromotor disorders are examined, with emphasis on sensory integration and neuro-developmental treatment. Also reviewed are sensory deficits; hearing and visual impairment. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 5102 - Introduction to Developmentally Appropriate Curriculum

Introduces developmentally appropriate curriculum and instructional practices in early education and the elementary grades. Subject areas considered include literacy, language arts; mathematics, computers, blocks; science, outdoor education; social studies, thematic units; and art, drama, music, physical activity. Max hours: 6 Credits. **Semester Hours:** 1 to 3

ECED 5104 - Advanced Developmentally Appropriate Curriculum

Extends earlier learning about developmentally appropriate curriculum and instructional practices in early education and the elementary grades. Students elaborate their knowledge of subject area materials and activities. A curriculum unit that is developmentally appropriate is planned, implemented and evaluated. Prereq: ECED 5102. Max hours: 4 Credits. **Semester Hours:** 1 to 3

ECED 5110 - Advanced Infant and Toddler Development:

Examines significance of child growth and development from birth to 36 months. Emphasizes importance of relationships in children's growth and learning. Focuses on elements of quality in infant and toddler care and education, and how those elements support optimum development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5140 - Measurement and Evaluation in Early Childhood Education

Provides classroom experience in basic measurement concepts and in the screening and assessment of young children's cognitive, affective, language, and psychomotor capabilities and characteristics. Traditional measurement techniques as well as non-reactive measures, human and video-observational methods, and authentic assessment are included. Evaluation of programs and persons in early childhood education settings is examined. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 5200 - Screening and Assessment of Young Children

Provides experience in the administration and scoring of a sample of screening and assessment instruments designed for use with infants and in preschool classrooms. Students administer a variety of formal and informal measures including screening, evaluation, play-based and curriculum-based measures. Cross-listed with ECED 7500. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 5202 - Classroom Management to Promote Positive Behavior

Evidence-based classroom management strategies to promote social competence and reduce behavior problems. Includes strategies for responding to challenging behavior and developing individualized behavior support plans. Explores factors that influence the lives of young children including family disruption, stress, violence and trauma. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 5204 - Early Childhood Mental Health

Addresses the role of the early childhood practitioner in supporting young children emotional well-being and mental health. Topics include mental health disturbances or disorders of infancy or childhood, assessment of social or emotional development and behaviors related to mental health, relationship-based strategies for working with children with emotional and behavioral needs, and identification of community resources and services. Prereq: Students are encouraged to take ECED 5202 prior to this course for a specialization in early childhood mental health, however this is not an absolute prerequisite. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5210 - Overview of Infant Toddler Autism Services

This course will provide students with a general introduction to the legal and procedural elements that characterize state-of-the-art services to infants and toddlers with ASD. The course will review the Federal mandate for services, principles of practice, and evidence-based teaching strategies for children with autism. Must be accepted into the Infant Toddler Autism Certificate Program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5211 - Applied Treatment Delivery for Infants and Toddlers with ASD

The course explores current treatment methods and philosophies for young children with Autism Spectrum Disorder (ASD). Common intervention approaches are reviewed, with discussion of the evidence base of each. Intervention goals covered address language, play/socialization, early adaptive skills, and positive behavior. Must be accepted into the Infant Toddler Autism Certificate Program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5212 - Coaching for Families Infants/Toddlers w/ Autism

This course provides the knowledge and skills necessary to implement recommended, evidence-based practices with families of infants and toddlers with or at risk for ASD. The course will review current evidence based strategies for supporting families, collaborating with families, and using evidence-based family coaching strategies. Must be accepted into the Infant Toddler Autism Certificate Program Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5300 - Pedagogical Leadership

This course covers early childhood curriculum models and evidence-based interventions applicable within community, preschool, and home environments. This includes perspectives and views related to the inclusion and support for young children with special needs and their families. Prereq: Must be admitted to the Buell Early Childhood Leadership Program (BECLP). Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5310 - Professional Development & Family Centered Practice

This course focuses on the competencies required to develop and implement effective professional development for all adults participating in the ECE system. It also explores the importance of family centered practice in early childhood and implications for programs and policies. Prereq: Must be admitted to the Buell Early Childhood Leadership Program (BECLP) Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5320 - Reflective Leadership in Early Childhood

The course focuses on the leader's role in promoting inquiry as a means to improve the ECE field. Students will gain experience with community-based action research as a methodology for addressing critical systems and program issues affecting their work. Prereq: Must be admitted to the Buell Early Childhood Leadership Program (BECLP). Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5330 - Leadership and Ethics

Leadership and Ethics in early childhood is the exercise of significant and responsible influence. This course covers current theories and models of leadership. Students will articulate a vision, clarify, and affirm values, and create a culture built on norms of continuous improvement and ethical conduct. Prereq: Must be admitted to the Buell Early Childhood Leadership Program (BECLP). Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5340 - Strategic Leadership & Current Issues in Early Child

This courses addresses current issues in research, theory, policy development, and administrative leadership of programs for all young children. Strategic Leadership anchors all decisions to a shared vision through the systematic evaluation and strategic planning for program or organization growth and service. Prereq: Must be admitted to the Buell Early Childhood Leadership Program (BECLP). Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5350 - Policy and Advocacy in Early Childhood

This course provides the historical and political context of early care and education in the United States. Local, state and federal mandates, public laws, and legislative procedures and initiatives will be investigated. Prereq: Must be admitted to the Buell Early Childhood Leadership Program (BECLP). Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5360 - Mentorship & Capstone

Students will reflect upon the BECLP Standards learning and application with their Mentor/s, a leader or leaders in Early Care and Education, using the BECLP Portfolio and leadership goals set by the student. The Act phase of the Action Research Project will be conducted and reported. Prereq: Must be admitted to the Buell Early Childhood Leadership Program (BECLP). Max hours: 1 Credit. **Semester Hours:** 1 to 1

ECED 5410 - Foundation & Organization Of Coaching

This course will train early childhood coaches using material from research-based sources and program experiences. Participants will learn best practices in coaching early childhood and develop a systematic, individualized approach to effective coaching. Cross-listed with ECED 4410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5420 - Connecting Awareness With Application & Deepening Of Practice

This course will identify effective ongoing support strategies for individuals providing coaching. Participants will integrate skills from ECED 5410 with effective application in real life coaching experiences. Prereq: ECED 5410 or instructor permission. Cross-listed with ECED 4420. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5430 - Attuning For Personal And Organizational Change

This course is designed to support the coach in creating a social learning climate where a synergy of shared learning and reflective dialogue about practice are examined, analyzed and refined. Prereq: ECED 5410 & 5420 or instructor permission. Cross-listed with ECED 4430. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5800 - Workshop: Topics in Early Childhood Education

Topics and credit hours vary from semester to semester. Max hours: 12 Credits. **Semester Hours:** 1 to 4

ECED 5810 - Global Education and Developmental Studies

The purpose of the Global Education and Developmental Studies (GEDS) course is to identify and build on national and international perspectives and understandings about young children and early childhood intervention. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5840 - Independent Study

Max hours: 9 Credits. **Semester Hours:** 1 to 4

ECED 5911 - Educational and Observational Practicum in Early Childhood Education

Includes planned experiences built around the clinic and ECED classroom in operation. Students observe in public schools, Head Start, childcare, and private preschool programs. The practicum requires 30 to 40 clock hours of field placement experience with concurrent classroom meetings. Opportunities for observation in a variety of classroom types are provided. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 5920 - Readings in Early Childhood Education

Max hours: 8 Credits. **Semester Hours:** 1 to 4

ECED 6010 - Literacy and Mathematics K-2

Principles of early reading and mathematical development for grades K-2. Linkages are made between child development, learning expectations for mathematics, reading and writing and curriculum planning. Diverse instructional strategies and differentiation for children with disabilities and the roles of early childhood special education specialists in K-2 are described and critiqued. Roles of early childhood special education specialists in the public schools K-2 are described and reviewed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 6100 - Medical and Physiological Aspects of Developmental Disabilities

Presents neurological or physiological development and disorders, as well as appropriate intervention techniques for the young child. Also considered are developmental issues and concerns related to medically fragile young children. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 6110 - Intervention Strategies for Children with Disabilities and At-Risk Infants

An in-depth study of intervention strategies, curricula, and program models for young children, birth to three years. Topics include selection, implementation, and evaluation of the different techniques. The course has an interdisciplinary focus. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 6200 - Early Intervention Strategies

Explores current research, knowledge, and skills related to early intervention policies, teaching strategies, and service delivery. Emphasizes infant and preschool service delivery options such as home, center or community-based programming, and social integration programming techniques. Cross-listed with ECED 7200. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 6600 - Seminar: Early Childhood Education Practices and Issues

Current practices and issues in early childhood and primary education are reviewed, then certain topics are considered in-depth. Emphasis is on issues and problems of practice and care setting in early childhood education and primary grades. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 6690 - Seminar: Research and Current Issues in Early Childhood Education

Research methods are reviewed and then selected topics are considered. Emphasis is on research findings and current issues of importance to teachers, administrators, specialists, collaborator/consultants, and researchers in early childhood and early childhood special education. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 6695 - Rsrch Lab:Autism w/in Cltrly & Lngstelly Dvrse Ppltns

In this cross-disciplinary yearlong research lab, students will work individually or in groups to design, implement, and analyze research questions related to autism within culturally and linguistically diverse populations. Course topics will include autism identification, research methodology, analysis, and dissemination. Cross-listed with SPSY 6695. Max hours: 9 Credits. **Semester Hours:** 1 to 2

ECED 6910 - Infant/Toddler Practicum in ECSE

Field-based experiences in settings for children with disabilities and at-risk infants, toddlers, and their families. The practicum requires a minimum of 85, 170, 255, or 340 clock hours under supervision (for 1,2,3, or 4 credit hours, respectively). Prereq: ECED 5010, 5070, 5080, 5200, 6100, and 6200. Max hours: 12 Credits. **Semester Hours:** 1 to 4

ECED 6911 - Practicum in Early Childhood Education

Field-based experiences in settings for young children (preschool administration, day-care center management, community college teaching, parent program directorship, etc.) that are closely linked to the students' professional goals. Requires a minimum of 75, 150, 225, or 300 clock hours under supervision (for 1, 2, 3, or 4 credit hours, respectively). Prereq: Considerable course work in early childhood education. Max hours: 8 Credits. **Semester Hours:** 1 to 4

ECED 6912 - Preschool Practicum in ECSE

Field-based experiences in settings for young children with disabilities and their families, including school districts and community agencies. The practicum requires a minimum of 85, 170, 255, or 340 clock hours under supervision (for 1,2,3, or 4 credit hours, respectively). Prereq: ECED 5010, 5070, 5080, 5200, 6100, and 6200. Max hours: 8 Credits. **Semester Hours:** 1 to 4

ECED 6913 - Practicum in Working with Parents and Families

Provides in-depth, field-based experience in working with families of handicapped and at-risk young children. Settings may include schools, community agencies and hospitals. Requires minimum of 255 clock hours under supervision. Prereq: Permission of instructor. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 6914 - Primary Practicum in ECSE

Field-based experiences in kindergarten through second grade settings with typically developing children, children with special needs and special education teams. Requires a minimum of 85, 170, 255 or 340 clock hours under supervision (for 1, 2, 3, or 4 credit hours, respectively). Prereq: ECED 5010, 5070, 5080, 5200, 6100, and 6200. Max hours: 8 Credits. **Semester Hours:** 1 to 4

ECED 6950 - Master's Thesis

Prereq: RSEM 5100, RSEM 5200 and credits in the Early Childhood Education program. Max hours: 4 Credits. **Semester Hours:** 4 to 4

ECED 7000 - Early Childhood Leadership Seminar I

The course is designed to provide an overview of policies, laws, and leadership skills in early childhood. Students will study specific policies and laws influencing (1) services for children with severe challenging behavior and autism, (2) children from culturally and linguistically diverse families, and (3) professional development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 7002 - Early Childhood Leadership Seminar II

The purpose of the course is to provide scholars with leadership knowledge and skills to implement policies, laws, programs, and systems that support the use of evidence-based practices with young children with disabilities. Prereq: ECED 7000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 7004 - Early Childhood Leadership Seminar III

The purpose of this seminar is to provide the knowledge and skills to implement evidence-based practices in early childhood settings. This seminar will focus on policies and practices that support implementation, scale-up, and sustainability of evidence based practices in early childhood systems. Prereq: ECED 7002. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ECED 7070 - Social Competence & Classroom Supports

Focuses on the cognitive and social development of infants and young children and problems that may occur during the process. Emphasizes intervention approaches for preschool children with cognitive and social-emotional disabilities. Implications for intervention from current research are considered. Cross-listed with ECED 5070. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 7200 - Early Intervention Strategies

Explores current research, knowledge, and skills related to early intervention policies, teaching strategies, and service delivery. Emphasizes infant and preschool service delivery options such as home, center or community-based programming, and social integration programming techniques. Cross-listed with ECED 6200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 7500 - Screening and Assessment of Young Children

Provides experience in the administration and scoring of a sample of screening and assessment instruments designed for use with infants and in preschool classrooms. Students administer a variety of formal and informal measures including screening, evaluation, play-based and curriculum-based measures. Cross-listed with ECED 5200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Economics

ECON 1010 - Economics of Social Issues

This course is designed for non-majors. Majors in economics will not receive credit toward departmental degree requirements. The focus of the course is on current issues in the economy, including poverty, social security, airline deregulation, government control of prices, economics of higher education, free trade, race and gender discrimination, unemployment, the role of government, and the national debt. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

ECON 2012 - Principles of Economics: Macroeconomics

Covers topics of inflation, unemployment, national income, growth and problems of the national economy, stabilization policy, plus others at the discretion of the instructor. Purpose is to teach fundamental principles, to open the field of economics in the way most helpful to further a more detailed study of special problems, and to give those not intending to specialize in the subject an outline of the general principles of economics. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS1. **Semester Hours:** 3 to 3

ECON 2022 - Principles of Economics: Microeconomics

Topics include price determination in a market system composed of households and firms: resource allocation and efficiency of various market structures, plus others at the discretion of the instructor. Note: Complementary to and normally taken following ECON 2012. ECON 2012 is not a prerequisite for ECON 2022. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS1. **Semester Hours:** 3 to 3

ECON 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ECON 3050 - Decision Making

This course discusses current research on decision making/behavioral economics, as well as its application to individual well-being and public policy. You will gain insights on how and why people can be irrational in their daily decisions. Cross-listed with PBHL 3050 and PSYC 3050. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 3100 - Economics of Race and Gender

Overview of the determinants of wages, employment and education in the labor market. Emphasizes the investigation of the evidence and theories of differentials that appear to be associated solely with race and sex, and public policies associated with discrimination and poverty. Prereq: ECON 2022. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 3300 - Economics of Crime and Punishment

Presents the economic approach to crime. Teaches economic reasoning in the analysis of the determinants of criminal activity, provides an in-depth analysis of the importance of socioeconomic factors in determining crime. Investigates the relative importance of labor market conditions, deterrence, and other factors in the level of criminal activity. Also covers topics to reduce crime such as, the death penalty, issues around victimless crime and public choices. Prereq: ECON 2022. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 3366 - Managerial Economics

Presents the basic core of economic theory and its use for sound managerial decision making. Emphasis on the practical applications of the concepts learned in economics to the resolution of everyday problems. Prereq: ECON 2012 and 2022. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 3400 - Economics of Sex and Drugs

Examines the political and policy issues surrounding controversial topics in human behavior. Economic models and reasoning are applied to examine issues such as juvenile substance use and abuse, and teen pregnancy. Prereq: ECON 2022. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 3801 - Introduction to Mathematical Economics

Introduces the use of mathematics in micro- and macro-economic analysis. Emphasis on model-building techniques, solution methods, and economic interpretations. Prereq: MATH 1110 or MATH 1130 (or equivalent), ECON 2012 and ECON 2022. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 3811 - Statistics with Computer Applications

Introduces statistical methods and their application to quantitative problems in economics and social sciences. Note: Recitation is required. Prereq: College algebra, ECON 2012 and 2022.

Max hours: 4 Credits. **Semester Hours:** 4 to 4

ECON 3939 - Internship

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA. Max hours: 9 Credits.

Semester Hours: 1 to 3

ECON 4001 - Topics in Economics

Studies special topics in economics to be selected by the instructor. Note: May be repeated for credit when topics vary. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ECON 4030 - Data Analysis with SAS

Covers techniques for handling and interpreting economic data and conducting econometric analyses using SAS programming. Provides hands-on data management and analyses with large data sets with applications to business and economics, and prepare students for SAS Base Programmer certification exam. Prereq: ECON 3811 or equivalent. Cross-listed with ECON 5030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4050 - Special Economic Problems

Provides students the opportunity to critically evaluate some practical and theoretical problems under supervision, and to present results of their thinking to fellow students and instructors for critical evaluation. Prereq: ECON 2012 and ECON 2022. Note: ECON 4050 for majors in economics, others by permission of instructor. Cross-listed with ECON 5050. Max hours: 9 Credits. **Semester Hours:** 1 to 8

ECON 4071 - Intermediate Microeconomic Theory

Production, price and distribution theory. Study of value and distribution theories under conditions of varying market structures, with special references to the contribution of modern theorists. Prereq: ECON 2012, 2022 and 3801. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4081 - Intermediate Macroeconomic Theory

National income and employment theory. Primary emphasis placed on determination of employment and prices. Problems of unemployment and inflation analyzed and appropriate policies considered. Prereq: ECON 2012, 2022 and 3801. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4091 - History of Economic Thought

Traces the development of economic thought from ancient times to the 20th century. Considers the context in which these ideas were developed and their relationship to modern economic thought and contemporary economic problems. Prereq: ECON 2012 and ECON 2022. Cross-listed with ECON 5090. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4101 - Applied Statistics Using SAS and SPSS I

Teaches the practical statistical tools social scientists use to analyze real-world problems. Split into four modules, each taught by a different instructor. The first module introduces SAS and SPSS; modules 2-4 are problem-based and cover topics such as ANOVA, multivariate regression, and cluster analysis. Prereq: Any statistics course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4102 - Applied Statistics Using SAS and SPSS II

(Continuation of ECON 4101.) Students use the skills they learned in the previous semester to analyze a social issue of their choosing and present their findings. Note: In addition to lectures, weekly one-on-one meetings between faculty and students are required. Prereq: ECON 4101. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4110 - Money and Banking

Surveys major monetary and fiscal institutions such as commercial banks, the federal reserve system, savings institutions, and the structure of debt. The relationships between households, firms and financial intermediaries are explored, and the tools available to macroeconomic policy makers are described and evaluated. Prereq: ECON 4081. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4150 - Economic Forecasting

Teaches forecasting techniques used in business and government to project trends and short-term fluctuations. Actual data are employed in instruction and labs. State-of-the-art spreadsheet and algorithms are introduced as part of the course work. Prereq: Undergraduate statistics or permission of instructor. Prereq: ECON 4811. Cross-listed with ECON 5150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4210 - Public Finance

Surveys topics dealing with the economics of government activity, including the provision of public goods; the economics of the political process; welfare programs; pollution externalities; benefit-cost analysis; the U.S. tax structure; and the effects of taxes on economic behavior, economic performance and the distribution of income. Prereq: ECON 2022. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4230 - Law and Economics

Applies economic theory to legal decision making. Topics include property law, tort law, contract law, the common law, crime and punishment, comparisons to traditional forms of legal decision making and the economic approach to politics. Prereq: ECON 2022. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4240 - Economic Policy Analysis

Deals with the application of economic analysis to the government policy-making process. Topics include public goods provision, externalities, cost-benefit analysis, judicial decision making, the economic analysis of the political process, government regulation of business, and tax incidence. Prereq: ECON 2012, 2022 and 3801. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4310 - Managerial Economics

The course adapts standard theory to more realistically discuss enterprise structure, firm and managerial behavioral incentives, and strategic behavior. Once a foundation is laid, successful and unsuccessful strategies and case studies are presented. Cross-listed with ECON 5310. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4320 - Financial Economics

This course focuses on the economics of decision-making under conditions of risk and uncertainty. Topics include theories of efficient markets, rational expectations, speculative bubbles, random walks, portfolio analysis, options, derivatives and future markets. Emphasis is on the application of basic theories to economic agents' behavior and case studies. Prereq: ECON 2022, 3811, 3801. Cross-listed with ECON 5320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4410 - International Trade

Trade theory identifies who wins and loses from trade and why there are usually overall gains. Explores issues in immigration, globalization, income inequality, tariffs, dumping, the WTO, the environment, wages, and growth strategies among others. Prereq: ECON 2022. Cross-listed with ECON 5410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4420 - International Finance

The international adjustment process, including the foreign exchange market, balance of payments disequilibria, price and income adjustment, fiscal and monetary policy, and the international monetary system. Prereq: ECON 2012. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4430 - Economic Growth

Explores causes of rapid growth or decline over long periods for different regions of the world. Inequality, sustainability, culture, climate, technology and resources all play significant roles. Data and examples are used to determine the important influences. Prereq: ECON 2022 and ECON 3811. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4530 - Economics of Natural Resources

Examines economic models of renewable resource management and models of exhaustible resource depletion. Analyzes decisions made by private firms and governments affecting the methods and rate of resource development. Examines the effects of resource development on economic growth and environmental quality and the effects of economic development on resource scarcity. Prereq: ECON 2022. Cross-listed with ECON 5530. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4540 - Environmental Economics

Economic approach to environmental problems: relationship between ownership structures, externalities and environmental damage; poverty, population pressure, and environmental degradation; valuation of environmental amenities; sustainability of economic activity; cost-benefit analysis applied to the environment; evaluation of alternative instruments for environmental control. Prereq: ECON 2022. Cross-listed with ECON 5540. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4550 - Game Theory and Economic Applications

An introduction to economic applications of game theory. Concepts such as strategic and extensive form games, existence and selection of equilibrium will be covered. These concepts will be applied to understand market structure, location decisions, price competition, contracting, and auctions. Prereq: ECON 4071. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4610 - Labor Economics

Studies problems associated with the determination of wages, hours, and working conditions in the American economy. Strong emphasis placed on current research in such areas as welfare reform, minimum wage, return to schooling, immigration, labor market discrimination, and trade unions. Prereq: ECON 2012, 2022 and any statistics course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4640 - Sports Economics

Applies economic analysis to sports. Explores topics such as competition, on-field performance, players' compensation, profits in professional sports, anti-trust and labor law, the impact of sports on local communities and the links between athletics and education. Prereq: ECON 2022. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4660 - Health Economics.

This course focuses on the analysis of current health care markets. Topics include the production of health, demand for health care, physician and hospital behavior, health insurance, medical malpractice, health externalities, managed care and the affordable care act. Prereq: ECON 3811 and 2022. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4716 - Comparative Economic Systems

Critical examination of capitalism, socialism, communism and alternative systems. Focuses on the comparative study of various countries and the implementation and management of their economic systems. Prereq: ECON 2022. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4740 - Industrial Organization

Examines the determinants of, and linkages between, market structure, firm conduct, and industrial performance. Topics include: determinants of the market size; impact of different market structures on prices and outputs; strategic behavior of firms to prevent entry or induce exit of rival firms; collusion; price discrimination; advertising; competition, monopoly, and innovation; implications for economic efficiency and public policy. Prereq: ECON 4071. Cross-listed with ECON 5740. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4770 - Economic Development--Theory and Problems

Introduces theory and practice of economic development. Topics include development and growth models, economic planning, income distribution, human and capital resources, foreign investment and the multinationals, technology transfer, trade and development. Discussions of current issues regarding world debt, economic stabilization, the new protectionism, empirical studies, and examples of development in various countries. Prereq: ECON 2012 or ECON 2022. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4811 - Introduction to Econometrics

Introduces econometric methods and their applications to quantitative economic problems. Simple and multiple regression models and problems encountered in their applications are developed in lectures and applied computer projects. Prereq: ECON 3811 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4840 - Independent Study: ECON

Max hours: 12 Credits. **Semester Hours:** 1 to 3

ECON 4850 - Honors Independent Study: ECON

Max hours: 3 Credits. **Semester Hours:** 1 to 3

ECON 5030 - Data Analysis with SAS

Covers techniques for handling and interpreting economic data and conducting econometric analyses using SAS programming. Provides hands-on data management and analyses with large data sets with applications to business and economics, and prepare students for SAS Base Programmer certification exam. Prereq: ECON 3811 or equivalent. Cross-listed with ECON 4030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 5050 - Special Economic Problems

Provides students the opportunity to critically evaluate some practical and theoretical problems under supervision, and to present results of their thinking to fellow students and instructors for critical evaluation. Prereq: Permission of instructor. Cross-listed with ECON 4050. Max hours: 8 Credits. **Semester Hours:** 1 to 8

ECON 5051 - Data Analysis and Research Methodology

Consists of a series of lectures on the nature of conducting research, and discussions of the ways professional economists approach research problems. A review of spreadsheet applications and statistical packages are conducted. Prereq: ECON 4071 and 4811 or permission of instructor. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

ECON 5052 - Data Analysis and Research Methodology II

Develops student skills in data analysis and applications to economic issues and policy evaluation. Hands-on demonstration and student participation in empirical strategies using statistical packages in the social sciences (i.e. SAS). Emphasis on programming, research strategies and interpretation of results. Prereq: ECON 5051 or permission of instructor. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

ECON 5073 - Microeconomic Theory

Fundamental features of partial equilibrium theory of the firm, consumer and market. General equilibrium and welfare economic topics are examined. Features of the models that have empirical applications are accented. Prereq: ECON 5803. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 5083 - Macroeconomic Theory

Examines the major macroeconomic models within a common framework. Differences in the foundations, structure, and policy implications of the competing models are analyzed. Prereq: ECON 5803 or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 5090 - History of Economic Thought

Traces the development of economic thought from ancient times to the 20th century. Considers the context in which these ideas were developed and their relationship to modern economic thought and contemporary economic problems. Prereq: ECON 2012 and ECON 2022. Cross-listed with ECON 4091. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 5150 - Economic Forecasting

Teaches forecasting techniques used in business and government to project trends and short-term fluctuations. Actual data are employed in instruction and labs. State-of-the-art spreadsheet and algorithms are introduced as part of the course work. Prereq: ECON 3811. Cross-listed with ECON 4150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 5310 - Managerial Economics

The course adapts standard theory to more realistically discuss enterprise structure, firm and managerial behavioral incentives, and strategic behavior. Once a foundation is laid, successful and unsuccessful strategies and case studies are presented. Cross-listed with ECON 4310. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 5320 - Financial Economics

Studies the financial decision making process of individuals and business entities, and the workings of financial institutions. Topics include the essentials of optimal portfolio, financial management, financial innovations, and the globalization of financial markets. Emphasis is on the application of basic theories to economic agents' behavior and the case studies. Prereq: ECON 5073 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 5410 - International Trade

Trade theory identifies who wins and loses from trade and why there are usually overall gains. Explores issues in immigration, globalization, income inequality, tariffs, dumping, the WTO, the environment, wages and growth strategies among others. Prereq: ECON 2022. Cross-listed with ECON 4410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 5530 - Economics of Natural Resources

Examines economic models of renewable resource management and models of exhaustible resource depletion. Analyzes decisions made by private firms and governments affecting the methods and rate of resource development. Examines the effects of resource development on economic growth and environmental quality and the effects of economic development on resource scarcity. Prereq: ECON 5073. Cross-listed with ECON 4530. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 5540 - Environmental Economics

Economic approach to environmental problems: relationship between ownership structures, externalities and environmental damage; poverty, population pressure, and environmental degradation; valuation of environmental amenities; sustainability of economic activity; cost-benefit analysis applied to the environment; evaluation of alternative instruments for environmental control. Prereq: ECON 5073. Cross-listed with ECON 4540. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 5660 - Health Economics

Introduces students to analytical skills and economic methods, and demonstrates how these methods can be applied to issues in health policy and management. Topics include: demand for health and medical care; health care costs, health reform, medical technology; market for health insurance; physicians, hospitals, and managed care; pharmaceuticals; regulations in the U.S. health care sector; demand for addictive substances; infant and maternal health; international comparisons of health care systems. Prereq: Permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 5740 - Industrial Organization

Examines the determinants of, and linkages between, market structure, firm conduct, and industrial performance. Topics include: determinants of the market size; impact of different market structures on prices and outputs; strategic behavior of firms to prevent entry or induce exit of rival firms; collusion; price discrimination; advertising; competition, monopoly, and innovation; implications for economic efficiency and public policy. Prereq: Permission of instructor. Cross-listed with ECON 4740. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 5800 - Special Topics

Current economics topics to be determined by the instructor. Prereq: ECON 3801 or MATH 1401. Max hours: 3 Credits. **Semester Hours:** 1 to 3

ECON 5803 - Mathematical Economics

Introduces the use of mathematics in advanced micro- and macro-economic analysis. Emphasis on model-building techniques, solution methods, and economic interpretations. Prereq: ECON 4071 and 4081. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 5813 - Econometrics I

Theory and application of statistical techniques used to analyze economic problems. Topics include simple and multiple regression models, simultaneous equation models, and the problems encountered in their application. Students formulate models, obtain data, estimate models, interpret results and, forecast. Prereq: ECON 4811 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 5823 - Econometrics II

Second course in the econometrics sequence, covering intermediate topics in cross-section and time series analysis. Topics include limited dependent variables, autoregressive and distributed lag models, longitudinal data analysis and unit roots, co-integration and other time-series topics. Prereq: ECON 5083 and 5813. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 5840 - Independent Study

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ECON 5939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 6

ECON 5950 - Master's Thesis

Max hours: 4 Credits. **Semester Hours:** 1 to 4

ECON 6010 - Advanced Microeconomic Theory

Recent and contemporary literature on fundamentals of economic theory. Consideration of value theory with particular emphasis on methodology, theory of demand, theory of the firm, and theory of distribution. Prereq: ECON 5073. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 6020 - Advanced Macroeconomic Theory

Considers general equilibrium and aggregative analysis in economic theory, with particular emphasis given to the theory of employment, consumption and investment. Prereq: ECON 5083. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 6053 - Seminar In Applied Economics

Familiarizes students with applied research in economics. Students read, discuss, and critique articles in economic journals. Emphasis is placed on research design and methods employed in these articles to prepare students for development of their own research projects in subsequent courses. Topics vary with instructor, and may include international economics, labor economics, monetary theory, public or finance and development economics. Prereq: ECON 5813, 5073, 5083 at the instructor's discretion. Max hours: 6 Credits. **Semester Hours:** 1.5 to 1.5

ECON 6054 - Seminar In Applied Economics II

Familiarizes students with state-of-the-art applied economic research. Students read, discuss, and critique articles published in economic journals. Note: Topics vary with the instructor. Prereq: ECON 5813, 5073, 5083 at the instructor's discretion. Max hours: 6 Credits. **Semester Hours:** 1.5 to 1.5

ECON 6060 - Special Topics

Special topics in advanced microeconomics. Consideration of value theory based upon methodology, theory of demand, and theory of distribution. Prereq: ECON 3801. Max hours: 3 Credits. **Semester Hours:** 1 to 3

ECON 6073 - Research Seminar

Focuses on training students to do rigorous research in economics. Topics include the analysis of large data sets, further development of econometric skills, and writing a research paper. Note: Students attend lectures and also meet regularly with the instructor in the process of doing a sophisticated research project. Prereq: ECON 5823 and 6053. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 6110 - Money and Central Banking

Monetary and financial institutions, with focus on relationships among domestic monetary policy, interactional credit and balance of payments. Prereq: ECON 5083. Max hours: 3 Credits.

Semester Hours: 3 to 3

ECON 6210 - Public Finance

Advanced economic theory applied to the problems of public and private sector decision making. Applied topics in taxation, education, voting theory, welfare economics, externalities and public goods. Prereq: ECON 5073. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 6410 - International Trade

Contemporary and classical literature on theories of international trade. Topics include the determination of the pattern and terms of trade, the relationship between growth and trade, and commercial policy. Prereq: ECON 5073. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 6420 - International Finance

Topics in international finance, including exchange rate determination, the adjustment process, international financial markets and the international monetary system. Prereq: ECON 5073. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 6610 - Labor Economics

Advanced study of the labor market, including: history, nature, and function of labor organizations; the process of wage determination; and the formation of public policy. Prereq: ECON 5073 and 5813. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 6770 - Economic Growth and Development

Considers the role of planning in economic development, with particular reference to investigation of planning problems, especially in less developed countries. Prereq: ECON 5073 and 5803. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 6801 - Advanced Mathematical Economics

Addresses economic dynamics, formal mathematical modeling in economics, and optimization in economic theory. Prereq: ECON 5803 or permission of instructor. Max hours: 3 Credits.

Semester Hours: 3 to 3

ECON 6810 - Econometrics and Forecasting

Covers advanced topics in cross-sectional and time-series analysis. Emphasizes important theoretical and empirical issues encountered in applied work in economics and business. Topics include problems of structural change and model misspecification, instrumental variables, simultaneous equations models, distributed lags, maximum likelihood estimation, qualitative and limited dependent variables, Arima models, vector-autoregressions, issues on exogeneity and causality. Through the use of econometric software programs and actual data, students learn to execute estimation and forecasting projects soundly. Prereq: ECON 5813 and 5823. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 6840 - Independent Study

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ECON 6950 - Master's Thesis

Max hours: 9 Credits. **Semester Hours:** 1 to 6

Education Admin & Supervision

EDUC 5000 - Special Topics: Administrative Leadership and Policy Studies

Specific topics vary. Focus is on faculty-developed options to standard course offerings to facilitate program development and distance-learning activities. Max hours: 40 Credits.

Semester Hours: 0.5 to 10

EDUC 5010 - Paraeducator Supervision Academy

Provides the paraeducator with knowledge and skills to work effectively in teams. Paraeducators refine their knowledge of the characteristics of paraprofessionals in education, the distinction between professional and paraprofessional roles and responsibilities, liability and ethical issues.

Max hours: 1 Credit. **Semester Hours:** 1 to 1

EDUC 5015 - Developmental Intervention Supervisor Academy (DISA)

Developmental Intervention Supervisor Academy provides early intervention professionals with the knowledge and skills to work effectively in teams and to utilize and supervise Developmental Intervention Assistants (DI Assistant is the title used in Colorado for paraprofessionals in early intervention services). Max hours: 1 Credit. **Semester Hours:** 1 to 1

EDUC 5020 - Trainers of Paraeducator Academy

Provides the professional educator with the skills to provide effective presentations to paraprofessionals in schools. Max hours: 1 Credit. **Semester Hours:** 1 to 1

EDUC 5025 - Developmental Intervention Trainers Academy (DITA)

Developmental Intervention Trainer Academy (DITA) is offered to early interventional professionals who have completed EDUC 5015 (DISA). DITA provides the participants skills to become effective trainers who deliver training to Developmental Intervention Assistants (i.e. paraprofessionals in early intervention services in Colorado). Prereq: EDUC 5015. Max hours: 1 Credit. **Semester Hours:** 1 to 1

EDUC 5030 - Top Cadre of Trainers (TOPCAT) Seminar

Provides CO-TOP Trainers (school professionals who have been through the PSA: EDUC 5010 and TOPA: EDUC 5020) ongoing support in their roles as supervisors and trainers of paraeducators. Through this seminar trainers receive updated information about CO-TOP Academies, find collegial support from other trainers, exchange ideas, gain presenting and adult teaching ideas, and receive feedback on their teaching of paraeducator academies. This seminar also addresses the questions and needs of the individual CO-TOP trainer with regard to CO-TOP paraeducator training materials and processes. Prereq: EDUC 5010 and 5020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 5040 - Mentoring Novice and Pre-Service Teachers

Designed to help participants develop or enhance the skills necessary to successfully work with candidates who are completing teacher education programs. Concentrates on supervision and conference skills, adult learning theory, and communication skills. Max hours: 1 Credit.

Semester Hours: 1 to 1

EDUC 5050 - Computer Application for Educational Management

Studies the theoretical and applied knowledge of central and school-based administrative educational applications of modern computer technology. Max hours: 3 Credits. **Semester**

Hours: 3 to 3

EDUC 5070 - Elementary School Curriculum

An integrating course dealing with the history, development, problems, and practices of the curriculum of the elementary school. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 5090 - Senior High School Curriculum

This course is concerned with the history, development, principles, problems, practices, and trends of the curriculum of the senior high school. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 5100 - Curriculum and Program Development and Evaluation

Fundamentals of curriculum and program development, including theoretical foundations of U.S. curriculum, practical criteria to guide decision making, specific models and processes for curriculum or program development and appraisal, emerging issues, problems and trends. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 5400 - Special Education Seminar for Principals

This course is designed for principals and prospective principals to investigate the new leadership responsibilities that are emerging in the delivery of special education at the building level. The course reflects the emerging role of the principal in leading special education services at the school level with a two-part emphasis. Effective leadership involves (a) an ability to lead school-wide conversations about problems and issues that arise in special education in ways that strengthen the culture of the school and its commitment to all students' learning; and (b) an ability to garner resources for the school's programs. The course is not intended as an introduction to special education law or the details of special education administration, but a basic familiarity with these issues will be assumed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 5700 - Administrative Leadership in Educational Organizations

Introduces students to key concepts, theories, and research in providing leadership to educational organizations. Special emphasis is placed on the topics of organizational behavior, leadership, culture change and power, as they relate to the administrative role. Prereq: Permission of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 6

EDUC 5710 - Administering the Environment of Public Schools

A seminar course which focuses on problems and issues in developing an effective school environment. Emphasis is placed upon inter-relationship of law, finance, strategic planning, culture, political governance, and school or community relations. Prereq: Permission of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 6

EDUC 5720 - Supervision of the Curricular and Instructional Program of the School

This seminar addresses the supervisory issues involved in administering curricular and instructional programs in schools. Special emphasis is placed upon teacher appraisal, assessment techniques, curriculum design, and instructional effectiveness. Prereq: Permission of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 6

EDUC 5730 - Administering the School Improvement Process

A seminar course focusing on problems and issues in developing effective schools. This course builds on concepts from organizational behavior and leadership and orients students toward planning, executing, and assessing school improvement programs. Emphasis is placed on working through teachers to improve school capacity. Prereq: Permission of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 6

EDUC 5751 - Principal/Administrator Licensing I

This program section (1 of 4) combines foundational learning activities in leadership, curriculum and supervision, school improvement, and the school environment via distance learning. Field applications are related to those foundations, and students develop distance-learning plans for various problems of practice along with their field activities. Assessment is by portfolio. Prereq: Admission to the program. Max hours: 9 Credits. **Semester Hours:** 5 to 9

EDUC 5752 - Principal Administrator Licensing II

This program section (2 of 4) combines advanced learning activities in leadership, curriculum and supervision, school improvement, and the school environment via distance-learning technology that build on the foundational activities in EDUC 5751 with field applications related to those activities. Students develop distance-learning plans for various problems of practice along with field activities. Assessment is by portfolio. Prereq: Successful completion of EDUC 5751. Max hours: 9 Credits. **Semester Hours:** 5 to 9

EDUC 5753 - Principal/Administrator Licensing III

This program section (3 of 4) combines foundational learning activities in leadership, curriculum and supervision, school improvement, and the school environment via distance learning that build on foundational activities in EDUC 5752. Field applications are related to those foundations, and students develop distance-learning plans for various problems of practice along with their field activities. Assessment is by portfolio. Prereq: Successful completion of EDUC 5752. Max hours: 9 Credits. **Semester Hours:** 5 to 9

EDUC 5754 - Principal or Administrator Licensing IV

This program section (4 of 4) combines foundational learning activities in leadership, curriculum and supervision, school improvement, and the school environment via distance learning that build on foundational activities in EDUC 5753. Students complete their distance-learning activities for various problems of practice along with their field activities. Assessment is by portfolio. Prereq: Successful completion of EDUC 5753. Max hours: 9 Credits. **Semester Hours:** 5 to 9

EDUC 5830 - Governance and Administration of Education

Development of governance structures and of administration as a field of study in education. Influence of governance and views of administration on educational organizations' goals, functions, and personnel. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 5831 - School Law

Recent developments, including administrative implications of significant court decisions for school operations. For superintendents, principals, school board members, prospective administrators, and teachers. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 5832 - Group Development and Training

Organizational theory and practice for school leadership personnel with emphasis on group and organization development, group problem identification and solutions, conflict management skills and processes, role behaviors and goal setting. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 5833 - School Business Management

Emphasizes school-site level management. Includes instruction in planning, budgeting, evaluation and management. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 5834 - Seminar in School Administration

Knowledge and insight about organizational behavior drawing upon education and related social science concepts. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 5835 - Supervision of Instruction

Studies instructional supervision concepts with practical application. Effective instruction, supervision, and program evaluation in relation to school-wide improvement. Leadership skills in staff development, curriculum development, group development, direct observation and action research. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 5836 - Workshop: Educational Administration, Curriculum and Supervision

Max hours: 15 Credits. **Semester Hours:** 1 to 4

EDUC 5840 - Independent Study: EDUC

Master's. Max hours: 9 Credits. **Semester Hours:** 1 to 4

EDUC 5930 - Clinical Practice in Administrative Leadership

Prereq: Admission to the program. Max hours: 15 Credits. **Semester Hours:** 1 to 5

EDUC 5931 - Internship in Curriculum

Max hours: 15 Credits. **Semester Hours:** 1 to 6

EDUC 5950 - Master's Thesis

Max hours: 16 Credits. **Semester Hours:** 1 to 8

EDUC 6000 - Special Topics: Administrative Leadership and Policy Studies

Specific topics vary; focus is on faculty-developed options to standard course offerings to facilitate program development and distance-learning activities. Max hours: 40 Credits.

Semester Hours: 1 to 10

EDUC 6101 - Initial Portfolio Analysis for Administrator Licensure

Students work with faculty members to develop a portfolio related to the professional standards of practice for educational administrators. Faculty members review the portfolio and provide an initial analysis for licensure. Prereq: M.A. or certification in educational administration. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 6104 - Portfolio Product Development for Principal Licensure

Students work with the professor to develop the products needed to ensure compliance with the new state standards for principal licensure. Prereq: M.A. or certification in educational administration. Max hours: 6 Credits. **Semester Hours:** 1 to 6

EDUC 6105 - Portfolio Evaluation for Administrative Licensure

Students work with the professor to conduct a detailed evaluation of portfolios to ensure that they meet the state standards for administrator licensure. The professor assembles a team of faculty and practicing professionals for the evaluation process. Prereq: M.A. or certification in educational administration. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 6840 - Independent Study

Max hours: 4 Credits. **Semester Hours:** 1 to 4

EDUC 6930 - Clinical Practice for Administrative Leadership

Max hours: 12 Credits. **Semester Hours:** 1 to 7

EDUC 6951 - Master's Thesis

Max hours: 16 Credits. **Semester Hours:** 4 to 4

EDUC 7000 - Special Topics in Administration, Supervision, and Curriculum Development

Max hours: 12 Credits. **Semester Hours:** 1 to 3

EDUC 7100 - Leadership in Education

Orients students to broad periods of administrative science, philosophical and behavioral underpinnings of various models and types of leadership, and develops doctoral-level analysis and writing skills to articulate self-knowledge as leader and the application of appropriate leadership practices in context. Prereq: admission to the doctoral program. Max hours: 3 Credits.

Semester Hours: 3 to 3

EDUC 7120 - Curriculum of Middle Level School

Deals with the history, development, principles, problems, practices, and trends of the curriculum of the middle level school. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7140 - Student Activities Curriculum

Principles, problems, and procedures for improvement of extra class activities, student councils, and home rooms in the secondary school. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7150 - Doctoral Seminar in Curricular Theories

An intensive study of current theories of public school curriculum related to trends in actual practices in elementary and secondary schools. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7160 - Processes and Materials in Curriculum Appraisal

Designed to provide curriculum workers with skills in the process of assessment of curriculum programs and skill in the appraisal of curriculum materials. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7340 - Doctoral Seminar: Problems and Trends in Education

A broad overview of current problems in schools and school systems and consideration of practices and policies in U.S. schools for solution of such problems. Evaluates procedures for solving educational problems. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7350 - Elementary Principalship

Two-week in-depth examination of the elementary school principalship. Required for Type D administrative certification, elementary school. Prereq: Permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7360 - Administration and Supervision of Elementary School

For administrators and teachers. Purposes, practices, and trends in administration and educational leadership. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7370 - Administration and Supervision of Senior High School

Current administrative principles and practices essential to effective organization and management, with emphasis on the educational leadership of the principal. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7380 - Doctoral Seminar: Theory of Educational Administration

Studies organizational models, theories, and communication patterns; leadership roles and behavior; and organizational change. Attention to recent research in administrative theory. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7400 - Doctoral Seminar in School Finance

For advanced graduate students. Problems of educational finance; theory, practice and control; equalization funds; federal-state-local relations in finance; budgeting; salary schedules; retirement; and school bonds. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7410 - Educational Facilities Planning

Determination of school plant needs; relation of educational and architectural services; criteria of adequate school plants, site development, building operation and management; financial problems. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7420 - Personnel Development and Training

Management of human resources in educational organizations. Deals with shared roles between site development, building operation and management; financial problems. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7430 - School and Community Relations

Examines interactions of schools and their communities, citizen role or involvement in governance of education, internal and external communication concepts and practices, politics of education, community power and pressure groups, organizational culture and climate. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7490 - Doctoral Seminar

Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7500 - Strategic Human Capital Development

This course focuses on understanding and leveraging the personnel function of an educational organization. You will learn how to strategically align and maximize your human capital with organizational strategic objectives. Cross-listed with DSEP 7500. Max hours: 3 Credits.

Semester Hours: 3 to 3

EDUC 7510 - Strategic Organizational Management

An effective partnership between the board, community and institutional leader is essential to fulfilling the mission of an educational organization. This course examines the importance of strategic visioning, strategic planning, and specific communication strategies. Cross-listed with DSEP 7510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7520 - Strategic System Improvement

The fundamental purpose of educational organizations (schools, districts, community colleges, higher education, non-profits) is to ensure high levels of learning for all. This course addresses topics such as data development and management, accountability, curriculum assessment and instruction, continuous improvement, and professional learning. Cross-listed with DSEP 7520. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7530 - Leadership Development

Successful leaders are able to articulate, protect and promote what is important. This course will examine the challenges of educational leadership and help participants clarify the core values essential to their success as a leader. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7560 - Administration and Supervision in the Junior High School and Middle School

Purposes, practices, and trends in administration of the middle level school. Current administrative principles and practices essential to effective organization and management. Emphasis is on leadership of the principal at the middle level school. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7630 - Doctoral Seminar: Junior and/or Senior High School Education

For advanced students. Problems, theories, and trends in secondary education. Includes field work and individual projects. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7700 - Doctoral Pro Seminar

This seminar integrates multiple doctoral labs, assists students to focus on dissertation topics, and facilitates inclusion of regional or national researches in students' PhD experiences. Prereq: Admission to the PhD program. Max hours: 12 Credits. **Semester Hours:** 1 to 1

EDUC 7751 - Principal Licensure EDD Concentration Course I

Course is offered for students taking the Principal Licensure EDD Concentration area. Students in 7751 will join a cohort of students in a hybrid cross-listed EDUC 5751, complete all work/assignments for PBA 1 and related PBA 5 assessments.. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7752 - Principal Licensure EDD Concentration Course II

Course is offered for students taking the Principal Licensure EDD Concentration area. Students in 7752 will join a cohort of students in a hybrid cross-listed EDUC 5752, complete all work/assignments for PBA 2 and related PBA 5 assessments. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7753 - Principal Licensure EDD Concentration Course III

Course is offered for students taking the Principal Licensure EDD Concentration area. Students in 7753 will join a cohort of students in a hybrid cross-listed EDUC 5753, complete all work/assignments for PBA 3 and related PBA 5 assessments. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7754 - Principal Licensure EDD Concentration Course IV

Course is offered for students taking the Principal Licensure EDD Concentration area. Students in 7754 will join a cohort of students in a hybrid cross-listed EDUC 5754, complete all work/assignments for PBA 4 and related PBA 5 assessments. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7800 - Doctoral Research Seminar: Education Administration, Curriculum-Supervision

This seminar focuses on doctoral research study in these areas of educational research. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7810 - Doctoral Seminar in School Law

An in-depth examination of the American legal process as it pertains to administration, planning, and delivery of educational programs. Involves self-selected research followed by individual or group presentations. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7820 - Doctoral Seminar in Curriculum

Advanced seminar relating to theory and practice in curriculum building. Includes both elementary and secondary levels. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7823 - Doctoral Seminar in Educational Supervision

Advanced exploration of current instructional supervision concepts with exercises linking theory with professionals to solve instructional problems. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7825 - Doctoral Seminar in Educational Leadership

Seminar dealing with processes and patterns of educational leadership in the schools. Various theories of leadership are considered in relation to students' leadership behaviors. May be taken more than one semester for credit with advisor's approval. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7840 - Independent Study: EDUC

Doctoral. Max hours: 12 Credits. **Semester Hours:** 1 to 4

EDUC 7911 - Practicum in Education Administration, Supervision and Curriculum

Max hours: 15 Credits. **Semester Hours:** 1 to 4

EDUC 7921 - Readings in Education Administration, Curriculum and Supervision

Max hours: 12 Credits. **Semester Hours:** 1 to 4

EDUC 7931 - Internship in Educational Administration and Supervision

Prereq: Permission of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 6

EDUC 7932 - Internship in Curriculum

Permission of instructor required. Max hours: 10 Credits. **Semester Hours:** 1 to 6

EDUC 8997 - Doctoral Dissertation Ed D

Max hours: 10 Credits. **Semester Hours:** 1 to 10

Educational Foundations

EDFN 1000 - Equality, Rights & Education

Examines the history of U.S. public schooling through landmark court cases. Investigates/analyzes how apartheid came to be institutionalized, how forces of desegregation achieved a series of momentous victories, and how those victories have been undermined through the resegregation of schools. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDFN 3000 - Undocumented Mexican Immigration

The socio-legal construction of Mexican undocumented immigration from the early decades of the twentieth century to the current era is addressed. Social justice questions including access to higher education arising from the racialization of Latino/a immigrants are also examined. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDFN 4000 - Food Justice in City & Schools

Food justice examines systemic inequities in access to healthy food. The history of school/community gardens, developments in urban agriculture and school/city policies are examined. The intersection of urban agriculture, hunger, and schooling/learning is examined in school gardens and school farmer's markets. Cross-listed with EDFN 5000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDFN 5000 - Food Justice in City & Schools

Food justice examines systemic inequities in access to healthy food. The history of school/community gardens, developments in urban agriculture and school/city policies are examined. The intersection of urban agriculture, hunger, and schooling/learning is examined in school gardens and school farmer's markets. Cross-listed with EDFN 4000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Educational Leadership & Innovation

EDLI 8994 - Doctoral Dissertation PhD

Max hours: 40 Credits. **Semester Hours:** 1 to 10

Educational Psychology

EPSY 3050 - Children's Thinking and Assessment

A review of the psychology of children's thinking emphasizing developmental changes in modes of thought. Topics include conceptual behavior, problem solving, intelligence, creativity, humor, play, and an introduction to diagnostic, formative and summative assessment. This course is cross-listed with EPSY 5050. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EPSY 5000 - Psychological Foundations of Education

Surveys the results of psychological inquiry with emphasis on applications to educational practices. Major topics are motivation, behavior, learning, development, measurement, and characteristics of teachers and students. Max hours: 8 Credits. **Semester Hours:** 2 to 4

EPSY 5020 - Advanced Psychological Foundations of Education

Selected topics in educational psychology are examined; theoretical issues, current research and applications assume the primary emphasis. The course is intended primarily for students who have had prior professional experiences in teaching and psycho-educational settings. Topic areas addressed include research on intelligence, development, motivation, objective analyses of behavior, and learning. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 5050 - Children's Thinking

A review of the psychology of children's thinking emphasizing developmental changes in modes of thought. Topics include conceptual behavior, problem solving, intelligence, creativity, humor, play and others. Cross-listed with EPSY 3050. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 5100 - Advanced Child Growth and Development

Systematic study of the major theories of child growth and development. Focuses on current research regarding infants and children and the implication of such research for education. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 5110 - Human Learning

A review of the research on human learning, including related topics such as information processing and motivation. Various theories of learning are examined in-depth, and their applications to teaching and practices in schools (and in other educational settings) are considered. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 5120 - Behavior Analysis

A systematic survey of current theory in learning and behavior. The course emphasizes analysis of behavior and behavior change via reinforcement schedules. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 5140 - Advanced Adolescent Growth and Development

Systematic study of the major theories of adolescent growth and development. Focuses on current research regarding adolescents and the implications of the research for education. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 5160 - Behavior Disorders in Exceptional Children

An in-depth study of the psychological, social, and behavioral problems of exceptional learners. Topics include identification, etiology, educational assessment and strategies, non-educational intervention, parent involvement, programming and evaluation. Attention is given to current research and its applications. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 5170 - Behavior Analysis and Intervention

An application-oriented course that focuses on the development of social and affective skills for children and adolescents. Students gain actual experiences in the analysis and implementation of a variety of behavioral, ecological and psycho-educational interventions. Prereq: EPSY 5160 or permission of instructor. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 5180 - Psychology of Gifted, Talented and Creative Children

Examines the nature of gifted, talented, and creative children from an educational psychology perspective. Topics addressed include historical antecedents, identification, characteristics of such children, research initiatives, measurement issues, relevant programs and teaching strategies. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 5200 - Social Psychology of Learning

An analysis of social-psychological concepts, such as self-concept, attitude development, person perception, group processes and related phenomena. Applications to education and other settings are considered. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 5220 - Adult Learning and Education

Surveys theories and principles of adult learning and adult education with emphasis on practical applications and design of programs of instruction for adult learners. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 5240 - Cognition and Instruction

Explores recent developments in cognition and their implications for instructional practices. Includes theory and research in cognitive psychology and resultant educational practices. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 5260 - Child Study and Observation

Involves extensive, systematic observation of young children. Recorded observations are analyzed in terms of child development theories, children's background, setting variables, and are then presented in written and elaborated form. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 5500 - Student Teaching

Involves an extended period (usually one school year) of apprenticeship teaching under the daily supervision of mentor/master teachers. Over time, the student discusses teaching strategies with the mentor and a university supervisor--and takes on increasing responsibility for the conduct of the classroom. Prereq: Enrollment in a teacher licensure program. Max hours: 4 Credits. **Semester Hours:** 2 to 4

EPSY 5800 - Workshop: School Applications of Educational Psychology

Research, development, and other scholarly activities in educational psychology are studied and reviewed. Applications are then made to school and other educational settings, with student practice and utilization of techniques emphasized. Max hours: 8 Credits. **Semester Hours:** 1 to 4

EPSY 5840 - Independent Study

Max hours: 4 Credits. **Semester Hours:** 1 to 4

EPSY 5920 - Readings in Educational Psychology

Max hours: 8 Credits. **Semester Hours:** 1 to 4

EPSY 6000 - Seminar in Educational Psychology

Examines classic research, major trends, and personalities in the field of educational psychology, broadly conceived. Also includes the history of the field, major divisions in educational psychology, professional organizations, and (as appropriate) the teaching of educational psychology. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 6120 - Family Dynamics

Review and analysis of issues related to families with exceptional or at-risk young children. Topics include coping skills, family involvement, parent-child interaction, and sources of support. Special attention is given to current research and its application to early intervention. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 6170 - Assessment of Infants Who are At-Risk

Provides classroom and field-based experience in the assessment of young children, birth to three years. Topics include selection, administration and interpretation of a variety of tests. Norm-referenced and criterion-referenced tests and observational methods are included. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 6200 - Human Development Over the Life Span

An inquiry into the experience and meaning of human development over the full span of life. Both analytical and reflective modes of exploration are utilized to approach the study of personhood and the courses and themes of life. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 6250 - Advanced Abnormal Psychology

The major objective of this course is to help the student develop a professional level of understanding of the major disorders commonly subsumed under the term "psychopathology" and related treatments. Classification of disorders in the DSM IV is utilized. Cross-listed with CPCE 6250. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 6350 - Theories of Personality Development and Change

Advanced course in personality theory intended to assist students in becoming aware of their personal theory of personality and its implications for change. Students are introduced to an array of personality theories, taught to recognize the assumptions of each and their mechanism for change, and taught the implications of each for personal growth and therapy. Cross-listed with CPCE 6350. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 6500 - Student Teaching: Implementation and Reflection

Involves an extended period (usually one school year) of apprenticeship teaching under the daily supervision of mentor/master teachers. Over time, the student discusses teaching strategies with the mentor and a university supervisor--and takes on increasing responsibility for the conduct of the classroom. Additionally, students meet periodically with professors in seminars to relate their classroom experiences, reflect on their generality, and review pertinent (especially psychological) research. Prereq: Enrollment in a teacher licensure program. Max hours: 4 Credits. **Semester Hours:** 2 to 4

EPSY 6600 - Human Motivation

Reviews the research on human motivation. Various theories of human motivation are examined in-depth, and their applications are considered for both teacher and learner in educational settings, primarily (and, in other settings, secondarily). Prereq: EPSY 5020 or permission of instructor. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EPSY 6840 - Independent Study: EPSY

Max hours: 4 Credits. **Semester Hours:** 1 to 4

EPSY 6910 - Practicum in Educational Psychology

Field-based experiences in settings (schools, businesses, governmental agencies, special projects) that are linked closely to the student's professional objectives. Requires a minimum of 150, 225 or 300 clock hours under supervision (two-four credit hours, respectively). Prereq: Permission of instructor. Max hours: 8 Credits. **Semester Hours:** 2 to 4

EPSY 6950 - Master's Thesis

Max hours: 4 Credits. **Semester Hours:** 4 to 4

EPSY 7601 - Special Topics: Laboratory in Educational Leadership and Innovation

Laboratories are organized by professors to engage students in on-going research programs. They provide opportunities for students to extend and apply knowledge and skills developed in course work. The laboratories enable students to complete portfolio requirements and work on doctoral dissertations. Prereq: admission to PhD or M.A. programs; consent of the instructor. Max hours: 12 Credits. **Semester Hours:** 1 to 6

EPSY 7712 - Seminar: Learning Theory and Learners

Students apply major issues from learning theories and development to problems of practice related to educational leadership and innovation. Prereq: EPSY 5110 or 5220 or (recommended: EPSY 5100, 5140 or 6000). Max hours: 3 Credits. **Semester Hours:** 3 to 3

EPSY 7910 - Educational Psychology Practicum

Max hours: 8 Credits. **Semester Hours:** 2 to 4

Electrical Engineering

ELEC 1201 - Introduction to Electrical Engineering

Introduces the field of electrical engineering and the computer -- its primary tool. ELEC faculty members explain the various specialties within the field by demonstration. Word processors, spreadsheets, and engineering software are introduced. Note: This course is not available to students who have taken ELEC 2142. ENGR 1000 cannot be substituted for ELEC 1201. Prereq: High School Trigonometry. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ELEC 1510 - Logic Design

The design of combinatorial and sequential switching circuits. Topics include Boolean algebra, Boolean function minimization technique, combinatorial circuit analysis and synthesis, synchronous sequential circuit analysis and synthesis, algorithmic state machine design, asynchronous sequential circuit analysis and synthesis. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 1520 - Embedded Systems Engineering I

This course serves as an introduction to the "C" programming language for electrical and computer engineers. Programming concepts are introduced from a hardware design standpoint specifically covering micro-controller and embedded systems design issues. Programming for engineering applications are studied. Prereq: ELEC 1510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 2132 - Circuit Analysis I

Introduces circuit analysis: basic principles, operational amplifier circuits, first-order and second-order circuits, steady-state sinusoidal analysis with phasor mathematics. Prereq: MATH 2411 and PHYS 2311. Cross-listed with CSCI 2132. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ELEC 2142 - Circuit Analysis II

Sequential course after ELEC 2132. Topics include: Solution of circuits using Laplace transforms, frequency domain analysis, additional steady-state solutions, Bode plots, active filters, pulses, impulses, and computer-aided analysis. Prereq: ELEC 2132, MATH 2421, PHYS 2331. This course can be taken stand alone without a lab. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 2520 - Embedded Systems Engineering 2

A second semester computer engineering course covering basic computer architecture including CPU's, memory, peripherals, and operating systems including development tools, Kernel selection, file systems, and storage device manipulation, boot loaders, USB, networking, device drivers, and real-time operating system usage. Prereq: ELEC 1520. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ELEC 2531 - Logic Laboratory

Experiments in digital logic utilizing both computer simulation and actual analysis using integrated circuits. Initially, combinational logic circuits are studied, including circuits such as binary adders and multipliers, followed by sequential circuits, including counters. Meters and oscilloscopes are introduced. Use of computer-aided design tools facilitating design, simulation, and implementation of digital systems using field-programmable logic devices are an integral part of the entire course. Prereq/Coreq: ELEC 1510. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ELEC 2552 - Sophomore Circuits Laboratory

Conduct experiments in circuit measurement using oscilloscopes, power supplies, and function generators. Verify basic circuitry, basic circuit theorems such as Ohm's Law, Kirchoff's Law, and Thevenin's theorem and Norton's theorem. Learn by experiments: impedance functions, transfer functions, resonance, Fourier series and analog filters. Prereq/coreq: ELEC 2142. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ELEC 3030 - Electric Circuits and Systems

This basic electrical engineering course is for non-majors (does not apply to BSEE degree). Students study circuit analysis, transformers, electric motors, and simple electronic circuits (diodes and transistors). Prereq: MATH 2421 and PHYS 2331. Cross-listed with MECH 3030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 3133 - Electromagnetic Fields

Fundamental physics and applications of electric and magnetic fields are covered. Topics include: vector analysis in multiple coordinate systems, Maxwell's equations in free space and material regions including boundary conditions, static and quasi-static electric and magnetic fields, uniform plane waves for free space and for materials. Prereq: ELEC 2132, MATH 3195, 2421 and PHYS 2331. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 3164 - Energy Conversion

Theory of transformers. Energy conversion concepts. Basic rotating energy converters, including direct current, synchronous and induction machines and applications. Prereq: ELEC 2142. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 3215 - Electronics I

The learning objective is fundamental semiconductor theory as applied to electronic circuits. Topics include: semiconductor theory, P-N junctions and diode applications, power supply design, transistor (BJT) theory and applications, low-frequency amplifiers, FET and MOSFET devices. Prereq: ELEC 2132, PHYS 2331 and CHEM 1130. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 3225 - Electronics II

BJT and FET transistor models at high frequencies, multistage amplifiers, frequency response of amplifiers. Feedback, operational amplifiers, oscillators, power amplifiers, and introduction to power electronics. Prereq: ELEC 2142 and 3215. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 3316 - Linear Systems Theory

Introduces the fundamentals of signals and systems analysis. Topics include: time domain analysis of continuous and discrete time systems, frequency domain (Laplace and z-transform) analysis, applications to filters and feedback systems, Fourier transform for both continuous and discrete time signals, sampling and signal reconstruction, applications to communication systems and state space representation. Learning experience is enhanced by using MATLAB-based examples and experiments. Prereq: ELEC 2142. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 3651 - Digital Hardware Design

The specification and design of large digital hardware systems. Applications include using a hardware description language and simple digital control circuits. Prereq: ELEC 2531 and ELEC 2520. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 3715 - Electronics Laboratory

Design and experimental verification of the operation of filter circuits, power supply circuits, transistor amplifier circuits and FET circuits. Prereq: ELEC 2552. Prereq/Coreq: ELEC 3215
Max hours: 3 Credits. **Semester Hours:** 1 to 1

ELEC 3724 - Energy Conversion Laboratory

Basic electro-mechanical energy conversion concepts as applied to the synchronous machine, induction machine, and DC machine; the transformer; applications. Prereq: ELEC 2142. Prereq or Coreq: ELEC 3164. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ELEC 3735 - Junior Laboratory

Design and measure: several nonlinear op-amp circuits, a multi-stage amplifier, and a complementary-symmetry output stage. Oral presentations on experiments to be given. Prereq: ELEC 3715. Prereq/Coreq: ELEC 3225. Max hours: 3 Credits. **Semester Hours:** 1 to 1

ELEC 3817 - Engineering Probability and Statistics

Topics include: definition of probability, conditional probability, independence, combined experiments and Bernoulli trials, random variables, joint distribution and density functions, correlations, sample mean and variance. Also, introduction to random processes, auto and cross correlation functions, spectral density of random signals, responses of a linear system to random inputs. Prereq: MATH 3195 and 2421. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 3939 - Internship

Students gain engineering design experience involving application of specific technical concepts and skills in a supervised industrial environment. (Must have approval from ELEC faculty.) Prereq: ELEC 2142. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ELEC 4005 - IC Design

Explores digital integrated circuit design including MOS processing steps, physical operation, building blocks of digital circuits, advanced nMOS, pMOS and CMOS circuit design, silicon VLSI technology and circuit and chip level. Spice and lay-out Editor are used. The physical relationship between circuit design and actual silicon layout and structure and technology are emphasized. Prereq: Graduate standing or permission of instructor. Prereq: ELEC 3225. Cross-listed with ELEC 5005. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4025 - Device Electronics

A course relating performance and limitations of solid state devices to their structures and technology. For both advanced circuit and device engineers. Semiconductor physics and technology, pn-junction and MOS devices used in modern integrated circuits. Prereq: ELEC 3225 and senior standing. Cross-listed with ELEC 5025. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4133 - Advanced Electromagnetic Fields

A course focused on electromagnetic waves. Topics include: electromagnetic power, reflection and transmission of uniform plane waves in layered media, rectangular wave guides, two-conductor transmission lines, Smith Chart representation of wave impedance and reflection.

Prereq: ELEC 3133. Cross-listed with ELEC 5033. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4136 - Control Systems Analysis

Introduces students to the fundamentals of analysis and design of feedback systems. Topics include: mathematical models of linear continuous-time systems applied to modeling physical systems in the time and frequency domain, control system characteristics, Routh's stability and transient response analysis, Nyquist stability and polar plots, analysis and design of linear control systems by root locus and frequency response, methods, compensator implementation, finite-precision numerical effects, round-off errors, and computer-based design applications. Prereq: ELEC 3316. Coreq: ELEC 3817. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4164 - Electric Drive Systems

Covers power electronics drives for rotating electric machinery. Topics include power electronics elements for drives, load characteristics, dynamic modeling of AC machines, fundamental control algorithms, simulation and practical commercial drives. Prereq: ELEC 3164. Cross-listed with ELEC 5164. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ELEC 4170 - Electric Drive Systems Laboratory

Includes hands-on experience on rotating electric machine drives. Experiments include drives for induction, DC, and synchronous machines. Up-to-date industrial equipment and advanced computer controller will be utilized. Prerequisite or Co-requisite: ELEC 4164/5164 or equivalent. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ELEC 4174 - Power Electronic Systems

Topics to be covered include: power electronics fundamentals and applications in power systems; uncontrolled, semi-controlled and fully controlled power semiconductors; converters design and control. Prereq: ELEC 3164. Cross-listed with ELEC 5174. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4184 - Power Systems Analysis

Topics to be covered include: complex power; per-unit quantities; modeling of generators, transformers and transmission lines; power flow problem; economic dispatch; faults and sequence networks; and an introduction to power system protection and dynamics. Prereq: ELEC 3164. Cross-listed with ELEC 5184. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4225 - Advanced Electronics

Switching state models of discrete components and integrated circuits, including logic gates, comparators, and operational amplifiers. Input, output, and transfer characteristics. Non-ideal properties. Analog-digital and digital-analog conversion. MOS-integrated circuits. Prereq: ELEC 3215, 3225 and 3735. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4247 - Communication Theory

Introduces the principles of analog and digital communication systems. Series expansion and Fourier Series and transforms. The sampling theorem. Stochastic principles and noise. Linear systems and Fourier analysis. Design of transmitters and receivers: modulation and demodulation schemes. Some information theoretic concepts: source coding, channel coding, channel capacity and performance measures. Prereq: ELEC 3316 and 3817. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4248 - Digital Communication Systems

Introduces digital communication systems covering elements of information theory; mathematical representation of signals and systems; modulation and demodulation for the additive Gaussian noise channel; performance analysis of various transmission formats; synchronization; coded waveforms; decoding algorithms; and other related topics. Prereq: ELEC 3316, 3817; recommended ELEC 4247. Cross-listed with ELEC 5248. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4249 - Space Communications Systems

Presents the art of space communications system design around the framework of the link budget and the essential analysis tool of the radio system designer. The budget is examined from theoretical and practical viewpoints. Pointers and motivation for further study in each of the related engineering disciplines are provided. Topics to be examined include satellite orbits, propagation, antennas, noise, modulation, coding and hardware or software. Prereq: Permission of instructor. Cross-listed with ELEC 5249. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4276 - Digital Control Systems

Topics to be covered include: discrete-time systems and the z-transform, characteristics of open-loop and closed-loop discrete-time systems, time-response characteristics and stability analysis, design of digital and hybrid control systems using z-transform, root locus, frequency domain, and state variable compensation techniques, compensator on, implementation, and computer-based design applications. Prereq: ELEC 3316 and ELEC 3817. Cross-listed with ELEC 5276. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4309 - Senior Design Project I

Design methodology and tools, project planning and team building, ethics in engineering and research, career planning and portfolio building. Project designs are completed and presented to the class. Prereq: Students must complete their Senior/30 hour check prior to enrollment. Prereq/Coreq: All required ELEC 3000-level classes and labs. ELEC 4309 and ELEC 4319 must be completed in subsequent academic semesters. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4319 - Senior Design Project II

Project designs completed in ELEC 4309 are constructed and tested. Oral and written presentations of the completed project performance are required. Prereq: ELEC 4309 in subsequent academic semester. Students must complete their Graduation Agreement prior to enrollment. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4373 - Optical Engineering

This course introduces some of the most important concepts in optical engineering and prepares students a solid foundation to apply them to applications in the industry and academic research. Prereq: ELEC 3133 Electromagnetic Fields. Cross-listed with ELEC 5373. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4406 - Control Systems Laboratory

This lab includes system identification, design of velocity control systems, design of PID controllers and control systems using state variable feedback. Prereq: ELEC 3225, ELEC 3316, and ELEC 3735. Prereq/Coreq: ELEC 3817. Cross-listed with ELEC 5276. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ELEC 4423 - Radio Frequency Laboratory

Projects involve modern RF analyzers, wave-guide devices, time-domain techniques, characterization of filters/amplifiers, signal propagation and scattering, harmonic mixing, and radio frequency identification. Students will gain experience using MATLAB for data acquisition and processing. Cross-listed with ELEC 5423. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ELEC 4435 - Advanced Electronics Laboratory

Projects related to digital logic, analog and digital switches, A/D and D/A converters, and design of signal filters. Prereq: ELEC 3225 and 3735; Prereq or Coreq: ELEC 4225. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ELEC 4444 - Power Systems Laboratory

This lab introduces the student to modern computational tools used in power system analysis. Algorithms to solve the "power flow problem," the "economic dispatch problem," and the "optimal power flow problem" are discussed and implemented in the Matlab-Simulink mathematical analysis software package. Prereq: ELEC 4184. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ELEC 4466 - Adaptive Control System Design

Basic concepts in adaptive feedback control. Overview of application areas. Stability of non-linear systems and hyperstability approach to the design of adaptive controllers. Passivity concept and Liapunov stability. Design of model reference adaptive systems, self-tuning regulators, stochastic adaptive, and dual control systems. Computer-based design applications. Emphasis is placed on design projects. Prereq: ELEC 4136 or 4276. Cross-listed with ELEC 5466. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4467 - Communications Laboratory

Analysis and design in three main areas: traditional analog communications at low and medium frequencies, digital communications, and microwave communications systems. Extensive use of spectrum analysis from low frequencies up to microwave range. Projects include noise, AM, FM, PM, PLL, sampling, quantizing, encoding, TDM, FSK, QPSK, 16QAM, receivers, and satellite communications systems. Prereq: ELEC 3735; Prereq or Coreq: ELEC 4247 or ELEC 4248. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ELEC 4474 - Power Electronics Laboratory

The power electronics laboratory introduces students to seven fundamental switchmode power conversion topologies, along with voltage and current feedback control, assembled on a reconfigurable power pole circuit board with external power supplies and laboratory. Coreq: ELEC 4174. Cross-listed with ELEC 5474. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ELEC 4501 - Microprocessor Based Design

Covers advanced treatment of embedded system design using microprocessors. Analog input circuitry is interfaced to a microprocessor, and a PC board layout is created to develop a complete system design. Software/Operating System is implemented for realtime I/O. Prereq/Coreq: ELEC 3225, ELEC 3651, and ELEC 3735. Cross-listed with ELEC 5501. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4511 - Hardware-Software Interface

Computer engineering methods in hardware and software design applied to problems drawn from the mini- and micro-computer systems field. Hardware and software techniques for the design of combined hardware or software are developed. Interface and real-time programming techniques are considered. Graduate level requires additional projects and homework. Prereq: ELEC 3651. Cross-listed with ELEC 5511. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4521 - Microprocessor Laboratory

Provides support for the projects assigned in ELEC 4501 - a complete embedded system is designed, built and tested. Coreq: ELEC 4501. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ELEC 4555 - VLSI Circuit Simulation

Computer methods for large integrated circuits. Theory and practice of VLSI circuit simulation. Nodal formulations of networks. Computer generation of sensitivities. Modeling active devices. DC solution of nonlinear networks. Prereq: ELEC 3225. Cross-listed with ELEC 5555. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4561 - Hardware-Software Lab

Projects related to the software interface of a processor to external devices. Topics include A/D converters, serial and parallel interfaces. Coreq: ELEC 4511. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ELEC 4637 - Digital Signal Processing

Discrete-time signals and systems in the time and frequency domain. Digital filter structures, design of FIR filters by windowing, optimum approximations of FIR filters. Design of digital IIR filters from continuous time domain. Computer-aided design of digital filters. The discrete Fourier transform and DSP algorithm implementation. Analysis of finite word length effects. Application of digital signal processing. Prereq: ELEC 3316 and 3817. Cross-listed with ELEC 5637. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4644 - Introduction to Biomedical Imaging

An important component of the recent expansion in biomedical engineering is the area of biomedical imaging. This ELEC 4644/5644 course is an introduction to biomedical imaging systems, not only covering the fundamentals of imaging physics but also the applications of four primary biomedical imaging modalities: X-Ray Computed Tomography (CT), Magnetic Resonance Imaging (MRI), Nuclear Medicine (i.e. PET, SPECT), and Ultrasound Imaging. Prereq: ELEC 3316. Cross-listed with ELEC 5644. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4678 - Quantum Electronics

The course teaches students to understand the basic concepts of quantum mechanics and to learn the mathematical tools needed and to be familiar with some of the technical knowledge that applies quantum mechanics to various advanced problems in engineering. Prereq: PHYS 2331 and MATH 3195. Cross-listed with ELEC 5678. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4688 - Introduction to Nondestructive Testing

A basic, broad understanding of the principles of nondestructive testing and evaluation is provided. The main objective of this course is to attract students to NDT fields and eventually help address the increasing needs of NDT engineers and technicians. Interaction and collaboration with local NDT industries will also be emphasized. As an introductory course, a broad interdisciplinary knowledge of NDT will be covered in the following sub-areas: Visual, Penetrant, Magnetic Particle, Eddy Current, Microwave, Ultrasonic, and Radiography. Prereq: ELEC 1201 and ELEC 3316. Cross-listed with ELEC 5688. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4723 - High Performance Computer Architecture

High Performance Computer Architecture covers the design of advanced computing systems. In particular, the course includes the design of modern microprocessors, characteristics of the memory hierarchy, and issues involved in multithreading and multicore architectures. Prereq: ELEC 3651 Digital Hardware Design. Cross-listed with ELEC 5723. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4727 - Computer Vision & Image Processing Acceleration

Real-time constraints on computer-vision and image processing applications have motivated numerous explorations of multicore architectures to provide more efficiency through hardware parallelism and acceleration. This course undertakes the study of image processing and computer vision algorithms in the context of parallel hardware. Cross-listed with ELEC 5727. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 4755 - Renewable Energy Systems

This course considers electrical generation using renewable energy sources of a variety of types. While examining many developing technologies, it concentrates on the design and application of photovoltaic and wind electrical generation. It examines current methods of classification of wind and solar sites, and discussed aspects which must be considered when choosing sites for wind or solar installations. It examines photovoltaic and thermal solar technologies, inverter technologies, and their integration into the power grid. Also considered are micro-hydro and fuel cell technologies. Renewable system economics and legislative effects are also discussed. Cross-listed with ELEC 5755. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ELEC 4800 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ELEC 4840 - Independent Study: ELEC

An opportunity for independent creative work. Prereq: Permission of instructor. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ELEC 5005 - IC Design

Explores digital integrated circuit design including MOS processing steps, physical operation, building blocks of digital circuits, advanced nMOS, pMOS and CMOS circuit design, silicon VLSI technology and circuit and chip level. Spice and lay-out Editor are used. The physical relationship between circuit design and actual silicon layout and structure and technology are emphasized. Prereq: Graduate standing or permission of instructor. Cross-listed with ELEC 4005. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5025 - Device Electronics

A course relating performance and limitations of solid state devices to their structures and technology. For both advanced circuit and device engineers. Semiconductor physics and technology, pn-junction and MOS devices used in modern integrated circuits. Prereq: ELEC 3225 and senior standing. Cross-listed with ELEC 4025. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5033 - Advanced Electromagnetic Fields

A course focused on electromagnetic waves. Topics include: Poynting's power theorem, reflection and transmission of uniform plane waves in layered media, two-conductor transmission lines, rectangular wave guides, Smith Chart elements of radiation and antenna. Prereq: ELEC 3133 and permission of instructor for undergraduates. Cross-listed with ELEC 4133. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5133 - Electromagnetic Radiation and Antenna

Solution of inhomogeneous wave equation. Radiation fields of elementary dipole, linear wire antenna, uniform and non-uniform linear arrays. Array synthesis. Farzone field patterns, directivity and beamwidth. Diffraction fields of aperture sources, horn antenna, conic surface reflector sources, lens antenna. Ray tracing methods. Transient-receive link. Selected Topics. Prereq: ELEC 4133, graduate standing and permission of instructor for undergraduates. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5164 - Electric Drive Systems

Covers power electronics drives for rotating electric machinery. Topics include power electronics elements for drives, load characteristics, dynamic modeling of AC machines, fundamental control algorithms, simulation and practical commercial drives. Prereq: ELEC 3164. Cross-listed with ELEC 4164. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ELEC 5170 - Advanced Electric Drive Systems

Covers advanced theory and implementation techniques for rotating electric machinery drives. Topics include field oriented control theory, detailed dynamic modeling of induction machine/drive system, advanced control algorithms and controller design. Prereq: ELEC 4164, 5164 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5174 - Power Electronic Systems

Topics to be covered include: power electronics fundamentals and applications in power systems; uncontrolled, semi-controlled and fully controlled power semiconductors; converters design and control. Prereq: ELEC 3164 and graduate standing or permission of instructor. Cross-listed with ELEC 4174. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5184 - Power Systems Analysis

Topics to be covered include: complex power; per-unit quantities; modeling of generators, transformers and transmission lines; power flow problem; economic dispatch; faults and sequence networks; and an introduction to power system protection and dynamics. Prereq: ELEC 3164 and graduate standing or permission of instructor. Cross-listed with ELEC 4184. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5194 - Power Systems Operation and Control

This course introduces the student to various operational strategies the power industry uses today to operate the power system. Topics to be covered include: economic dispatch, unit commitment, optimal power flow (linear and nonlinear), transmission congestion, control areas, state estimation, and an introduction to power markets. Prereq: ELEC 4184 or ELEC 5184 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5210 - Optimization Methods in Engineering

Unconstrained optimization, gradient methods, conjugate direction methods, data fitting and function estimation. Applications in control, system identification and radar systems. Optimization over a convex set, LMS algorithms in adaptive systems, convergence properties. Nonlinear programming, Lagrange multipliers, projection algorithms, games and minimax theorem, application to H infinity control, communication and signal processing. Prereq: MATH 3191 and 3200/3195. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5220 - Methods of Engineering Analysis

Real sequences and infinite series, convergence of the parameter estimates in self-tuning control. Uniform convergence and application to adaptive FIR filters. Improper integrals, application in filtering, prediction and communication. Analytic functions, Hardy spaces, maximum modulus theorem. Argument principle and Nyquist stability criteria. Calculus of residues, LQG problem. Conformal mappings, Nevelinna-Pick problem. Prereq: MATH 3191 and 3200/3195, graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5230 - Advanced Linear Systems

Mathematical description of both continuous and discrete-time systems; vector, normed and inner-product spaces; state-space, impulse response and transfer function descriptions; state-transition response matrices; eigenvalues and eigenfunctions; controllability; canonical form; state feedback; observers; realization theory. Prereq: MATH 3191, MATH 3200/3195 and permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5248 - Digital Communication Systems

Introduces digital communication systems covering elements of information theory; mathematical representation of signals and systems; modulation and demodulation for the additive Gaussian noise channel; Performance analysis of various transmission formats; synchronization; coded waveforms; decoding algorithms; and other related topics. Prereq: ELEC 3316, 3817; recommended ELEC 4247. Cross-listed with ELEC 4248. Max hours: 3 Credits.

Semester Hours: 3 to 3

ELEC 5249 - Space Communications Systems

Presents the art of space communications system design around the framework of the link budget and the essential analysis tool of the radio system designer. The budget is examined from theoretical and practical viewpoints. Pointers and motivation for further study in each of the related engineering disciplines are provided. Topics to be examined include satellite orbits, propagation, antennas, noise, modulation, coding and hardware or software. Prereq: Permission of instructor and graduate standing. Cross-listed with ELEC 4249. Max hours: 3 Credits.

Semester Hours: 3 to 3

ELEC 5250 - Information Theory

Introduces information theory and its application in computer science, communication theory, coding and applied mathematics. Entropy, mutual information, data compression and storage, channel capacity, rate distortion, hypothesis testing. Error detecting and correcting codes, block codes and sequential codes. Prereq: ELEC 3817 or CSCI 4535 or MATH 3800. Cross-listed with CSCI 5217. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5252 - Computer Communication Networks

Comprehensive study of issues arising in modern computer-communication networks, both wire-line and wireless, carrying traffics with heterogeneous characteristics. A conceptual and analytical approach to the design of network protocols in harmony with the appropriate modeling of the traffic and network environments. Issues covered include routing, transmission, performance monitoring, as well as and network management in ATM multi-media networks. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5276 - Digital Control Systems

Analysis and design of discrete-time systems, as occurs when a digital computer is used to control physical systems. Topics include difference equations, Z-transform, sampled-data system modeling, sampling, discrete equivalents, stability, and discrete control design by root locus, direct design, frequency-response, and state space. Prereq: ELEC 3316, ELEC 3817, and graduate standing. Cross-listed with ELEC 4276. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ELEC 5294 - Advanced Power Electronic Systems

Topics to be covered include: three-phase diode/thyristor bridge rectifiers; three-phase voltage source converters; matrix converters; FACTS devices; Custom Power devices; converter's design, control and modulation strategies. Prereq: ELEC 4174 or ELEC 5174. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5373 - Optical Engineering

This course introduces some of the most important concepts in optical engineering and prepares students a solid foundation to apply them to applications in the industry and academic research. Prereq: ELEC 3133 Electromagnetic Fields. Cross-listed with ELEC 4373. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5423 - Radio Frequency Laboratory

Projects involve modern RF analyzers, waveguide devices, time-domain techniques, characterization of devices, signal propagation and scattering, harmonic mixing, and radio frequency identification. Students will gain experience using MATLAB for data acquisition and processing. Graduate students will explore projects in greater detail. Cross-listed with ELEC 4423. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ELEC 5433 - Fundamentals and Applications of Plasmas

This course provides an introduction to plasmas, also known as the fourth state of matter, in nature and industry. Topics covered include single particle motions, plasma kinetic and fluid theory, cold and warm plasma models and interaction of electromagnetic waves with plasmas. Applications ranging from space sciences to medicine are explored. Prereq ELEC 3133 for undergraduate students or permission of the instructor. No prerequisite for CEAS graduate students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5436 - Nonlinear Control Systems I

Analysis and synthesis of nonlinear feedback control systems. Linearization's and stability in the small, equivalent linearization and the describing function. The dual input describing function. Stability in the large and the second method of Lyapunov. Stability of time-varying systems. Popov's method and extensions. Prereq: ELEC 4136 or 4276. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5444 - Power System Laboratory

This lab introduces the student to modern computational tools used in power system analysis. Algorithms to solve the "power flow problem", the "economic dispatch problem", and the "optimal power flow problem" are discussed and implemented in the Matlab-Simulink mathematical analysis software package. Prereq: ELEC 4184 & 5184. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ELEC 5446 - Introduction to Modern Control Theory

State space representation of dynamic systems. Canonical forms. Frequency domain analysis. Controllability and observability. Design by statespace methods: pole-placement, linear observers, separation principle, robustness. Linear, quadratic optimum control. Prereq: ELEC 4136 or 4276. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5455 - Computer Methods for Device Electronics

Numerical analysis of PN junctions, Bipolar transistors, GAAS MESFETS, and MOSFETS. Numerical solution of discrete-form equations. Finite-difference method for semiconductor devices. Two-dimensional models: DC, transient, and small signal numerical analysis. Prereq: ELEC 4025 or 5025. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5456 - Sampled Data and Digital Control Systems

Elements of sampling theory. Overview of design approaches via transform methods. Analysis and design in state space. Optimal control systems. Emphasis is placed on computer-aided design projects. Prereq: ELEC 4276. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5466 - Adaptive Control System Design

Basic concepts in adaptive feedback control. Overview of application areas. Stability of non-linear systems and hyperstability approach to the design of adaptive controllers. Passivity concept and Liapunov stability. Design of model reference adaptive systems, self-tuning regulators, stochastic adaptive, and dual control systems. Computer-based design applications. Emphasis is placed on design projects. Prereq: ELEC 4136 or 4276. Cross-listed with ELEC 4466. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5474 - Power Electronics Laboratory

The power electronics laboratory introduces students to seven fundamental switchmode power conversion topologies, along with voltage and current feedback control, assembled on a reconfigurable power pole circuit board with external power supplies and laboratory. Cross-listed with ELEC 4474. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ELEC 5476 - Optimal Control Systems

Liapunov stability and quadratic optimal control problems. The minimum principle and the Pontryagin maximum principle. Variational calculus and Hamilton-Jacoby-Bellman equation. The separation principle of LQG control. Combined optimal state estimation and control. Differential and difference Riccati equations. Tracking and disturbance rejection. Computer-aided design applications. Prereq: ELEC 4136 or 4276. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5486 - Modeling and System Identification

Linear time-invariant and time-varying models. Nonlinear state space models. Non-parametric methods. Parameter estimation methods. Convergence and consistency. Computational methods in estimation. Recursive estimation methods. Experiment design and choice of identification criterion. Model structure selection and model validation. Prereq: ELEC 3817 or MATH 3800, and ELEC 4136 or 4276. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5496 - Robust Control

Background mathematics: function spaces and operators, and factorization theory. Stability theory: stability and stabilizability parameterization, closed-loop transfer matrices. Model-Matching Theory: solution existence, SISO Design, the Nehari problem. Performance bounds. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5501 - Microprocessor-Based Design

Covers advanced treatment of embedded system design using microprocessors. Analog input circuitry is interfaced to a microprocessor, and a PC board layout is created to develop a complete system design. Software/Operating System is implemented for realtime I/O. Prereq: Graduate standing or permission of instructor. Cross-listed with ELEC 4501. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5511 - Hardware-Software Interface

Computer engineering methods in hardware and software design applied to problems drawn from the mini- and micro-computer systems field. Hardware and software techniques for the design of combined hardware or software are developed. Interface and real-time programming techniques are considered. Graduate level requires additional projects and homework. Prereq: Graduate standing or permission of instructor. Cross-listed with ELEC 4511. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5521 - Design and Test of Digital Systems

Application of hardware description languages to the design, synthesis, analysis, and testing of digital and computer systems; modeling and simulation constructs; modern hardware description languages, including VHDL, logic and behavioral synthesis; rapid-prototyping; FPGA and standard-cell ASIC design; design for testability; and electronic design automation. Prereq: ELEC 3651 or graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5522 - VLSI Systems

Examines the design of very large-scale integrated (VLSI) systems from the logic to physical levels, including MOS transistor design, CMOS fabrication and design rules, device and wafer processing, inverter and complex gate design, mask level layout, VLSI system components and architectures, algorithms for VLSI computer-aided design, and testability. Prereq: ELEC 3215 and 3651 or graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5551 - Pattern Recognition

Pattern recognition techniques from image processing and artificial intelligence are explored. Topics include neural networks, morphological processing, wavelets, fractals, and basic image understanding. Prereq: ELEC 3316 and 3651. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5555 - VLSI Circuit Simulation

Computer methods for large integrated circuits. Theory and practice of VLSI circuit simulation. Nodal formulations of networks. Computer generation of sensitivities. Modeling active devices. DC solution of nonlinear networks. Prereq: Graduate standing or permission of instructor. Cross-listed with ELEC 4555. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5617 - Random Processes for Engineers

Probability, sequences of random variables, specification of stochastic processes, stationarity, correlation functions and spectral densities, linear mean-square estimation, central limit theorems, law of large numbers, non-stationary random processes, stochastic differential equations and Karhunen-Loeve expansion, Kalman filtering. Prereq: ELEC 3316 and ELEC 3817 and permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5627 - Stochastic Point Processes

Presents modeling physical phenomena characterized by highly localized events distributed randomly in a continuum. Applications include optical communications, queuing theory, decision theory, nuclear medicine and electron microscopy. Topics include Poisson counting processes and its generalizations; stochastic differential equations used in filtering; martingales and Brownian motion. Prereq: ELEC 3817 or ELEC 5617. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5637 - Digital Signal Processing

Discrete-time signals and systems in the time and frequency domain. Digital filter structures, design of FIR filters by windowing, optimum approximations of FIR filters. Design of digital IIR filters from continuous time domain. Computer-aided design of digital filters. The discrete Fourier transform and DSP algorithm implementation. Analysis of finite word length effects. Application of digital signal processing. Prereq: ELEC 3316 and 3817. Cross-listed with ELEC 4637. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5638 - Digital Image Processing

Basics of two-dimensional (2-D) systems theory, including 2-D Fourier transform, Z-transform, and difference equations. Design of 2-D filters for image processing applications. Image transforms, including the 2-D FFT, cosine, Hadamard and KL. Image enhancement and restoration techniques. Method of image coding and compression. Prereq: ELEC 3030, 3133, 3215, 3225, 3316, 3715, 3735, and 3817. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5644 - Introduction to Biomedical Imaging

An important component of the recent expansion in biomedical engineering is the area of biomedical imaging. This ELEC 4644/5644 course is an introduction to biomedical imaging systems, not only covering the fundamentals of imaging physics but also the applications of four primary biomedical imaging modalities: X-Ray Computed Tomography (CT), Magnetic Resonance Imaging (MRI), Nuclear Medicine (i.e. PET, SPECT), and Ultrasound Imaging. Prereq: Graduate standing, or permission of instructor. Cross-listed with ELEC 4644. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5647 - Adaptive Signal Processing

Optimal filtering and identification of signal processing models. Martingales and analysis of recursive estimation algorithms. LMS and RLS adaptive filters. Stability, convergence and robustness of adaptive algorithms. Adaptive noise cancellation, time delay estimation and blind equalization. Adaptive differential pulse code modulation, adaptive prediction, adaptive Kalman Filters. Applications and implementation of adaptive algorithms. Prereq: ELEC 5637. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5648 - Blind Signal Processing

Introduction to gradient optimization methods. Introduction to adaptive filtering. Principal component analysis and whitening. Robust and adaptive PCA. Blind SOS parameter estimation and deconvolution. Fundamentals of independent component analysis. Blind equalization of SIMO and MIMO systems. ICA by maximization of nongaussianity. ICA by MLE and minimization of mutual information. Applications and practical considerations. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5657 - Detection and Estimation Theory

Introduces detection and extraction methods used in signal processing, including decision theory; detection of known and random signals; optimum receiver design; estimation theory; Wiener filtering; Kalman-Bucy filtering; and applications to communication systems. Prereq: ELEC 5617. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5667 - Wavelet Theory and Applications

Topics include: fundamentals of signal decomposition; theory of filter banks; multi-resolution analysis and fast wavelet transforms; applications image and video image and video compression; and denoising and feature detection. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5678 - Quantum Electronics

The course teaches students to understand the basic concepts of quantum mechanics and to learn the mathematical tools needed and to be familiar with some of the technical knowledge that applies quantum mechanics to various advanced problems in engineering. Prereq: PHYS 2331 and MATH 3195. Cross-listed with ELEC 4678. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5687 - Optical Communication Systems

System aspects of optical communication system design. Basic principles of sources, channels, detectors, counting statistics, amplifiers, and coding with regard to the performance limitations they place on the communication system. Prereq: ELEC 4247. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5688 - Introduction to Nondestructive Testing

A basic, broad understanding of the principles of nondestructive testing and evaluation is provided. The main objective of this course is to attract students to NDT fields and eventually help address the increasing needs of NDT engineers and technicians. Interaction and collaboration with local NDT industries will also be emphasized. As an introductory course, a broad interdisciplinary knowledge of NDT will be covered in the following sub-areas: Visual, Penetrant, Magnetic Particle, Eddy Current, Microwave, Ultrasonic, and Radiography. Prereq: Graduate standing, or permission of instructor. Cross-listed with ELEC 4688. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5697 - Optical and Spatial Information Processing

Processing of two- and three-dimensional spatial information. The scalar diffraction theory necessary to describe the information-bearing wave-front. Wave-front recording, modulations, and reconstruction. Holography, Fourier transform properties of lenses, two-dimensional convolution and correlation, pattern recognition, and optical information processing. Prereq: ELEC 3316. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5710 - Advanced Electric Drive Systems

Covers advanced theory and implementation techniques for rotating electric machinery drives. Topics include field oriented control theory, detailed dynamic modeling of induction machine/drive system, advanced control algorithms and controller design. Prereq: ELEC 4164/5164 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5714 - Energy Systems Analysis

Transmission line constants, including details of GMD methods, skin effect. Analysis of balanced and unbalanced line using distributed parameters, energy flow from circle diagram approach, traveling-wave phenomena, corona, power cables and fundamentals of DC transmission. Prereq: ELEC 4184. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5720 - Practical Electric Drive Systems

Covers practical control theory and implementation techniques for electric machine drives for rotating electric machinery using high-performance hardware and software. Topics include machine theory review, power converter, control theory, controller design and actual implementation of an induction machine drive using up-to-date microcontroller hardware and software. Prereq: ELEC 2520, ELEC 4164/5164 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5723 - High Performance Computer Architecture

High Performance Computer Architecture covers the design of advanced computing systems. In particular, the course includes the design of modern microprocessors, characteristics of the memory hierarchy, and issues involved in multithreading and multicore architectures. Prereq: ELEC 3651 Digital Hardware Design. Cross-listed with ELEC 4723. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5725 - Advanced Electric Machinery

Covers theoretical principles and techniques of electric machine analysis focusing on rotating machinery. Topics include various machine definitions, properties and analysis, software tools, and examples. Prereq: ELEC 3164 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5727 - Computer Vision & Image Processing Acceleration

Real-time constraints on computer-vision and image processing applications have motivated numerous explorations of multicore architectures to provide more efficiency through hardware parallelism and acceleration. This course undertakes the study of image processing and computer vision algorithms in the context of parallel hardware. Cross-listed with ELEC 4727. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5755 - Renewable Energy Systems

This course considers electrical generation using renewable energy sources of a variety of types. While examining many developing technologies, it concentrates on the design and application of photovoltaic and wind electrical generation. It examines current methods of classification of wind and solar sites, and discussed aspects which must be considered when choosing sites for wind or solar installations. It examines photovoltaic and thermal solar technologies, inverter technologies, and their integration into the power grid. Also considered are micro-hydro and fuel cell technologies. Renewable system economics and legislative effects are also discussed. Cross-listed with ELEC 4755. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ELEC 5764 - Power Distribution Systems

Use of per-unit methods to find transient voltage behavior of industrial power systems resulting from motor starting, spotwelders and similar stimuli. System and device responses due to series and shunt capacitors and problems of subharmonics and over-excitation on induction motors. Design of power distribution systems. Prereq: ELEC 4184. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5774 - Power Systems Dynamics and Protection

Topics to be covered include: power system dynamic fundamentals, various stability problems, such as angle, frequency and voltage stability; protection of power systems apparatus and protective relays coordination. Prereq: ELEC 4184/5184 or graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5800 - Special Topics

Intermediate courses of variable title and variable credit, usually offered once by guest lecturers. See current departmental notices for details. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ELEC 5840 - Independent Study: ELEC

Offers the opportunity for independent, creative work. Prereq: Permission of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 6

ELEC 5980 - Statistical Quality Control

Introduces statistical methods of quality control. Statistical process control, process capability, statistical design of experiments and total quality management. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 6000 - Statistical Signal Processing

The objective of this course is to present a systematic coverage of statistical signal processing methods which are fundamental for processing, identifying and classifying stochastically (randomly) generated data sequences. Emphasis will be given to methods which resist data outliers. Important applications include communications and biological systems. Prereq: ELEC 5617 or consent of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 6800 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ELEC 6950 - Master's Thesis

Max hours: 8 Credits. **Semester Hours:** 1 to 8

ELEC 6960 - Master's Report

Max hours: 8 Credits. **Semester Hours:** 1 to 8

ELEC 7800 - Special Topics

Courses of variable title and variable credit, usually offered once by guest lecturers. See current departmental notices for details. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ELEC 7840 - Independent Study: ELEC

Offers the opportunity for independent, creative work. Prereq: Permission of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 6

ELEC 8990 - Doctoral Dissertation

Max hours: 10 Credits. **Semester Hours:** 1 to 10

Elementary Education

ELED 4800 - Curriculum Workshop

Max hours: 4 Credits. **Semester Hours:** 1 to 4

ELED 5060 - Improvement of Instruction

Designed to assist the educator in the systematic improvement of instruction. Emphasis is on the emergent knowledge related to successful classroom practices, techniques of assessment, analysis, and action related to the improvement of professional skills. Cross-listed with SECE 5060. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5140 - Elementary Curriculum: Integrating Language Arts with Literature

Integrating the language arts (reading, writing, listening, speaking) with children's literature. Selection of materials and development and presentation of ways to use children's literature in teaching the language arts. Required for post-baccalaureate pre-service teacher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5150 - Elementary Curriculum: Teaching Mathematics, Science and Social Studies

Emphasis is on the role of the classroom teacher in development, implementation, and evaluation of contemporary interdisciplinary curricula. The course demonstrates the relationship between educational theory and classroom pedagogy, and is required for the post-baccalaureate pre-service teacher. Max hours: 6 Credits. **Semester Hours:** 6 to 6

ELED 5160 - Expressive Arts

Familiarizes participants with drama, music, dance, movement, (P E, dance and health) and visual arts. Provides a rationale for the arts in the elementary curriculum and ways in which arts can be integrated into classroom activities. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5170 - Community and Interpersonal Relations

Provides an opportunity for students to develop communication and interpersonal skills that enable them to facilitate positive student self-concept and interaction among professional educators, the community, and social groups. Exposes the student to the urban environment and issues in child abuse. Cross-listed with SECE 5170. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5200 - Classroom Management

Instructional management, physical management, and behavior management are studied as interactive components in the establishment and maintenance of an effective learning environment. Cross-listed with SECE 5200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5320 - Advanced Language Arts in Elementary School

Current thought, as determined by research and practice in the various areas of the language arts; listening, speaking, reading and writing. Issues, trends, and innovative practices for the practicing teacher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5340 - Multicultural Science Education

This course examines literature in science education related to multicultural issues, topics will be framed by an understanding of equity in diverse, urban classrooms and how it informs curriculum and instruction. Cross-listed with SECE and ENV5 5340. Max hours: 3 Credits.

Semester Hours: 3 to 3

ELED 5350 - Issues And Problems In Science Education

Emphasis on experimental programs and implementation of the newer programs. Supervision and curriculum development considered. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5400 - Contemporary Mathematics for Elementary Schools

Surveys contemporary content and methodology with emphasis on interrelations among topics and techniques for providing learning for conceptual understanding through active problem solving. Cross-listed with MATH 3040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5401 - Assessment in Mathematics Education

Curriculum-based assessment focusing on the nature of assessment and its relation to evaluation and grading; teacher-made assessments; valid and authentic assessment; methods for assessing conceptual learning of mathematics, procedures, and problem solving. Emphasis on assessment practices of mathematics teachers. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5410 - Teaching Numbers and Arithmetic

Teaching methodologies related to arithmetic and its applications. Covers mathematical attitudes, problem solving, math manipulatives, numeration, number concepts, number theory, algorithms, fractions, decimals, calculators and integration of arithmetic with other curriculum areas. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5411 - Mathematics Education and Gender

Investigates gender-inclusive curriculum and teaching methods, equity and assessment, mathematical life histories, women in mathematics history, women's individual development and voice, single-sex programs and gender differences. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5415 - Math Science Connections: Indoors

(Primarily for pre-secondary teachers.) Explores science concepts through activities appropriate for middle-grade students. Topics include how the nature of science and mathematics informs pedagogy, national and state standards, gravity, density, electricity, simple machines, magnetism, probability, geometry, algebra and elementary chemistry. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5416 - Math-Science Connections: Outdoor

(Primarily for pre-secondary teachers.) Explores science concepts through outdoor activities appropriate for middle-grade students. Topics include how the nature of science and mathematics informs pedagogy, national and state standards, earth science and paleontology, orienteering and map usage, water analysis, astronomy and entomology. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5417 - Structure of Rational Numbers

Focuses on pedagogical practices that use multiple solution strategies to examine the structure of rational numbers. The assigned problems engage elementary and secondary teachers in investigation of mathematical equivalence, properties, unitization, partitioning, ratios and proportionality. Prereq: Teaching license or permission of instructor. Cross-listed with SECE 5417. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5418 - Mathematical Modeling

Elementary and secondary teachers explore settings where mathematics is utilized in everyday activities. Teachers create mathematical models to describe events or situations in the world and use a variety of modeling strategies to solve problems. Prereq: Teacher licensure or permission of instructor. Cross-listed with SECE 5418. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5419 - Exploring the Structure of Geometry Using Technology

Develops elementary and secondary teachers' conceptual understanding of geometric properties, theorems and axiomatic systems through dynamic computer software investigations. Using the software enhances and extends teachers' ability to solve complex problems and form deep understandings of abstract ideas. Prereq: Teaching license or permission of instructor. Cross-listed with SECE 5419. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5430 - Topics in Mathematics Education

An in-depth study of topics such as mathematics and learning, teaching perspectives and practices, mathematics curricula, mathematical topics in education (e.g., geometry, testing, arithmetic), mathematics labs, calculators and computers. (May be repeated as topics vary.) Max hours: 6 Credits. **Semester Hours:** 3 to 3

ELED 5440 - Problem Solving and Geometry in the Elementary School

Covers problem solving, spatial visualization, informal geometry, and computer software with emphasis on incorporating these topics into the elementary curriculum. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5450 - Social Studies in Elementary School

Review and analysis of current innovations and concept formation in the social studies. Involves student development and implementation of materials for trial in classroom instruction. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5464 - Teaching About Ethnicity, Race and Prejudice

Designed to introduce the nature of racial and ethnic groups, prejudice, discrimination, and ethno violence. It also includes the teaching about these and related topics and deals with resolving problems of intergroup relations in schools and institutional settings. Cross-listed with SECE 5464. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5470 - Introduction to Middle School

Covers history and philosophy of the middle school, organization plans, team teaching, integrating content areas, characteristics of the early adolescent, and classroom management. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5480 - Museum Studies in Paleontology

A practical laboratory-based course covering aspects of museum studies related to paleontological collections. Students learn how to stabilize and prepare bones removed from fossil quarries; learn molding and casting techniques for bones and fossils; assist with the cataloging and curation of the collection; and participate in designing museum displays. Prereq: At least one science class. Cross-listed with GEOL 3415, SECE 5480. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5490 - Middle School Curriculum

Explores the unique curriculum requirements of transient youth. Topics include team teaching, interdisciplinary curricula, flexible scheduling, basic skills development, guidance functions, fine arts, practical arts, industrial arts, career education, teaching strategies and management techniques. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5510 - Teacher Leadership: Theory to Reality

Working with colleagues in schools to make a difference as a team member and a change agent requires knowledge and skills that are "more than teachers, yet different from administrators" (Danielson, 2006). This course will provide teachers with skill building related to what it takes for teachers to improve schools. Cross-listed with SECE 5510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5520 - Teacher Leadership: Essential Knowledge

Teacher leaders need expertise about what constitutes a quality curriculum and how best to guide others to develop lessons with assessments that reflect essential standards. They use culturally responsive and differentiated teaching strategies to assure that learning occurs. Cross-listed with SECE 5520. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5530 - Teacher Leadership: Vital Skills

Teacher leaders need skills in collaboration, facilitation and coaching in order to work with colleagues in ways that will optimally impact student learning. This course will provide theory and practice in models of adult learning, professional development and communication. Cross-listed with SECE 5530. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5540 - Foundations of School Health Education

This course is an overview of the principles of behavior theory as they relate to health education in both theory and practice. The course will examine the characteristics of effective school-based health education programs. Issues of ethnicity, culture, and race as they relate to health will be examined throughout the course. Cross-listed with SECE 5540. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5550 - Curriculum Materials in Health Education

This course will support the application of behavior theory as it applies to specific health content knowledge and skills. Special attention will be given to the skills, instructional strategies, and techniques needed to develop a culturally responsive classroom to promote success for all learners. Cross-listed with SECE 5550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5560 - Health Education Teaching Practices

The course provides an overview of health education teaching and learning strategies for use in school settings. Action research will be introduced and utilized as a method to examine current teaching practices. Role-play, student assessment development, differentiation of instruction, and culturally responsive classroom practices will be examined. Cross-listed with SECE 5560. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5660 - Energy Education

Explores current energy problems. Students examine such topics as fuels from plants, fuels from wastes, fossil fuels, nuclear energy, wind energy, geothermal energy, solar energy, and energy conservation. Includes demonstration of available educational resources for grades K-12. The purpose of the course is to make technical aspects of energy accessible to the lay person. Cross-listed with SECE 5660. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 5775 - Knowledge of Teaching

Designed for experienced teachers. This course assists them to update their knowledge of research on teaching and extend their use of research findings in their classroom teaching. Prereq: Teaching certificate. Max hours: 3 Credits. **Semester Hours:** 1 to 3

ELED 5780 - Storytelling

Explores the history, function, philosophy and techniques of storytelling. Includes collecting, selecting, preparing, developing and delivering stories. Research and resources are emphasized. Max hours: 4 Credits. **Semester Hours:** 1 to 4

ELED 5800 - Curriculum Workshop for Elementary Teachers

Opportunity to work on projects and problems in the school in which the student is employed: conferences, study groups, discussion, and work in curriculum construction. Topics and credit hours vary. Prereq: 18 semester hours in education and teaching experience or permission of instructor. Max hours: 36 Credits. **Semester Hours:** 0.5 to 4

ELED 5840 - Independent Study

Max hours: 9 Credits. **Semester Hours:** 1 to 4

ELED 5910 - Advanced Practicum: Elementary

This course is not to be used as an independent study, it is to be used by students approved in advance by the director of teacher education. Prereq: Permission of instructor. Fulfills the student teaching requirement for students seeking a second endorsement. Cross-listed with SECE 5910. Max hours: 18 Credits. **Semester Hours:** 1 to 4

ELED 5920 - Readings in Elementary Education

Max hours: 4 Credits. **Semester Hours:** 1 to 4

ELED 5930 - Internship in Elementary Education

Max hours: 8 Credits. **Semester Hours:** 1 to 8

ELED 6100 - Seminar: Elementary Education

Students work on individual topics and report orally and in writing. Max hours: 3 Credits.

Semester Hours: 3 to 3

ELED 6110 - Science and Math Curriculum Studies

Students examine frameworks for curriculum design, discuss the psychological and philosophical foundations of curricula, and analyze the curriculum that they use in their own teaching. Students synthesize what teachers must do in order to effectively implement curricula.

Prereq: Graduate student status. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELED 6120 - International Perspectives on the Curriculum

Considers schooling patterns in the U.S., the U.K., Japan, Australia and several European countries. Examines different approaches to curriculum issues in relation to social, historical and economic factors. Prereq: FNDS 5500 or permission of instructor. Max hours: 3 Credits.

Semester Hours: 3 to 3

ELED 6600 - Special Topics: Laboratory in Educational Leadership and Innovation

Laboratories are organized by professors to engage students in on-going research programs. They provide opportunities for students to extend and apply knowledge and skills developed in course work. The laboratories enable students to complete portfolio requirements and work on doctoral dissertations. Prereq: Admission to M.A. or PhD programs; permission of instructor.

Cross-listed with ELED 7600. Max hours: 6 Credits. **Semester Hours:** 1 to 6

ELED 6950 - Master's Thesis

Max hours: 4 Credits. **Semester Hours:** 4 to 4

ELED 7600 - Special Topics: Laboratory in Educational Leadership and Innovation

Laboratories are organized by professors to engage students in on-going research programs. They provide opportunities for students to extend and apply knowledge and skills developed in course work. The laboratories enable students to complete portfolio requirements and work on doctoral dissertations. Prereq: Admission to M.A. or PhD programs; permission of instructor.

Cross-listed with ELED 6600. Max hours: 6 Credits. **Semester Hours:** 1 to 6

ELED 7840 - Independent Study: ELED

Max hours: 3 Credits. **Semester Hours:** 1 to 3

Engineering

ENGR 1000 - Introduction to Engineering

Introduces engineering profession, engineering design and practice; and the tools used by engineers to accomplish design. The specialties within engineering are described. Students are involved in application projects and use word processors, spreadsheets and engineering software.

Note: ENGR 1000 cannot be substituted for ELEC 1201. Prereq: High school trigonometry. Max hours: 3 Credits. **Semester Hours:** 1 to 1

ENGR 1111 - Psychological and Social Implications of Technology

This course will explore the impact of technology and its advances on human beings from an emotional, psychological, and social perspective. Discussions will include ethical, moral, and multicultural implications of technological advances from a global perspective and will require students to critically analyze issues that arise from such advances. Max hours: 3 Credits.

Semester Hours: 3 to 3

ENGR 1208 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGR 2208 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 3208 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 3400 - Technology and Culture

Explores the cultural and political foundations of technology and the impact of technology upon the individual and society. Contributions to technological advances and the impact of technology on women and diverse ethnic groups are examined in the context of specific engineering designs and case studies. Prereq: One course in social sciences, one course in humanities, one course in science. (Satisfies the multicultural diversity requirement of the UCDHSC core curriculum).

Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGR 3600 - International Dimensions of Technology and Culture

This course provides students with an understanding of how science, technology and international issues interrelate in a world that has become more interconnected and interdependent. The course will focus on the technical, organizational and cultural aspects of information and other technologies with an emphasis on their impact on third world countries. Prereq: One course in social sciences, one course in humanities, one course in science. (Satisfies the international perspectives requirement of the UCDHSC core curriculum). Max hours: 3

Credits. **Semester Hours:** 3 to 3

ENGR 3995 - Global Technology, Business & Culture

Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGR 4150 - Seminar: Special Topics in Engineering

A flexible seminar format dealing with topics of special interest in engineering. Topics vary from semester to semester. Prereq: Senior standing. Cross-listed with ENGR 5150 and 7150. Max hours: 1 Credit. **Semester Hours:** 0 to 1

ENGR 4208 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 4840 - Independent Study

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 5150 - Seminar: Special Topics in Engineering

A flexible seminar format dealing with topics of special interest in engineering on a graduate level. Topics vary from semester to semester. Prereq: Graduate standing. Cross-listed with ENGR 4150 and 7150. Max hours: 1 Credit. **Semester Hours:** 0 to 1

ENGR 5208 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 5301 - Systems Engineering: Principles and Practice

Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGR 5302 - Systems Engineering: Planning and Management

Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGR 5303 - Special Topics: Systems Engineering

Max hours: 6 Credits. **Semester Hours:** 3 to 3

ENGR 5800 - Long Range Infrastructure Planning and Design: Colorado 2050

The goal of this course is to equip students to address the problems of long term future resource limitation and its influence on urban infrastructure in Colorado. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ENGR 7150 - Seminar: Special Topics in Engineering

A flexible seminar format dealing with topics of special interest in engineering on an advanced graduate level. Topics vary from semester to semester. Prereq: Graduate standing. Cross-listed with ENGR 4150 and 5150. Max hours: 1 Credit. **Semester Hours:** 0.5 to 0.5

English

ENGL 1010 - Writing Workshop

Focuses on the abilities and skills needed to write effective expository prose. Emphasizes frequent writing, both in and out of class, with special attention to writing short essays well. Writers learn to write confidently at the sentence and paragraph levels, and to develop their grammatical and mechanical skills. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 1020 - Core Composition I

Provides opportunities to write for different purposes and audiences, with an emphasis on learning how to respond to various rhetorical situations; improving critical thinking, reading, and writing abilities; understanding various writing processes; and gaining a deeper knowledge of language conventions. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-C01. **Semester Hours:** 3 to 3

ENGL 1050 - Vocabulary for Professionals

Studies English words derived from Latin and Greek by analyzing their component parts (prefixes, stems, and suffixes). Cross-listed with LATN 1050. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

ENGL 1200 - Introduction to Fiction

Introduces class members to the works of famous authors as well as to major themes, elements, and techniques of fiction in both short stories and novels. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 1400 - Literary Studies

Helps students develop a sense of literary techniques and issues so they can bring an improved critical sensibility to their reading and writing. Note: Designed for students who are seriously interested in literature. Prereq or Coreq: ENGL 1020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 1601 - Telling Tales: Narrative Art in Literature and Film

Asks students to explore how stories determine who we are. Everything people do fits into a narrative pattern, evident everywhere from TV news to memory to daily schedules. We tell ourselves stories about ourselves and others--how do these stories shape who we are as cultural beings? Prereq or Coreq: ENGL 1020. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-AH2. **Semester Hours:** 3 to 3

ENGL 2030 - Core Composition II

Focuses on academic and other types of research-based writing and builds on the work completed in ENGL 1020. Focuses on critical thinking, reading and writing as well as working with primary and secondary source material to produce a variety of research-based essays. Emphasis on using both print-based and electronic-based information. Prereq: ENGL 1020. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-C02. **Semester Hours:** 3 to 3

ENGL 2060 - Introduction to Writing Studies

Introduces students to the topics of study in the English Writing major. Topics include writing studies (literacy, genre, research, and multimodality), rhetoric (history and theory), and the teaching of writing (pedagogy and practice). Prereq: ENGL 1020 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 2070 - Grammar, Rhetoric and Style

Teaches the basics of English grammar in order to develop a rhetorical and stylistic confidence in reading and writing, using an approach that is more descriptive than prescriptive. Teaches students how to evaluate the grammatical choices of established writers and how to develop flexibility in the grammatical choices they make in their own writing. Prereq: ENGL 1020 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 2154 - Introduction to Creative Writing

Reading, discussing, writing short fiction and poetry in a workshop setting. Prereq: ENGL 1020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 2250 - Introduction to Film

Introduces students to the critical study of cinema as an art form and a cultural phenomenon. Topics include cinematography, editing, mise-en-scene and sound; the connections between cinema and related art forms; film genres; the social dimensions of film production and reception; and films by such key filmmakers as Alfred Hitchcock, Maya Deren and Spike Lee. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 2300 - Topics in Literature and Film

Courses supplement the regular program of the department, offering such topics as: literary perceptions of motherhood, Asian-American literature, literary classics of science, and contemporary women writers. Note: Can be taken more than once if topics vary. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 2310 - Topics in Literature and Film

Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 2390 - Writing the Short Script

Examines narrative screenwriting elements--premise, theme, conflict, protagonist/antagonist, setting/situation, dialogue, plot structure, imagery--required to create a strong narrative short film. Prereq: ENGL 1020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 2415 - Introduction to Movie Writing

Examines structural and dramatic elements required to write a feature-length screenplay. Students conceptualize, plan, write and then re-write to complete the first ten pages of their own feature-length screenplay. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 2450 - Introduction to Literature

Provides the terms and skills for analyses of a variety of narratives. Develops critical thinking, reading, and writing necessary for succeeding in the discipline. Prereq: ENGL 1020. Note: required introductory course for English majors, English minors, and English education. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 2510 - Greek and Roman Mythology

Surveys influential literature from Greece and Rome. Among the Greek works are Homer's epics, Sophocles's tragedies, Plato's and Aristotle's philosophical writings. Among the Roman works are the writings of Vergil, Ovid, the elegists and historians. a brief look at Augustine's writings concludes the course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 2520 - The Bible as Literature

Introduces students to biblical literature. Selections from the various genres of writing in Hebrew (history, wisdom, prophecy, literature) are read and discussed, as well as representative sections from the New Testament, including the gospels and the writings of Paul. Cross-listed with RLST 2700. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 2600 - Great Works in British and American Literature

Traces the traditions of British and American literature from medieval times to the present, by examining a variety of texts, studying the impact of different time periods, and cultural movements on the evolving literary tradition. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-AH2. **Semester Hours:** 3 to 3

ENGL 2840 - Independent Study: ENGL

Max hours: 3 Credits. **Semester Hours:** 1 to 3

ENGL 3001 - Critical Writing

Introduces literary theory to provide extensive practice in writing about literature. Note: Required of English majors and minors with a literature option and education English majors. Prereq: ENGL 2450. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3020 - Poetry Workshop

Practical workshop for developing poetic craft, focusing on writing process and specialized topics. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3050 - Fiction Workshop

Beginning workshop for defining and developing narrative craft, focusing on writing process and specialized topics. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3070 - Film History I

Examines the history of cinema from its 19th-century origins until the early sounds era. Explores important developments and influences in American and international cinema, including the origins of Hollywood narrative, avant-garde cinema, German Expressionism, and Soviet Cinema. Prereq: Must have 30 semester hours or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3075 - Film Genres

An intensive study of films of one or more significant genres, such as comedy, film noir, science fiction. Prereq: Must have 30 semester hours or permission of the instructor. Note: May be taken more than once when genres vary. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGL 3080 - Film History II

Examines world cinema from 1938 to the present, with examples from major movements and directors--such as Film Noir, Italian Neo-Realism, the French New Wave, Jean Renoir, Agnes Varda, John Ford, Alfred Hitchcock and Werner Herzog. Prereq: Must have 30 semester hours or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3084 - Multimedia Composition

Offers students opportunities to examine and compose texts where language is integrated with other media, such as video, still images, music, etc. Includes basic instruction in digital multimedia composition and design tools. ENGL 2070 recommended. Prereq: Students must have junior standing/60 units of credit completed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3085 - Film Directors

An intensive study of the films of one or more major directors, such as Chaplin, Keaton, Hitchcock, Welles, Coen Brothers. Prereq: Must have 30 semester hours or permission of the instructor. Note: May be taken more than once when directors vary. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ENGL 3106 - Advocate Practicum

Hands-on course introduces writers to the UCD student newspaper "The Advocate," and allows students to write and edit more effectively. Students work with faculty, professionals, and student editors to practice and produce writing for actual publication. Prereq: ENGL 2030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3154 - Technical Writing

Introduces the study and writing of technical documents. Emphasizes the processes, style, structure, and forms of technical writing. Attention is paid to audience analysis, organization, clarity and precision. ENGL 2070 recommended. Prereq: Students must have sophomore standing/30 units of credit completed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3160 - Language Theory

Provides a basic introduction to linguistics and language theory, including phonetics, grammar, semantics, pragmatics, sociolinguistics, cognitive processing, and language acquisition. Includes practical applications of the theories and methodologies presented. ENGL 2070 recommended. Prereq: Students must have sophomore standing/30 units of credit completed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3170 - Business Writing

Focuses on the strategies and techniques of business writing, with emphasis on reader, message and form. ENGL 2070 recommended. Prereq: Students must have sophomore standing/30 units of credit completed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3175 - Writing in the Sciences

Students will hone professional writing skills by analyzing purpose, audience & rhetorical context for common types of scientific writing, i.e. research posters, technical papers, & grant writing. Students will develop the ability to assess scientific arguments & gain an understanding of the genre's forms and conventions. Prereq: ENGL 2030 with a C- or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3200 - From Literature to Film

Explores the relationship between literature and cinema; the process of adapting and transforming a novel into a feature-length film; and the historical, cultural, and commercial influences that shaped the creation of each novel and film studied. Prereq: Must have 30 semester hours or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3300 - Topics in Film

Courses supplement the department's regular course offerings. Recent topics have included women and film, movies as history and film comedy. Prereq: Must have 30 semester hours or permission of the instructor. Note: Open to both majors and non-majors. Can be taken more than once when topics vary. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGL 3310 - Topics in Film

Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGL 3330 - Topics in Literature

Courses supplement the department's regular course offerings. Recent topics have included Tolkien and international short stories. Prereq: Must have 30 semester hours or permission of the instructor. Note: Open to both majors and non-majors. Can be taken more than once when topics vary. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGL 3340 - Topics in Literature

Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGL 3405 - Topics in Writing

Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGL 3415 - Screenwriting Workshop

Continues and expands ENGL 2415. By the end of ENGL 3415, students have completed the first two acts of their screenplay. Note: May be repeated a second time in a different semester to complete entire screenplay. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3416 - Magazine Writing

An intensive, practical course in writing non-fiction with an emphasis on journalistic approaches for daily, weekly, and monthly publications. Prereq: Students must have junior standing/60 units of credit completed. ENGL 1020 is strongly recommended. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3417 - Writing for the Mass Media

Students will examine public relations writing techniques and journalistic style, public relations theory and ethics, and practical client work. Prereq: ENGL 1020. Max hours: 3 Credits.

Semester Hours: 3 to 3

ENGL 3450 - Twentieth Century Women Writers

Examines how women write about a specific theme, such as home, work, family, the "Other," as well as how women's writing may differ from men's. Theme and genre vary. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with WGST 3450. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3480 - Modern Drama

How does drama change from the pioneering realism of Ibsen and Chekhov to the Absurdism of Ionesco and Pinter and beyond? The course covers plays in English and translation from the late nineteenth to the twenty-first century, with attention to performance as well as literary texts.

Prereq: Must have 30 hours or the permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3520 - Religious Narratives

Investigates the language and structure of religious discourse in Western literature. Welcomes interdisciplinary and comparative perspectives with a focus on cultural constructions of the sacred. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with RLST 3720. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3661 - Shakespeare

Introduces some of Shakespeare's major plays and poems, which usually includes Richard II, Romeo and Juliet, Measure for Measure, Othello, King Lear, Anthony and Cleopatra and The Tempest. Prereq: Must have 30 semester hours or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3700 - American Literature to the Civil War

Surveys American literature from the colonial era to the Civil War. Prereq: ENGL 1020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3750 - American Literature after the Civil War

Surveys American literature from the Civil War to the contemporary era. Prereq: ENGL 1020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3795 - Race and Ethnicity in American Literature

Focuses alternately on one of several ethnic American literary traditions (e.g. African American, Chicano) and their historical, geographical, social and economic communities. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3798 - International Perspectives in Literature and Film

Fosters an understanding of peoples outside of the U.S. through the study and appreciation of non-western literature. Investigates how historical, cultural, and ideological forces constitute race, ethnicity, nationalism, and alienation in a single country or across a region. Topic and country/region varies by semester. Note: May be repeated for credit when title and content are different. All texts in English translation. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3840 - Independent Study: ENGL

Prereq: Must have 30 semester hours or permission of the instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 3

ENGL 3939 - Internship

Employment situations designed and supervised by members of the faculty; concepts and skills developed in the classroom are used in business and public service contexts. Prereq: Junior standing and 2.75 grade-point average. Before enrolling, students should contact the Career Center. Note: Up to six hours may be counted toward the major. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGL 3995 - Travel Study

An intensive course focusing on cinematic, literary, or rhetorical topics enriched through travel. Subtitles reflect specific area of concentration. Students may repeat course with different topics. Registration is through the Office of International Affairs. Max hours: 12 Credits. **Semester Hours:** 3 to 6

ENGL 4000 - Studies of Major Authors

An intensive study of works of one major British or American author. Examples: Dickens, Woolf or James. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5000. Max hours: 15 Credits. **Semester Hours:** 3 to 3

ENGL 4025 - Advanced Poetry Workshop

Advanced poetic craft, including exercises in mode, genre and advanced revision. Prereq: ENGL 3020 (or equivalent) for English majors and minors only; all others must obtain permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4055 - Advanced Fiction Workshop

Advanced workshop for developing and deepening narrative craft, focusing on writing process and specialized topics. Prereq: ENGL 3050, English major and minor only; all others must obtain permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4080 - History of English Language

Examines how English has changed since A.D. 800 through examples of writing from different periods, with attention to the way various groups have enriched our vocabulary and altered our syntax. Prereq: ENGL 2070 or one year of a college foreign language. Cross-listed with ENGL 5080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4088 - Literary Editing: Copper Nickel

Literary editing in theory and practice, using UCD's nationally recognized journal "Copper Nickel." Topics may include evaluating fiction, poetry and nonfiction; design and aesthetics; line editing; the business of literary journals. Prereq: ENGL 3020 or 3050, or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4160 - Poetics

Mechanics of poetry in English, including meter, rhythm, rhyme, line, and other systems of measurement and logic. Emphasis is on historical development of poetic art in English. Prereq: ENGL 1400 or permission of instructor. Cross-listed with ENGL 5160. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4166 - History of American Poetry

Examines major American poets and poetic trends from the colonial period to the present, with attention to cultural contexts and to development of distinctively American practices. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5166. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4180 - Argumentation and Logic

Explores the history of logic and its role in argumentation, studies various types of logical structures, and analyzes current uses of argumentation, with attention to writing arguments on current public issues. ENGL 3084 recommended. Prereq: Students must have junior standing/60 units of credit completed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4190 - Special Topics in Rhetoric and Writing

Focuses on particular issues in rhetoric and writing as they pertain to reading and writing, including language and gender, language and culture, and language of political action. ENGL 3084 recommended. Prereq: Must have completed 60 semester hours. Cross-listed with ENGL 5190. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGL 4200 - History of the English Novel I

Rise and development of the English novel from its beginnings in the 18th century through the mid-19th century, including such writers as Defoe, Fielding, Austen and Shelley. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4210 - History of the English Novel II

Overview of the English novel from mid-19th century to World War II, emphasizing the important developments which the form underwent in the hands of notable novelists, including Charles Dickens, the Brontes, George Eliot, Henry James, Joseph Conrad, D.H. Lawrence and Virginia Woolf. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4220 - African-American Literature

Surveys African-American literature with special emphasis on post-Civil War writing. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5220, ETST 4220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4230 - The American Novel

Surveys major developments in the American novel from the 18th century to the 21st century. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5230. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4235 - Faulkner

Studies the works of Faulkner's high period with special attention to southern themes and Faulkner's experimentation with narrative form. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5235. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4236 - The American Short Story

Traces the development of the short story in the United States, from its beginnings in colonial tales to its contemporary renaissance as a dominant literary form. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5236. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4240 - Topics in Contemporary American Literature

Seminar focusing on a segment of contemporary American literature. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5240. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4250 - Twentieth Century Fiction

Deals with novels originating in a variety of countries in an effort to see the similarities and differences that varying nationalities bring to the genre. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4280 - Proposal and Grant Writing

Focuses on research, design, composition, and editing original proposals. Includes idea development, identification of funding sources, and the creation of persuasive documents. ENGL 3084 recommended. Prereq: Students must have junior standing/60 units of credit completed. Cross-listed with ENGL 5280. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4290 - Rhetoric and the Body

Investigates the relationship between rhetoric and the body, with attention to theoretical and practical implications. Welcomes interdisciplinary perspectives, and often considers rhetorical topics from historical, medical, disability studies, economic, and/or gendered perspectives. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4300 - History of British Drama

Intended as a survey of British drama from the miracle plays of the medieval period, through the Renaissance and Restoration, to the "kitchen sink" realists of the 1960s. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4306 - Survey of Feminist Thought

Examines changes and continuities in feminist thought from the 18th century to the present, using historical and literary materials. Explores the ways that women's characteristics, experiences, and capabilities have been understood and challenged. Cross-listed with ENGL 5306, HIST 4306, 5306, WGST 4306, 5306. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4320 - History of Poetry in English

Studies the major schools and eras of English prosody, including the poetry of Great Britain and the United States, from the medieval period to the present. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4350 - History of American Drama

Studies American drama from its foundations in the 18th century through movements including realism, expressionism, symbolism, agit-prop, black nationalism, feminism, and performance art. Drama read as both text and performance, as sometimes supporting the status quo and as sometimes subverting it. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4400 - Old English I

Instruction in the Old English language. Prereq: Must have 30 semester hours or permission of the instructor. One year of college foreign language or ENGL 2070 recommended. Cross-listed with ENGL 5400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4410 - Old English II: Beowulf

Continuing training in the reading of Old English and intensive reading of Beowulf. Prereq: ENGL 4400 or 5400. Cross-listed with ENGL 5410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4420 - Film Theory and Criticism

(1) Familiarizes students with some of the central concepts and debates in film theory and criticism, both classic and contemporary, (2) enables students to develop advanced analytic and interpretive skills, and (3) guides students toward discovering and articulating original critical and theoretical perspectives. Prereq: ENGL 2250 and 3070, 3080 or permission of instructor. Cross-listed with ENGL 5420. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4460 - Contemporary World Literature

Surveys literature written by world writers since World War II. Prereq: Must have 30 semester hours or permission of the instructor. Note: Texts read in English. Cross-listed with ENGL 5460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4500 - Medieval Literature

Introduces representative writers from the Norman Conquest to about 1550. Emphasis on a variety of genres, including religious poetry, Arthurian romance, dream vision and drama. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4510 - Whores and Saints: Medieval Women

Studies how women are presented in texts, as well as works by women. Investigates the roles open to women and societal attitudes toward women, who were considered seductresses, saints, scholars and warriors in the middle ages. Prereq: Nine hours of literature courses or instructor permission. Cross-listed with ENGL 5510, RLST 4730/5730, WGST 4510/5510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4520 - English Renaissance

Introduces some of the important writers in this major period of English literature (1500-1660). Special attention to the works of Sidney, Milton, Spenser, Shakespeare, Donne, Herbert and Johnson. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5520. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4530 - Milton

Extensive reading in John Milton's poetry (Lycidas, Paradise Lost, Paradise Regained, Samson Agonistes) as well as his political, social and theological writings. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5530. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4540 - Restoration and the 18th Century

Introduces some of the important writers of the "Age of Reason." Emphasis on such figures as Bunyan, Burke, Dryden, Johnson, Pope and Swift. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5540. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4560 - English Romanticism

Studies major works of the chief English writers of the first part of the 19th century, with emphasis on such representative figures as Wollstonecraft, Godwin, Blake, Wordsworth, Coleridge, Hazlitt, Byron, Keats and Shelley. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5560. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4580 - The Victorian Age

Examines the main currents of Victorian thought in prose and poetry from about 1830 to the end of the century, including such writers as Browning, Carlyle, Mill, Newman, Ruskin, Swinburne and Tennyson. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5580. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4600 - Modernism

Modernist literature from the beginning of the 20th century through World War II, including such writers as Eliot, Joyce, Forester, Ford, Yeats, Woolf and Barnes. Examines the social-political influences as well as the aesthetic and stylistic elements which define modernist writing. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4601 - Principles and Practices of Second Language Acquisition

Overview of basic principles and practices in the learning and teaching of English as a second language. ENGL 3160 recommended. Prereq: Students must have junior standing/60 units of credit completed. Cross-listed with ENGL 5601. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4610 - Narrative: Form and Theory

A critical and theoretical exploration of the elements of narrative -e.g., plot, character, dialogue, discourse-in literature and film. This course is especially useful for fiction-writing students in the Creative Writing Track. Prereq: ENGL 2450. Cross-list ENGL 5610. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4651 - Second Language Writing

Topics include: similarities between first & second language writing, the processes of composition & revision, teacher response to student writing, student processing of feedback, writing assessment, and the reading/writing connection. ENGL 3160 recommended. Prereq: Students must have junior standing/60 units of credit completed. Cross-listed with ENGL 5651. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4720 - Honors in English

Designed for students taking departmental honors in English. Prereq: Students must have written permission from the honors advisor. Max hours: 3 Credits. **Semester Hours:** 1 to 3

ENGL 4730 - Chaucer

Extensive reading in Chaucer's works in Middle English, including his lyrics, dream visions, Troilus and Criseyde, and the Canterbury Tales. Examines sources, historical and ideological factors influencing the texts. Prereq: 30 semester hours or permission of the instructor. Cross-listed with ENGL 5730. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4735 - Philosophy and Literature

Considers the philosophical dimensions of literature. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5735, PHIL 4730, 5730. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4740 - Honors in Writing

Designed for students taking departmental honors in English writing. Prereq: Student must have written permission from honors director and faculty advisor. Max hours: 3 Credits. **Semester Hours:** 1 to 3

ENGL 4745 - Humanistic Writing About Medicine and Biology

Investigates medical and biological writing over the last two centuries with an emphasis on reception, ethical issues, and the differences between professional and popular writing. Prereq: Must have 30 hours or the permission of the instructor for ENGL 4745. Cross-listed with 5745. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4770 - Topics in English: Film and Literature

May look at specific genres, aesthetic approaches to literature, ideological or socio-political agendas, or other special topics in literature and/or film. Prereq: Must have 30 semester hours or permission of the instructor. Cross-listed with ENGL 5770. Max hours: 12 Credits. **Semester Hours:** 3 to 3

ENGL 4800 - Special Topics in Creative Writing

Writing-intensive courses combining reading, directed writing, peer- and instructor-led workshops in a topic to be determined by instructor. Topics may include projects in a specialized genre, such as science fiction or noir writing, or in a field of professional endeavor related to creative writing, such as the editing and production of a literary journal. Prereq: ENGL 2154; permission of instructor may be required. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ENGL 4810 - Literary Editing Practicum

Practicum for students interested in editing in a literary field, e.g., literary magazines, book manuscripts, anthology projects. Each semester the parameter of the practicum will be set by the instructor. Prereq: English majors and minors. All other students must have instructor's permission. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4820 - Senior Poetry Workshop

Capstone workshop for students within the Creative Writing major track or Creative Writing minor. Emphasis on a single, sustained project developed by the student. Prereq: ENGL 3020 and 4025 for English majors. All other students must obtain permission from the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4830 - Advanced Rhetorical Analysis

Immerses students in advanced methods for conducting rhetorical analysis and for reading critically. Students are expected to learn multiple frameworks for performing analysis on rhetorical artifacts. Prereq: Students must have senior standing/90 units of credit completed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4840 - Independent Study: ENGL

Max hours: 12 Credits. **Semester Hours:** 1 to 3

ENGL 4850 - Senior Fiction Workshop

Capstone workshop designed to deepen the understanding of narrative, and consciously apply the strategies of narrative craft to modern markets. Course will focus on the writing and publishing processes, culminating in a classroom narrative defense and submission to professional outlets. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4920 - Directed Readings

Explores an area of English literature not covered in regular course work. Note: May be taken as a precursor to honors essay, in which case student should consult with the honors advisor.

Prereq: Senior status. Max hours: 6 Credits. **Semester Hours:** 3 to 6

ENGL 4990 - Senior Writing Project in Creative Writing or Film Studies

Individual writing project consisting of a creative manuscript or critical study. Manuscript must be 30 pages of high quality text. Note: Available only to students in the creative writing and film tracks. Prereq: Senior standing. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGL 4991 - Senior Seminar in Writing

Students focus on rhetorical studies through extensive reading, writing, discussion, and reflection upon their own literacy practices. Students produce individual and collaborative writing projects for a final portfolio. Prereq: ENGL 3084, senior standing and EWRT majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4995 - Senior Writing Project

Individual writing project in any genre and any discipline upon approval of faculty advisor. Manuscript must be 30 pages of high quality text. Prereq: Senior standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4999 - Literary Studies Senior Seminar

Allows students to pursue, learn, and apply advanced methodologies such as bibliographical, archival/historical, or cultural and ideological, and apply them to a single author, genre, or period of text. Students engage in research under the tutelage of their instructor. Note: Senior capstone course for literature majors in the literary studies track. Prereq: Senior standing and ENGL 3001 previously completed or concurrent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5000 - Studies of Major Authors

An intensive study of works of one major British or American author. Examples: Dickens, Woolf or James. Cross-listed with ENGL 4000. Max hours: 15 Credits. **Semester Hours:** 3 to 3

ENGL 5001 - Special Topics

This variable credit course offers intensive study of the teaching of writing in a collaborative action-oriented approach. Max hours: 12 Credits. **Semester Hours:** 1 to 6

ENGL 5080 - History of the English Language

Examines how English has changed since A.D. 800 through examples of writing from different periods, with attention to the way various groups have enriched our vocabulary and altered our syntax. Prereq: ENGL 2070 or one year of a college foreign language. Cross-listed with ENGL 4080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5093 - Teaching of Writing

Deals with the analysis of rhetorical theory with an emphasis on practical applications in the classroom, with attention to alternative pedagogies in teaching. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5100 - Literary Research and Writing

Designed to prepare students for graduate scholarship and writing in literature; should be taken soon after entering the program. Introduction to the research methodologies of literary scholarship as well as the practical strategies and the formal and stylistic standards for writing graduate-level analytical-interpretive essays. Prereq: Must be enrolled or accepted into the MA in English, Literature Option program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5110 - Denver Writing Project

An intensive extended workshop in the development of one's personal and professional writing and in the teaching of writing. Open to those who are members of the Denver Writing Project. Max hours: 9 Credits. **Semester Hours:** 3 to 9

ENGL 5120 - Denver Writing Project Advanced Institute

Advanced institutes provide intensive examination of an issue related to the teaching of writing. The specific issues are of two kinds--repeatable ones such as "Alumni Institute" and "Writing Retreat" and variable, such as "Action Research" and "Writing Across the Curriculum." Max hours: 9 Credits. **Semester Hours:** 1 to 1

ENGL 5150 - Research Methods

Designed to prepare students for graduate scholarship in language, literacy, and the teaching of writing; should be taken soon after entering the program. Introduction to the research methods and stylistic standards for graduate-level writing. Prereq: graduate student standing Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5160 - Poetics

Mechanics of poetry in English, including meter, rhythm, rhyme, line, and other systems of measurement and logic. Emphasis is on historical development of poetic art in English. Prereq: ENGL 1400 or permission of instructor. Cross-listed with ENGL 4160. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5166 - History of American Poetry

Examines major American poets and poetic trends from the colonial period to the present, with attention to cultural contexts and to development of distinctively American practices. Cross-listed with ENGL 4166. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5171 - Language Theory

Introduces linguistic theory to the beginning graduate student. Builds upon the material included in the undergraduate class, by adding materials pertaining to the teaching of writing and graduate language studies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5190 - Special Topics in Rhetoric and Writing

Focuses on particular issues in rhetoric and writing as they pertain to reading and writing, including language and gender, language and culture, and language of political action. Cross-listed with ENGL 4190. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGL 5200 - History of the English Novel I

Rise and development of the English novel from its beginnings in the 18th century through the mid-19th century, including such writers as Defoe, Fielding, Austen and Shelley. Cross-listed with ENGL 4200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5210 - History of the English Novel II

Overview of the English novel from mid-19th century to World War II, emphasizing the important developments which the form underwent in the hands of notable novelists, including Charles Dickens, the Brontes, George Eliot, Henry James, Joseph Conrad, D.H. Lawrence and Virginia Woolf. Cross-listed with ENGL 4210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5220 - African-American Literature

Surveys African-American literature with special emphasis on post-Civil War writing. Cross-listed with ENGL 4220, ETST 4220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5230 - The American Novel

Surveys major developments in the American novel from the 18th century to the 21st century. Cross-listed with ENGL 4230. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5235 - Faulkner

Studies the works of Faulkner's high period with special attention to southern themes and Faulkner's experimentation with narrative form. Cross-listed with ENGL 4235. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5236 - The American Short Story

Traces the development of the short story in the United States, from its beginnings in colonial tales to its contemporary renaissance as a dominant literary form. Cross-listed with ENGL 4236. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5240 - Topics In Contemporary American Literature

Seminar focusing on a segment of contemporary American literature. Cross-listed with ENGL 4240. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5250 - Twentieth Century Fiction

Deals with novels originating in a variety of countries in an effort to see the similarities and differences that varying nationalities bring to the genre. Cross-listed with ENGL 4250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5280 - Proposal and Grant Writing

Focuses on research, design, composition, and editing original proposals. Includes idea development, identification of funding sources, and the creation of persuasive documents. Prereq: ENGL 1020. Cross-listed with ENGL 4280. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5300 - History of British Drama

Intended as a survey of British drama from the miracle plays of the medieval period, through the Renaissance and Restoration, to the "kitchen sink" realists of the 1960s. Cross-listed with ENGL 4300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5306 - Survey of Feminist Thought

Examines changes and continuities in feminist thought from the 18th century to the present, using historical and literary materials. Explores the ways that women's characteristics, experiences, and capabilities have been understood and challenged. Cross-listed with ENGL 4306, HIST 4306, 5306, WGST 4306, 5306. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5320 - History of Poetry in English

Studies the major schools and eras of English prosody, including the poetry of Great Britain and the United States, from the medieval period to the present. Cross-listed with ENGL 4320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5350 - History of American Drama

Studies American drama from its foundations in the 18th century through movements including realism, expressionism, symbolism, agit-prop, black nationalism, feminism, and performance art. Drama read as both text and performance, as sometimes supporting the status quo and as sometimes subverting it. Cross-listed with ENGL 4350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5400 - Old English I

Instruction in the Old English language. One year of college foreign language or ENGL 2070 recommended. Cross-listed with ENGL 4400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5410 - Old English II: Beowulf

Continuing training in the reading of Old English and intensive reading of Beowulf. Prereq: ENGL 5400 or 4400. Cross-listed with ENGL 4410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5420 - Film Theory and Criticism

(1) Familiarizes students with some of the central concepts and debates in film theory and criticism, both classic and contemporary, (2) enables students to develop advanced analytic and interpretive skills, and (3) guides students toward discovering and articulating original critical and theoretical perspectives. Prereq: ENGL 2250 and 3070, 3080 or permission of instructor. Cross-listed with ENGL 4420. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5460 - Contemporary World Literature

Surveys literature written by world writers since World War II. Note: Texts read in English. Cross-listed with ENGL 4460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5500 - Medieval Literature

Introduces representative writers from the Norman Conquest to about 1550. Emphasis on a variety of genres, including religious poetry, Arthurian romance, dream vision and drama. Cross-listed with ENGL 4500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5510 - Whores and Saints: Medieval Women

Studies how women are presented in texts, as well as works by women. Investigates the roles open to women and societal attitudes toward women, who were considered seductresses, saints, scholars and warriors in the middle ages. Prereq: Nine hours of literature courses or instructor permission. Cross-listed with ENGL 4510, RLST 4730/5730, WGST 4510/5510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5520 - English Renaissance

Introduces some of the important writers in this major period of English literature (1500-1660). Special attention to the works of Sidney, Milton, Spenser, Shakespeare, Donne, Herbert and Johnson. Cross-listed with ENGL 4520. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5530 - Milton

Extensive reading in John Milton's poetry (Lycidas, Paradise Lost, Paradise Regained, Samson Agonistes) as well as his political, social and theological writings. Cross-listed with ENGL 4530. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5540 - Restoration and the 18th Century

Introduces some of the important writers of the "Age of Reason." Emphasis on such figures as Bunyan, Burke, Dryden, Johnson, Pope and Swift. Cross-listed with ENGL 4540. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5560 - English Romanticism

Studies major works of the chief English writers of the first part of the 19th century, with emphasis on such representative figures as Wollstonecraft, Godwin, Blake, Wordsworth, Coleridge, Hazlitt, Byron, Keats and Shelley. Cross-listed with ENGL 4560. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5580 - The Victorian Age

Examines the main currents of Victorian thought in prose and poetry from about 1830 to the end of the century, including such writers as Browning, Carlyle, Mill, Newman, Ruskin, Swinburne and Tennyson. Cross-listed with ENGL 4580. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5600 - Modernism

Modernist literature from the beginning of the 20th century through World War II, including such writers as Eliot, Joyce, Forester, Ford, Yeats, Woolf and Barnes. Examines the social-political influences as well as the aesthetic and stylistic elements which define modernist writing. Cross-listed with ENGL 4600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5601 - Principles and Practices of Second Language Acquisition

Overview of basic principles and practices in the learning and teaching of English as a second language. Cross-listed with ENGL 4601. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5610 - Narrative: Form and Theory

A critical and theoretical exploration of the elements of narrative -e.g., plot, character, dialogue, discourse-in literature and film. This course is especially useful for fiction-writing students in the Creative Writing Track. Prereq: Graduate standing. Cross-list ENGL 4610. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5650 - American Literature to the Civil War

Graduate survey of American literature from the Colonial period to the Civil War, with particular attention to the question of what makes this literature distinctly American. Explores a wide range of genres of American literature in an effort to assess how this tradition of letters shaped our historical past and continues to influence contemporary American culture and ideology. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5651 - Second Language Writing

Topics include the similarities between first and second language writing, the processes of composition and revision, teacher response to student writing, student processing of feedback, writing assessment, and the reading or writing connection. Cross-listed with ENGL 4651. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5655 - American Literature: Civil War to the Cold War

Graduate survey of American literature from the Civil War to the Cold War considered central to the tradition of American literature. Students will consider how new ideas about gender, race, class, nationality, postcoloniality, history, and aesthetics have influenced the field of American literary studies. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5730 - Chaucer

Extensive reading in Chaucer's works in Middle English, including his lyrics, dream visions, Troilus and Criseyde, and the Canterbury Tales. Examines sources, historical and ideological factors influencing the texts. Prereq: 30 semester hours or permission of the instructor. Cross-listed with ENGL 4730. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5735 - Philosophy and Literature

Considers the philosophical dimensions of literature. Cross-listed with ENGL 4735, PHIL 5730, 4730. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5745 - Humanistic Writing About Medicine and Biology

Investigates medical and biological writing over the last two centuries with an emphasis on reception, ethical issues, and the differences between professional and popular writing. Prereq: Must have 30 hours or the permission of the instructor for ENGL 4745. Cross-listed with ENGL 4745. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5770 - Topics in English: Film and Literature

May look at specific genres, aesthetic approaches to literature, ideological or socio-political agendas, or other special topics in literature and/or film. Cross-listed with ENGL 4770. Max hours: 12 Credits. **Semester Hours:** 3 to 3

ENGL 5840 - Independent Study: ENGL

Max hours: 3 Credits. **Semester Hours:** 1 to 3

ENGL 5913 - Practicum in Language and Rhetoric

Supervised work in applied language or rhetoric and the teaching of writing. Max hours: 3 Credits. **Semester Hours:** 1 to 3

ENGL 5939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGL 6001 - Critical Theory in Literature and Film

Designed to enrich students' understanding of a variety of modes of theoretical discourse that have influenced modern critical practice in literary and film studies. While the course explores the evolution of criticism, it gives primary emphasis to recent developments. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 6002 - Rhetorical Theory

Examines the principles and applications of rhetorical theory and its relationship to writing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 6010 - Studies of Major Authors

Note: May be repeated when topics vary. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGL 6110 - Special Topics in Literature

An intensive study of specialized topics in English and/or American literature. Note: May be repeated when topics vary. Max hours: 30 Credits. **Semester Hours:** 3 to 3

ENGL 6111 - Special Topics in Literature

Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 6120 - Special Topics in Film

An intensive study of specialized topics in film. Note: May be repeated when topics vary. Max hours: 30 Credits. **Semester Hours:** 3 to 3

ENGL 6840 - Independent Study

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGL 6920 - Directed Readings

Offers graduate student's instruction on an individual basis. Serves as preparation for the MA (literature) comprehensive examination. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ENGL 6950 - Master's Thesis

Max hours: 6 Credits. **Semester Hours:** 1 to 6

ENGL 6960 - Master's Project

Max hours: 6 Credits. **Semester Hours:** 1 to 6

ENGL 6970 - Port Exam-Rhetoric/Teachng Wrtnng/Appl Linguistics

In the portfolio exam, students prepare the culminating document of students' MA work, a portfolio combining reflection on work done at CU Denver with a forward look at students' career goals. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Entrepreneurship

ENTP 2550 - Introductory Accounting for Entrepreneurs and the Arts

An integration of financial and managerial accounting processes as they relate to Entrepreneurs, Arts & Media managers and similar applications. This course will cover the analysis and interpretation of financial statements, asset and liability valuation and the determination of net income. Incorporates the use of accounting information to make decisions focusing on cost behavior analysis, budgeting and product costing in entrepreneurial and arts related businesses. Prereq: MATH 1010, MATH 1110, or MATH 1070. Cross-listed with ACCT 2550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 3000 - Principles of Entrepreneurship

Focuses on the concepts, skills, know-how, practical information, attitudes and alternatives that are relevant for start-up companies. The materials are designed to enhance the student's capacity to anticipate HR, financial, marketing problems through the application of proper planning. The primary objective of the course is to teach participants the practical aspects of entrepreneurship in order to change the odds of success. Prereq: sophomore standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 3120 - Legal Issues for Entrepreneurs

Skills in legal and factual analysis and the application of ethical theories are addressed with an emphasis on applicability for entrepreneurs. The cases are drawn from a variety of functional areas such as accounting, information systems, finance, management, marketing and production. Topics include: agency law, business organizations, securities, venture capital, employment law, real property, entrepreneurial aspects of intellectual property law, consumer law and international law. Note: For non business majors only. Does not count towards an Entrepreneurship certificate. Prereq: ENTP 3000 or equivalent. Cross-listed with BLAW 4120. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 3500 - Entrepreneurship Law and Ethics

Students are taught to identify and resolve legal and ethical issues of particular interest to entrepreneurs, emphasizing hands-on experience with drafting commonly-used legal documents. Topics include intellectual property, business organizations, employment relationships, marketing/advertising law and contracts. Prereq: sophomore standing. **Semester Hours:** 3 to 3

ENTP 3780 - Preparing A Business Plan

Turn a new business idea into a viable new business by developing a comprehensive business plan including: analysis of the potential demand for the product or service and potential customers; identify competitive advantages and marketing strategies; generate pro forma financial projections; and, design the management team needed. Prereq: ENTP 3000 AND either ENTP 3500 or BLAW 4120 or ENTP 3120. For non-business majors only. Can be applied to Entrepreneurship Certificate. Business majors enroll in either MGMT 4780 or MKTG 4780. Come to first class meeting with a carefully considered business idea. Cross listed with MKTG 4780 and MGMT 4780 Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 4028 - Leadership and Entrepreneurship in Ireland

This 2-week course in Ireland provides students with an overview of key leadership principles for creating strategies and managing teams in new ventures in the US and abroad. This course provides the student with an overview of key leadership principles for creating strategy and managing teams in a new venture. It introduces leadership concepts critical to gaining true organizational commitment, and focuses on case studies relevant to common business issues. By exploring what entrepreneurial leaders actually do, and how they do it, the student will examine the principles of strategic planning, and how visionary leadership is required to develop an organization that is able to execute the strategy through measurable goals and objectives. Cross-listed with INTB 4028 & 6028. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 4950 - Special Topics

A variety of topics in entrepreneurship are offered. Consult the current "Schedule Planner" for semester offerings. Prereq: Topics vary. Max hours: 9 Credits. **Semester Hours:** 0 to 3

ENTP 5939 - Internship/Cooperative Education.

Supervised experiences involving the application of concepts and skills in an employment situation. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6020 - The Business Plan

Business plan development which incorporates all key ingredients necessary for various users. Includes the ins and outs of business plans for new ventures through environmental scans of new business opportunities, case studies, by sharing the experience of entrepreneurs and investors that have been through the process and by writing a business plan, either individually or with a team of other students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6021 - Corporate Entrepreneurship

This course considers innovation and new-business creation strategies from within an existing organization. It will explore various growth models intended to help organizations build their revenues in ways that are consistent with the business? Strategic orientation and constraints. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6028 - Leadership and Entrepreneurship In Ireland

This 2-week course in Ireland provides students with an overview of key leadership principles for creating strategies and managing teams in new ventures in the US and abroad. This course provides the student with an overview of key leadership principles for creating strategy and managing teams in a new venture. It introduces leadership concepts critical to gaining true organizational commitment, and focuses on case studies relevant to common business issues. By exploring what entrepreneurial leaders actually do, and how they do it, the student will examine the principles of strategic planning, and how visionary leadership is required to develop an organization that is able to execute the strategy through measurable goals and objectives. Cross-listed with INTB 4028 & 6028. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6620 - New Venture Operations and Project Management

Introduces an operations model for developing internal and external operation plans for new ventures. Project management knowledge and skills are used to build operation plans. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6642 - Exploring Social Entrepreneurship

Study the people and organizations addressing pressing social and environmental issues facing society today. Understand and develop innovative models providing solutions to these issues. Apply theory to real situations via site visits, case studies and guest speakers. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6644 - Social Entrepreneurship in the Developing World

Solving Developing World's challenges using creative and entrepreneurial approaches. New generation of leaders are not just interested in the bottom line, but they are looking at the triple bottom line: People, Profit and the Planet. They are changing the world. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6800 - Special Topics in Entrepreneurship

A variety of topics in entrepreneurship are offered. Consult the current 'schedule Planner' for semester offerings. Max hours: 15 Credits. **Semester Hours:** 3 to 3

ENTP 6801 - Building Biotechnology

Fundamentals of Life Science Technology and Entrepreneurship. Session topics include introduction to bioinnovation and entrepreneurship, tech transfer, accounting and finance basics, financing, opportunity assessment, legal and regulatory environments, clinical trials, project management, ethics and societal issues and team building. Cross-listed with IDPT 6301. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6802 - Regulatory Environment of Life Science Innovation

This course is designed to familiarize graduate level engineering, business, law and life science students with the fundamentals of the life science technology commercialization including drugs, devices, diagnostics, healthcare IT and platform applications. Cross-listed with IDPT 7302. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6807 - Small Business Marketing and Personal Branding

Learn how to create successful marketing strategies in both Entrepreneurial and Intrapreneurial environments and personal branding. The course work will demonstrate the imperative link between marketing and personal branding through case studies, projects, guest speakers and reading materials. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6808 - Practicum in Sustainable Business Research

This course is an online practicum research course in sustainable business with online lectures, resources and video focused on an original research paper/case study. Students should have taken a course or have knowledge/experience in sustainable business management. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6822 - Legal and Ethical Issues of Entrepreneurship

This course addresses the legal issues most frequently encountered by entrepreneurs and others involved in start-ups and small, closely held or family businesses. The focus is on how to avoid legal problems and how best to cope when they arise. Topics include choice of business form, legal aspects of raising capital, taxation, intellectual property law, employment law, product liability, e-commerce and the problems of managing lawyers and litigation. Note: Cannot receive credit for both BUSN 6540 and this course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6824 - Entrepreneurial Financial Management

Includes financial and legal aspects, financial reporting and cash flow analysis, financial planning, budgeting, working capital management, asset decisions, obtaining capital, business valuation, franchising, lease versus buy decisions, and financial aspects of international trade and different methods of obtaining capital.. Cannot receive credit for both FNCE 6460 and this course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6826 - International Entrepreneurship

Provides the student with an overview of key trends and developments in international business. Familiarize the student with selected theories and concepts of international business and how it affects entrepreneurial functions, including finance, marketing, accounting, organization design and management. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6827 - Global Action Projects for International Entrepreneurship

Students will have the opportunity to learn and apply key concepts in international entrepreneurship to live projects sponsored by entrepreneurial companies and/or entrepreneurial units within established firms. Students will work in small teams of about 6-8 students and will be supervised by a faculty and international mentors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6834 - Entrepreneurial Marketing

Designed to help students learn about best practices with recent lessons on Internet economy. Companies large and small face unique challenges successfully building a competitive advantage with limited marketing resources. Covers the analysis of marketing opportunities, identification of the targets, audience, and the development of a marketing strategy, brand positioning and an integrated marketing plan. Reviews product and service development processes. Provides a basis for establishing pricing and pricing plans. Assesses Internet economy. Max hours: 3 Credits.

Semester Hours: 3 to 3

ENTP 6838 - Real Estate for the Entrepreneur

This course will address issues critical to the success of any new venture location including business site selection and negotiation of real estate leases and purchases. General principles of real estate development, financing and urban planning, applicable to entrepreneurs, will also be discussed. Zoning, affordable housing, ADA issues, property management, real estate investing, historic preservation and selected taxation issues are also covered. Max hours: 3 Credits.

Semester Hours: 3 to 3

ENTP 6840 - Independent Study: ENTP

Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENTP 6842 - New Concept Development

Understand business concepts, competitive offerings and potential customers' wants at their most fundamental level in this theory-driven course designed to help entrepreneurs assess the viability of new business concepts in potential markets. The course provides new ways of thinking about the attractiveness of industries and markets. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6846 - Marketing a New Business

The objective is to help entrepreneurs learn the latest techniques involved in taking a new business or service concept to market. It includes a theoretical analysis of how products diffuse, product life cycle issues, qualitative and quantitative research techniques (including exposure to an analytical software program), consumer behavior issues, strategic positioning given the nature of the product, the company and the external environment, promotion of the new concept and issues regarding the implementation of a marketing solution surrounding the new venture. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6848 - Leadership in New Ventures

Provides the student with an overview of key leadership principles for creating strategy and managing teams in a new venture. It introduces leadership concepts critical to gaining true organizational commitment and focuses on case studies relevant to common business issues. By exploring what entrepreneurial leaders actually do and how visionary leadership is required to develop an organization that is able to execute the strategy through measurable goals and objectives. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6854 - Design & Manage Entrepreneurial Organizations

This course is about building, running and growing an entrepreneurial organization. It is about creating an organization that will sustain high performance over a long period of time and become a premier institution in its field. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6862 - Strategic Web Development

This course teaches students how to create a web presence that will support the purpose of the organization and help fuel the growth of the venture. The course covers the importance of website visibility to new business operations and the basics of designing and implementing web sites. It also covers how to utilize search engines, social networks, blogs and other online tools to support and promote your business. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Environmental Sciences

ENVS 1042 - Introduction to Environmental Sciences

This laboratory or survey course develops a basic understanding of ecological relationships and environmental systems. Issues such as the effects of human activities on earth's environment, extinction or diversity, greenhouse effect, hazardous or toxic wastes and human population growth are discussed. Max hours: 4 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1. **Semester Hours:** 4 to 4

ENVS 1342 - Environment, Society and Sustainability

Overview of perspectives on environmental issues within the context of sustainable development and taking a systems approach. The focus is on social science approaches to explore the human footprint on the earth, environmentalism, scientific uncertainty, policy creation and social change. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS2. **Semester Hours:** 3 to 3

ENVS 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENVS 3082 - Energy and the Environment

For students of various backgrounds who wish to increase their understanding of the environmental and technical issues of supplying the energy demands of our society. Alternative energy sources and conservation are explored as solutions to promote a sustainable society. Prereq: One course in college science or mathematics. Cross-listed with PHYS 3082. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 3500 - Topics in Environmental Sciences

Note: Topics may vary from one offering to the next. **Semester Hours:** 1 to 6

ENVS 4210 - Mining and the Environment

Mineral resources such as metals have played an important role in human civilization. However, the extraction, processing, and use of metals have left a legacy of damage to the environment and human health. These impacts and their mitigation are examined. Prereq: One course in college mathematics or science. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 4500 - Topics In Environmental Sciences

Note: Topics may vary from one offering to the next. Prereq: Varies according to the topic. Max hours: 6 Credits. **Semester Hours:** 1 to 6

ENVS 4840 - Independent Study: ENVS

Max hours: 3 Credits. **Semester Hours:** 1 to 3

ENVS 4850 - Understanding and Communicating Field Methods

Interdisciplinary course that presents a balanced overview of common field methods and how to communicate them effectively to a general audience. Includes hands-on experience with various field methods (e.g., transects, survey design, historical assessment, GIS, etc.) and communication strategies. Prereq: Introductory geography or environmental science course, and graduate or advanced upper-level standing, or instructor permission. Cross-listed with ENVS 5850 and GEOG 4850/5850. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 4900 - Colloquium

Engages students and faculty in discussion of current and pertinent world topics, including specific readings, (guest) presentations, and creation of working research papers, among other items. Students and faculty may work in research groups to accomplish specific goals. Prereq: Advanced Standing (undergrad). Cross-listed with ENVS 5900, GEOG 4900 and 5900. Max hours: 4 Credits. **Semester Hours:** 1 to 1

ENVS 4995 - Travel Study

Rigorous yet flexible fieldwork-based experience exploring geographical and environmental phenomena in diverse world locations. Course begins with intensive regional and methodological introductions, followed by on location field investigations in environmental analyses, cultural studies, GIS applications, tourism evaluation and/or hazards assessment. Prereq: GEOG 1202 and GEOG 1302, or permission of instructor. Cross-listed with ENVS 5995, GEOG 4995, and GEOG 5995. Max hours: 12 Credits. **Semester Hours:** 3 to 9

ENVS 4998 - Geography By Rail

Systematic and geographic exploration of region(s) mainly via train, focused on creating broad understanding of peoples, cultures, and landscapes. This course represents an intensive, field-based experience that may encompass both physical and cultural characteristics of place and space. Prereq: GEOG 1202 and 1302, or equivalent as determined by instructor. Cross-listed with ENVS 5998 and GEOG 4998/5998. Max hours: 12 Credits. **Semester Hours:** 1 to 12

ENVS 5010 - Landscape Geochemistry

A holistic approach to studying the role chemical elements play in synthesis/decomposition cycles, and the resultant environment from interaction of the lithosphere with the hydrosphere, atmosphere, biosphere, and pedosphere during geological, and ecological timeframes, together with anthropogenic activities. Prereq: Introductory college-level physical geography or environmental science course or permission of instructor. Cross-listed with GEOG 4010/GEOL 4010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5020 - Earth Environments and Human Impacts

Basic concepts describing earth's biomes and physical environment are presented in a systems context. Global warming assessment, from both political and scientific perspectives, is then presented. Model visualization of these concepts to consider human impacts on Earth's biomes is discussed. Earth system viewpoint, having links of Earth's biomes to oceans and atmosphere, completes the course discussion. Cross-listed with GEOG 4020, GEOL 4020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5030 - Environmental Geology

Applies geological information to interactions between people and the physical environment. Increasing awareness of its importance in our society means that this is an expanding field as companies are required to address the environmental consequences of their actions. Prereq: Entry into MSES program, senior standing in sciences or geography, or permission of instructor. Cross-listed with GEOL 4030 and 5030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5280 - Environmental Hydrology

Examination of hydrologic processes in relation to climate, soils, vegetation, land-use practices, and human interactions. Natural scientific perspectives emphasized; field and laboratory included. Prereq: GEOG 1202 and one of: 1) GEOG 3232; 2) GEOG 4240/GEOL 4240/GEOG 5240; 3) GEOG 4010/GEOL 4010/ENVS 5000. Cross-listed with GEOG 4280 and GEOL 4280. Max hours: 4 Credits. **Semester Hours:** 4 to 4

ENVS 5340 - Multicultural Science Education

This course examines literature in science education related to multicultural issues. Topics will be framed by an understanding of equity in diverse, urban classrooms and how it informs curriculum and instruction. Cross-listed with ELED/SECE 5340. Max hours: 3 Credits.

Semester Hours: 3 to 3

ENVS 5403 - Unsaturated Zone Hydrology

Focuses on water and contaminant transport through the unsaturated zone, infiltration and drainage, and heat and gas transport. Students learn to design, perform field installation, and collect data in order to model and predict contaminant movement on/off site. Prereq: Chemistry, physics, calculus or permission of instructor. Cross-listed with GEOL 4402. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5410 - Aquatic Chemistry

Course objectives are to: (1) identify and understand chemical and physical principles and processes that control the composition of natural water, (2) prepare students to critically evaluate scientific literature and experimental design related to water quality and environmental remediation, and (3) examine the validity of environmental water data. Prereq: Graduate status and general chemistry and/or CHEM 4700. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5450 - Urban Food and Agriculture: Perspectives and Research

Provides an overview of research & practices in urban farming. Critically reviews emergent models of local food production/distribution. Compares new practices to traditional agribusiness. Assesses the prospects for solving sustainability problems within the modern agro-food system. Prerequisite GEOG 3401. Cross-list GEOG 4450. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5460 - Sustainable Urban Agriculture Field Study I

Provides a field-based overview of urban farm planning & management. Topics: range/land conservation, native/invasive species, water distribution, animal husbandry, government interaction, local markets, community relations, conservation easements and issues pertaining to urban farming. Prerequisite ENVS 5450. Cross-list GEOG 4460. Max hours: 3 Credits.

Semester Hours: 3 to 3

ENVS 5470 - Sustainable Urban Agriculture Field Study II

Provides a field-based overview of current practices in local agricultural production. Emphasis will be placed on sustainable practices and their most efficient situation, Special consideration will be given to plausible solutions for food insecure communities both local and global.

Prerequisite ENVS 5450, 5460. Cross-list GEOG 4470. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5500 - Topics in Environmental Sciences

Topics may vary from one offering to the next. Max hours: 9 Credits. **Semester Hours:** 1 to 6

ENVS 5513 - Geology of the Grand Canyon

Raft down the Grand Canyon and examine the geology of igneous, sedimentary, and metamorphic rocks from the Precambrian to the Holocene. Study marine and terrestrial fossils, migmatization and observe modern sedimentary processes. Cross-listed: GEOL 4513. Max hours: 5 Credits. **Semester Hours:** 3 to 5

ENVS 5600 - Applied Statistics for the Natural Sciences

Surveys statistical techniques including: quick review of basic statistics, tests for normality and outliers, display of data; simple and multiple regression; ANOVA and its relation to regression. Emphasis on computer or stat-pak analysis and interpretation of statistical results. Prereq: College algebra and GEOG 3080, or consent of an instructor. Cross-listed with GEOG 4770, GEOL 4770, 5770. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5620 - Health Risk Communication

Acquaints students with contemporary theory, research, and practice in health risk communication. Cross-listed with COMM 5620/4620, HBSC 5620 and PBHL 4620. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5700 - Synthesis for Interdisciplinary Science

Synthesis is an approach in interdisciplinary research and education that links ideas, data and methods. This course develops synthesis skills through the lens of systems theory. It includes exercises for synthetic thinking, examination of integrative tools, and a service-learning project. Cross-listed with GEOG 4700. Breadth and depth training in environmental sciences. Interest in interdisciplinary collaboration. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5730 - Air Quality Modeling and Analysis

Emphasizes the use of air dispersion modeling tools. Topics include: sources and effects of air pollution, use of the WWW, and analysis of modeling results. Note: For graduate students in environmental sciences or engineering, and for those working in the environmental field. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5840 - Independent Study: ENVS

Max hours: 3 Credits. **Semester Hours:** 1 to 3

ENVS 5850 - Understanding and Communicating Field Methods

Interdisciplinary course that presents a balanced overview of common field methods and how to communicate them effectively to a general audience. Includes hands-on experience with various field methods (e.g., transects, survey design, historical assessment, GIS, etc.) and communication strategies. Prereq: Introductory geography or environmental science course, and graduate or advanced upper-level standing, or instructor permission. Cross-listed with ENVS 4850 and GEOG 4850/5850. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5900 - Colloquium

Engages students and faculty in discussion of current and pertinent world topics, including specific readings, (guest) presentations, and creation of working research papers, among other items. Students and faculty may work in research groups to accomplish specific goals. Prereq: graduate student status. Cross-listed with ENVS 4900, GEOG 4900 and 5900. Max hours: 4 Credits. **Semester Hours:** 1 to 1

ENVS 5939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 6

ENVS 5995 - Travel Study

Rigorous yet flexible fieldwork-based experience exploring geographical and environmental phenomena in diverse world locations. Course begins with intensive regional and methodological introductions, followed by on-location field investigations in environmental analyses, cultural studies, GIS applications, tourism evaluation and/or hazards assessment. Prereq: GEOG 1202 and GEOG 1302, or permission of instructor. Cross-listed with ENVS 4995, GEOG 4995, and GEOG 5995. Max hours: 12 Credits. **Semester Hours:** 3 to 9

ENVS 5998 - Geography By Rail

Systematic and geographic exploration of region(s) mainly via train, focused on creating broad understanding of peoples, cultures, and landscapes. This course represents an intensive, field-based experience that may encompass both physical and cultural characteristics of place and space. Prereq: GEOG 1202 and 1302, or equivalent as determined by instructor. Cross-listed with ENVS 4998 and GEOG 4998/5998. Max hours: 12 Credits. **Semester Hours:** 1 to 12

ENVS 6000 - Environmental Sciences Seminar

Student and faculty presentations of UCDHSC research projects and other current environmental sciences topics. All environmental sciences students are encouraged to attend, but credit is given only to students who present seminars. Two semesters of this course are required to receive a M.S. in Environmental Science degree: these students must register for this seminar and give presentations the first semester they are in the M.S.E.S. program and the semester in which they defend their master's project. Prereq: Must be an M.S. in Environmental Science student. Max hours: 2 Credits. **Semester Hours:** 1 to 1

ENVS 6002 - Environmental Sciences Seminar

Introduces research and professional development in the environmental sciences, focusing on current issues and trends in the field, methods of developing research and project proposals, and defense of a proposal written during the semester. Students are introduced to the environmental sciences faculty and their research programs. Prereq: Must be an MS Environmental Science student or permission of instructor. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ENVS 6200 - Risk Assessment

The process of determining the likelihood and extent of harm that may result from an activity or event. Topics covered are: hazard identification, dose-response evaluation, exposure assessment, and risk characterization. The subjects of risk management, risk perception, and risk communication are also discussed. Prereq: Graduate standing or permission of instructor. Cross-listed with CVEN 5494, HBSC 7340. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 6210 - Human Health and Environmental Pollution

Examines the roles of technology and society in the etiology and control/prevention of adverse health outcomes associated with releases of toxic substances. Examples come from experience and the literature on occupational cancer and reproductive hazards, occupational and environmental regulation of hazardous wastes, air, and water pollution. Cross-listed with HBSC 7210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 6220 - Toxicology

Introduces the field of toxicology. Emphasizes the mechanisms by which chemicals produce toxic effects and the methods for assessing toxicity. Note: Designed for students in the environmental sciences and occupational health fields. Prereq: One year college chemistry and one year college biology. Cross-listed with HBSC 7360. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 6230 - Environmental Epidemiology

Provides a basic understanding of the methods used to study the effects on human health of exposures to physical, chemical, or biological factors in the external environment. The course explains the use of epidemiologic methods through a problem solving approach to investigating environmental health case studies. Prereq: A basic statistics course and graduate standing or permission of instructor. Cross-listed with HBSC 7310. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 6840 - Independent Study: ENVS

Max hours: 3 Credits. **Semester Hours:** 1 to 3

ENVS 6950 - Master's Thesis

Max hours: 11 Credits. **Semester Hours:** 1 to 6

ENVS 6960 - Master's Report

Max hours: 6 Credits. **Semester Hours:** 3 to 6

Ethnic Studies

ETST 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 2000 - Introduction to Ethnic Studies

Multi-disciplinary survey of contemporary and historical research analyses of the diverse social, economic, political, and cultural facets of African American, American Indian, Asian American, and Latino communities and cultures. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS3. **Semester Hours:** 3 to 3

ETST 2024 - Race and Ethnic Relations

Surveys race and ethnicity, facts and myths about great populations, and the social and cultural sources of bias and discrimination. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 2036 - American Indian Cultural Images

Analysis of images and perceptions of American Indians in American culture, as seen in politics, education, film, photography, advertising, art, literature and the media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 2105 - African American Contemporary Social Issues

Exposes students to those areas of intellectual, social, cultural, economic, political, and educational concerns relevant to the African American experience. Principally an introductory survey of primary issues currently affecting the African American population. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 2115 - Genocide in the 21st Century: Darfur and Beyond

Introduces students not only to the first genocide of the twenty-first century, in which over 400,000 ethnic Sudanese have been forcibly wiped out and millions displaced, but also studies the root cause of genocide and some of the past genocides. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 2125 - The Bi-Racial Family

Covers specific issues related to the biracial/bicultural family in the U.S., including the socio-cultural factors involved. Parenting concerns and skills for professional application will be included. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 2145 - The Gullah in Novel and Film

Explores the history and culture of a distinct group of African Americans known as Gullah/Geechee, whose ancestors were brought to the U.S. as part of a specialized and often illegal slave trade that existed in coastal South Carolina and Georgia. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 2155 - African American History

Surveys the history of African Americans. Study interpretations, and analysis of major problems, issues, and trends affecting the African American population from pre-slavery to the present. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-HI1. **Semester Hours:** 3 to 3

ETST 2165 - Cultural Diversity Awareness in the Workplace

An analytical assessment aimed at understanding the impact and effectiveness of cultural diversity awareness. Participants focus on understanding their own cultural biases, recognizing the impact of cultural values, and gain an appreciation for the value of diversity in work organizations. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 2294 - Race and the Media

Virtually all Americans are susceptible to the blatant and subtle socializing and conditioning effects of the modern media (film, television, the internet). Explains the variety of cultural values transmitted through the media, with particular emphasis on racial issues. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 2400 - Issues in Chicano/a Education

Historical overview of segregation, landmark court cases and immigration policy in the education of Chicano/as in Colorado and nationally from 1920 to the present. The intersection of these issues in the education of undocumented students is also examined. Cross-listed with TCED 2400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 2496 - American Indian Literature

Introduces American Indian literature and other expressive forms, with emphasis on their aesthetic, linguistic, psychological, and historical properties, as well as the contemporary social and cultural influences upon native authors and their material. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 2606 - The American Indian Experience

Surveys the relationships between Indian and non-Indian peoples, particularly in the context of the unique interaction between tribes and the federal government. Cross-listed with RLST 2680.

Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 2840 - Independent Study: ETST

Max hours: 3 Credits. **Semester Hours:** 1 to 3

ETST 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ETST 3001 - Urban Sociology

The city and urban society are examined in terms of social structure, residential and institutional patternings, process of interaction, demographic processes, and patterns of growth and change.

Prereq: SOCY 1001 or permission of instructor. Cross-listed with SOCY 3001. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3002 - Ethnicity, Health and Social Justice

Surveys core issues contributing to racial or ethnic minority differences in health status.

Historical and contemporary U.S. health and social policy, including the areas of environmental health, sexual and reproductive health, children and immigrants, are examined. Cross-listed with PBHL 3002. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ETST 3010 - Conference Participation

Max hours: 1 Credit. **Semester Hours:** 1 to 1

ETST 3108 - Chicano/a and Latino/a History

An historical analysis of person's descendant from Mexico and Latin America. Areas of focus include ethnohistorical backgrounds, current interrelations, and social movements in both rural and urban groups. Other topics include: cultural patterns, identity maintenance, social reforms and problems of national incorporation. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3110 - Indigenous Studies

Examines how communities in diverse world regions preserve tradition, share knowledge, and respond to influences both within and outside of their immediate environments. Max hours: 3

Credits. **Semester Hours:** 3 to 3

ETST 3129 - Contemporary Latin American Literature

The best of contemporary Latin American novels. Examines how U.S. policies in Latin America affect literary creation. Note: Taught in English. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3211 - Hip Hop Music & Culture

Covers the historical trajectory of hip hop music and culture from inception, aims to restructure stereotypes and offer a deeper perspective into how hip hop defines the identities of individuals as well as the consciousness of the masses within society. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3216 - Federal Law and American Indians

Examines the legal and political history of the U.S. in relation to American Indian Nations. Focuses on specific laws and Supreme Court cases in federal Indian law, with analysis of U.S. policy. There will be some comparison with Indian policies of other countries. Cross-listed with PSCI 3214. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3224 - U.S. Middle East Culture and Religion

Explores the history and development of the various major religions, cultures, and ethnic groups in the Middle East, their evolution and interaction in the U.S., and the historical impact and influence of the region, which continues to this day. Study of the region is timely and relevant due to U.S. involvement in various conflicts and peace efforts. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3230 - African American Family

Exploration of the African American family social institution. Emphasis on historical roots and African influence is still enmeshed in the functioning of the family in modern society. Factors responsible for the ability of the family to meet the challenging society. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3254 - Race and Ethnicity in the Inner City

This dynamic course combines aspects of urban studies and sociology. Contemporary cultural factors of the minority ghetto experience are investigated as elements in urban crisis. Emphasis is placed on possible solutions through government agencies and community organization. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3272 - Global Media

Introduction to leading issues in the study of transnational media. The course will focus on the global media environment in the early 21st century, diverse countries, a variety of media, and social issues. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3274 - Power, Poverty, Culture

Studies the process that has rendered certain groups poor for generations. Studies African Americans, Whites, Chicanos/as and Latinos/as, and other ethnic groups that have lived in this society in a state of poverty. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3297 - Social History of Asian Americans

Introductory-level course surveys the social history of Asian American groups from the mid-19th century to the present. Examines immigration patterns, the development of communities, social and economic problems, and anti-Asian movements and activities. Cross-listed with SOCY 3297. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3300 - Shamanic Traditions

Explores shamanic religious traditions across the world. This form of religion, involving spiritism, animism, trance states, and "mind power," is the oldest and most widespread religion in world history. Cross-list RLST 3300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3307 - Selected Topics: Asian Americans

Examines specific topics on Asian Americans to be selected by the instructor and the students. Detailed study of subjects relating to the Asian American experience and communities. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3350 - Colonial Latin America

Surveys the creation of colonial empires by Spain and Portugal, 1492-1808. Topics include Native American responses to European incursions, women in colonial society, and slavery in Latin America. Cross-listed with HIST 3350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3357 - Asian American Literature

Readings in this course examine the experiences of men and women in different generations; how each group attempts to maintain traditional values in a foreign land, to assimilate, and to forge a new identity. Includes short stories, poetry, essays, and novels by leading Asian American writers. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3365 - Aztlan in the United States: Chicano History from 1821

Explores the impact of U.S. rule on the Southwest, paying particular attention to legal, economic, and social changes that created new political and cultural identities in the Southwest. Cross-listed with HIST 3365. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3394 - Literature of Social Protest from an Ethnic Perspective

The literature of social protest of various ethnic groups is examined from a literary perspective and with reference to political and social theories. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3396 - History of the American Indian

Indigenous nations in North America comprise hundreds of diverse cultures. This course examines U.S. Indian policy and how indigenous nations responded; how they creatively adapted, and resisted cultural change; and how they continue to persist culturally, socially, and politically. Cross-listed with HIST 3396. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3408 - Social Psychology of Latinos/as

Exposes students to research on Latinos/as in the areas of intelligence and achievement, language and learning ability, attitudes, perception and motivation. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3567 - Asian American Women

Examines processes of change in values, roles, and relations of Asian American women, using contemporary and historical readings that address problems such as generational differences, assimilation, and changing roles. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3574 - Topics in Ethnic Studies

Topics vary from term to term, based upon interest and availability of instructors in specialized areas. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ETST 3616 - Selected Topics: American Indians

Detailed study of subjects related to American Indian experience and communities. Note: Specific topics to be selected by the instructor and students. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ETST 3697 - Contemporary Asian American Issues

Examines several contemporary Asian American issues, including the adaptation of new immigrants and refugees, economic and educational problems, ethnic identity, intermarriage, anti-Asian discrimination and other civil rights issues, and recent political activism. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3704 - Culture, Racism and Alienation

The effects of racism on the personality of participants in racist cultures. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3794 - Ethnic Diversity in American Literature

Surveys the cultural perspectives of various ethnic writers and their contributions to American literature. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3838 - History of the Mexican American in Colorado

Mexican Americans in Colorado from the 1800's to the present. Topics include founding of Colorado towns, labor strikes, farm worker issues, land and water rights, the Chicano Movement and political power. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3840 - Independent Study: ETST

Max hours: 6 Credits. **Semester Hours:** 1 to 3

ETST 3842 - Independent Study: ETST

Max hours: 12 Credits. **Semester Hours:** 1 to 3

ETST 3939 - Internship

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ETST 3995 - Travel Study

Students study various topics in a foreign country led by a CU-Denver instructor; register through the Office of International Education. Max hours: 15 Credits. **Semester Hours:** 1 to 15

ETST 4000 - Research Methods in Ethnic Studies

Emphasizes the acquisition of a variety of data or information collection and analytic skills, especially those applicable to historical and social inquiry in ethnic studies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4144 - Indigenous Political Systems

Surveys political theory and practice in indigenous societies in the Americas. Examines the impact of indigenous political thought on Euro-American politics, especially the U.S. Constitution, and explores the contemporary impact of indigenous people on current politics. Cross-listed with PSCI 4144. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4146 - Indigenous Politics

Surveys the status of the world's native peoples and nations, and the role of law and politics in the future of indigenous peoples in the global arena. Examines questions of human rights, economic development, and international law and politics. Cross-listed with PSCI 4146, 5145. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4156 - The Arab-Israeli Peace Process

Critical analysis of Arab and Israeli perspectives on the on-going peace negotiations in the Middle East. Historical background and religious-cultural aspects of current problems. Prereq: Upper division standing. Cross-listed with PSCI 4156. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4220 - African-American Literature

Surveys African-American literature with special emphasis on post-Civil War writing. Cross-listed with ENGL 4220 and 5220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4411 - Modern Mexico

Designed to familiarize students with the critical issues of Mexican political, economic and social history. Traces the emergence of independence and the difficult consolidation of an independent nation state. Cross-listed with HIST 4411, 5411. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4515 - The African American in Politics

Examines African American politics in the U.S.; the role of African American interest groups, structure and function of African American political organizations, goals and political styles of African American politicians, trends, and the future of African American politics in the United States. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4555 - International Women's Resistance

Examines local and international struggles of women to build peace and justice by resisting systems of inequality such as colonialism, racism, patriarchy, globalization, and religious intolerance. Cross-listed with PSCI 4555/5555 and WGST 4555/5555. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4558 - Chicano and Latino Politics

Analysis of the social, cultural, and economic factors that affect political behavior of Latinos. Special attention is paid to the Mexican American cultural heritage and to relations between Mexican Americans and Anglo Americans. Cross-listed with PSCI 4554. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4574 - Special Topics

Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4616 - Selected Topics: Chicanos/as and Latinos/as

Examines various contemporary issues in ethnic studies regarding Chicanos/as and Latinos/as. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4726 - North American Indian Art

Surveys major tribal styles of the North American continent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4730 - Peoples and Cultures of Sub-Saharan Africa

Covers various types of societies and civilizations that have existed in sub-Saharan Africa. Explores foragers, pastoralists, agricultural societies, chiefdoms, kingdoms, and empires, as these emerged and interacted with each other. Details their ideas and social orders, including the following topics: race, ethnicity, kinship, politics, economics, religion, magic, witchcraft, sorcery, marriage, age, gender, stratification, art, literature and oral traditions. Also addresses the impact of colonialism, the rise of nations, changes in the post-colonial period, warfare, and the impact of globalism on Africa today. Prereq: Upper division standing. Cross-listed with ANTH 4730 and 5730. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4768 - Chicano/Chicana Narrative and Social History

Provides a general, chronological, and thematic introduction to short stories and novels written by U.S. citizens of Mexican descent. Begins with early 20th century narratives by women, continues with the corrido and Post-World War II male writers, and ends with more recent publications by contemporary women writers. Social, historical, and political backgrounds are also emphasized, along with an analysis of the literary techniques and motifs. Cross-listed with ENGL 4768. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4827 - Women and the Law

Examines the role of the courts in the development of public policy toward women; how the legal system affects the economic power, family roles, safety and political participation of women. Cross-listed with PSCI 4827 and WGST 4827. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4840 - Independent Study: ETST

Max hours: 12 Credits. **Semester Hours:** 1 to 3

ETST 4960 - Senior Seminar in Ethnic Studies

Examines recent research in ethnic studies. Intended to be the capstone course for students minoring in ethnic studies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4995 - Travel Study

Students study various topics in a foreign country led by a CU-Denver instructor; register through the Office of International Education. Max hours: 15 Credits. **Semester Hours:** 1 to 15

Film & Video Production

FILM 1060 - Camera/Multi-Media Production

In a lecture/lab setting, students will develop knowledge of equipment and skills in studio multi-camera production and the use of multi-media for live performances. Working together students will crew, produce and direct multi-camera studio and live productions. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FILM 2050 - Film/Video Prod/Post II

Students create productions using three-chip digital cameras and advanced techniques. Preproduction through post-productivity working with actors, and maximizing production values are stressed. Students employ a range of cinematic techniques to tell stories, convey character state of mind, and communicate information and meaning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FILM 3100 - History of Film Production I

Surveys international film history from a production perspective from the origins of the medium to the development of sound. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FILM 3150 - History of Film Production II

Surveys international film history from a production perspective, beginning with the introduction of sound to the present. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FILM 3207 - Directing Workshop

Students work on scene studies rehearsed outside and presented in class. Emphasis is on capturing performance: working with actors and cameras to reveal character, deliver narrative and illuminate subtext. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FILM 3264 - Advanced Digital Effects

Students will study software and create projects with advanced visual effects. With industry standard techniques in animation, applying compositing, image acquisition and motion graphics. Students will create a variety of projects by the end of the semester. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FILM 3300 - Advanced Lighting for Film and Video

Students master film and video set lighting techniques for studio and locations. Focus is on art, technology, methodology, exposure, instruments, rigging and terminology. Max hours: 3 Credits.

Semester Hours: 3 to 3

FILM 3400 - Intermediate Screenwriting

Emphasis is on creating character, conflict and structure through the use of theme, motifs, subplots, and story tone. Students complete the first act and a 25-page feature film treatment or the first draft of a feature-length script. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FILM 3600 - Denver Film Festival

Students in this course will know how to contextualize films in terms of content and form. Through film viewing, written assignments, and critical analysis students learn to describe, classify and appreciate narrative, craft and artistic intent. Max hours: 3 Credits. **Semester**

Hours: 3 to 3

FILM 4400 - Advanced Screenwriting

This course focuses on creating and refining a feature length dramatic script (90-120 pages). Students will view films, read essays and articles, and analyze styles. They will apply these techniques and use this information to improve their own work. Max hours: 3 Credits. **Semester**

Hours: 3 to 3

FILM 4600 - Topics in Film

Specialized topics in film and video. Max hours: 12 Credits. **Semester Hours:** 1 to 3

FILM 4720 - Reel Prep

Students will work with a faculty member to prepare a sample of the student's creative work and projects in an "Industry standard" format used to secure employment. This work is referred to as an artists "Reel". Max hours: 1 Credit. **Semester Hours:** 1 to 1

FILM 4840 - Independent Study: FILM

Max hours: 12 Credits. **Semester Hours:** 1 to 3

FILM 5500 - Writing for Episodic Television

Explores the constructive and critical process of writing prime-time dramatic television. Each student is guided through a series of viewings, readings, and writing exercises culminating with the written completion of an episode from a current television series. Max hours: 3 Credits.

Semester Hours: 3 to 3

FILM 5600 - Topics in Film

Specialized topics in film and video. Max hours: 12 Credits. **Semester Hours:** 1 to 3

FILM 5840 - Independent Study: FILM

Max hours: 12 Credits. **Semester Hours:** 1 to 3

Film and Television

FITV 1000 - Introduction to Visual Culture

Provides fundamentals in academic theories surrounding visual culture. Topics include representation, spectatorship, mass media and popular culture, new media, and scientific images. Student participation is through discussion, creative projects, reading, and written response. Cross-listed with THTR 1000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 1040 - Lighting, Grip, and Sound Introductory Workshop

The purpose of this course is to acquire basic competence with all film/video production equipment. The course acts as an introductory look at maintaining professionalism, efficiency, and safety in film/video sets for cast and crew. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 1050 - Production I Basics of Film and Television

Learn the fundamentals of video production including idea creation, videography, composing a professional image, cinematic lighting, sound track recording and construction, non-linear software. Individual and collaborative productions for film, video, and TV will be created. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 1200 - Aesthetics of Television

The course will combine viewing of television programs with reading, writing and discussing television as students begin to understand intellectually, and learn to take an analytical view of this remarkable phenomenon. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 1550 - Scriptwriting 1 - Fiction

Critical exploration of dramatic writing for stage and screen. Understand how imagery, character, story, narrative structure, literary conventions, and more, impact compelling writing. Utilize effective writing and critiquing strategies focused on drafting and writing an original film/TV script. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 1600 - Writing Short Film:Non Fiction

Students study basic writing elements such as idea generation, character building, and scene setting while writing short non-fiction screenplays or teleplays for production. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 2040 - Introduction to Digital Effects

Learn the fundamentals of digital effects, animation, compression, and color correction as you incorporate graphic elements into your productions. Demonstrate the skills to utilize software applications used to create 2D, 3D animation, and motion graphics, green screen technology. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 2050 - Production II Film and Television Techniques

Through a series of assigned film and TV projects students will be introduced to various genres of filmmaking, while building upon the skills of preproduction, production, and post-production. Prereq: FITV 1050/TFVP 1050. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 2090 - Production Management for Film and Television

Students will learn the various aspects of planning, scheduling, budgeting, and managing both television and film productions. Students will develop skills for conceptualizing projects from script to screen. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 2220 - Acting for Film and Television

Provides the study, skill development and workshop experience for the actor in various media ? including film, television, commercial, and voice-over work. Students do physical exercises, vocal training, develop vocabulary, and scene exercises. Cross-listed with THTR 2220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 2570 - Directing for Film and Television

Through a series of assigned video projects, students will practice the art of directing several film and television projects. Applying communication skills and directing techniques to the process. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 2650 - Sound for Film and TV

Building upon basic understandings of audio for film and television techniques, students will get intermediate instruction and experience with field audio recording and audio post-production practices. Students will work with digital audio editing software to gain knowledge and skills in sweetening, mixing, and sound design. Prereq: FITV 2040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 2670 - Cinematography for Directors

Students create film and TV projects that exhibit effective use of light, composition, depth of field, focal length. Student directors will learn how to collaborate with cinematographers and understand the science of photography, lenses, and lighting. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 3040 - TV Studio Production

Working in a multi-camera television studio environment, students in this course will experience each aspect of creating multiple live-to-tape television programs. Students will work in teams to create a television pilot as well as individual projects. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 3050 - Production III: Junior Project

Students will refine their knowledge of single-camera film and TV techniques in this hands-on, collaborative course. Students will conceptualize, develop, and shoot a short film or television project throughout the semester. Emphasis on storytelling, production design, production management, and cinematography. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 3060 - Editing for Film and Television

Students will apply post-production skills learned in previous courses to edit projects produced in Prod 3/Jr Project. This course will emphasize the completion of a professional broadcast-quality production with full audio and visual sweetening. Students will attain advanced editing skills through a longer format project. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 3090 - Producing Episodic Television

Students explore and develop skills in the collective practices necessary for the full production of an episodic television series. Students will actively participate in various aspects of episodic television production including preproduction, production, and post-production. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 3200 - History of Film to 1937

The development of cinema in the early 1880s brought with it a wealth of techniques still used today, from the close-up to crosscutting and montage. In this course students will view, analyze, research, and critique the beauty and sophistication of silent film from its beginnings through the late 1930s. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 3300 - History of Film from 1938

Take a journey through the many genres of film, from the introduction of sound to the present. Students will trace the development of various Hollywood genres and examine films that represent major developments in American cinema. In this course students will view, analyze, research, and critique films from 1938 to the present. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 3350 - Editing Aesthetics

A historical, theoretical, and practical hands-on approach to deconstructing and utilizing editing aesthetics. Students will consider the theory behind editing strategies that elicit an emotional or response from viewers, and put those theories to practice through demonstrative production exercises as well as analytical writing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 3500 - Writing for Episodic Television

Explores the constructive and critical process of writing prime-time dramatic television and alternative broadcast platforms. Each student is guided through a series of viewings, readings, and writing exercises culminating with the written completion of television episodes for an original series. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 4000 - Senior Thesis Production

The first course of a two-part capstone experience in which students collaborate, plan, cast, budget, and produce a professional quality film/TV project or script. Projects/scripts will be completed in FITV 4010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 4010 - Senior Thesis Post-Production

Second course of a two-part capstone experience in which students collaborate on post-production to complete the film/TV/script project. Emphasis will be on editing, color-correcting, audio sweetening, graphics, finishing a fine-cut of their project; students will seek distribution and exhibition. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 4050 - Shooting Action

In this production workshop, students will analyze films and storyboards, and shoot projects created for specific action and special effects outcomes. In addition, students will examine a variety of techniques used to create action scenes in preparation for the edit. Prereq: FITV 2050/TFVP 2050. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 4055 - Documentary Production

Students produce non-fiction film/TV productions in collaboration with non-profit organizations while exploring and experiencing industry practices. Prereq: FITV 2050/TFVP 2050. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 4600 - Special Topics

Specialized topics in film and video. Max hours: 12 Credits. **Semester Hours:** 1 to 3

Finance

FNCE 1000 - Intro to Risk Mgmt Insurance Careers

Provides a comprehensive overview of available Risk Management and Insurance careers. For all majors. Emphasis will be on interactions with industry professionals to provide hands-on knowledge and opportunities for in-depth discussion. Cross-listed with RISK 1000. Max hours: 1 Credit. **Semester Hours:** 1 to 1

FNCE 2939 - Internship

Max hours: 3 Credits. **Semester Hours:** 1 to 3

FNCE 3000 - Principles of Finance

This course provides an introduction to financial markets and institutions, financial statement analysis, interest rates and the time value of money, principles of security valuation, concepts of risk and return, and capital budgeting. Note: This course is required in the Business Core. A grade of 'C' or better must be earned. Prereq: DSCI 2010 and ACCT 2200 with a grade of C or higher, ECON 2012 and ECON 2022. Restriction: Jr. standing or above. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 3500 - Management of Business Capital

Students learn the basic principles governing the management of capital in the business firm. Topics include management of working capital, cost of capital, capital budgeting, firm valuation, and theory and management of capital structure, grade of 'C' must be earned to take subsequent courses for which this course is a pre-req.. Prereq: FNCE 3000 with a grade of 'C' or better. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 3600 - Financial Markets and Institutions

Focuses on the supply and demand for loanable funds, the process of money creation, the structure of interest rates, and the role of banks and the Federal Reserve in the financial system. Special attention is devoted to the impact of monetary and fiscal policies on interest rates, the flow of funds and economic activity; and the operation of financial markets and institutions. A grade of 'C' or better must be earned in this course to receive credit for the area of emphasis and to take subsequent courses for which it is a prerequisite. Coreq: FNCE 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 3700 - Investment and Portfolio Management

In this course students learn about the different types of investment vehicles, including methods to estimate their value and analyze their risk. They will also be introduced to portfolio management, including the identification of objectives and constraints and the analysis and use of investment information. Topics include the functioning of security markets, asset allocation, security valuation, and portfolio analysis. A grade of 'C' or better must be earned to receive credit for the course, and to take subsequent courses for which it is a prerequisite. Note: FNCE 3700 and FNCE 3600 may be taken concurrently. Prereq: FNCE 3000. Coreq: FNCE 3500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 3809 - Introduction to Risk Management

This course introduces students to fundamentals of risk and risk management for businesses and individuals. Insurance is among the risk management tools examined. The insurance industry and carrier operations are also explored. Coreq: FNCE 3000. Cross-listed with RISK 3809. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 3840 - Independent Study: FNCE

Max hours: 3 Credits. **Semester Hours:** 1 to 3

FNCE 3939 - Internship

Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: Senior standing and approval of Business advisor. Max hours: 9 Credits. **Semester Hours:** 1 to 3

FNCE 3949 - Experiential Learning with Risk Management Industry

This course will connect students to risk management service providers, through the Risk Management and Insurance (RMI) Program. The students will either intern, or carry out independent projects with specific providers. The RMI program and faculty will supervise and monitor task and assignments, and coordinate with the providers to maximize the learning experience. Prereq: FNCE 3809. Cross-listed with RISK 3949. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 4129 - Practical Enterprise Risk Mgmt

Skills in legal and factual analysis and the application of ethical theories are advanced and refined through integrative cases. Topics include insurance law, personal property law, intellectual property law, agency, business organizations, securities, employment law, and consumer law. Special focus is placed on the relationship between insurance and risk and the topics covered. Prereq: FNCE 3000 and junior standing or higher. Cross-listed with FNCE 6129 and RISK 4129/6129. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 4370 - International Financial Management

Financial management in the international environment. Topics include international capital movements; international operations as they affect the financial functions; foreign and international institutions; and the foreign exchange process. Also considers foreign exchange theory and risk management, financial requirements, problems, sources, and policies of firms doing business internationally. A grade of 'C' or better must be earned to receive credit for the course and to take subsequent courses for which it is a prerequisite. Prereq: FNCE 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 4382 - Survey of Financial and Commodity Derivatives

This course introduces forward contracts, used in price risk management for millennia. We cover the properties of forward/futures contracts, structure of the markets and strategic implications for speculation and hedging. We price forwards from spot price, and introduce convenience yield. Options used for insurance purpose (think of your car insurance as a put option) is a more expensive way to manage risk; we cover option strategies and basic pricing. The course concludes with swaps, credit derivatives and structured products. Asset classes covered are equity, fixed income, currency, agriculture, energy (oil/gas and electricity) and metal/mining. Prereq: FNCE 3500 and FNCE 3700, may be tested into the course. Cross-listed with FNCE 6382. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 4500 - Corporate Financial Decisions

This is a required capstone course for the financial management emphasis. It uses the case method to develop the analytical and decision making skills of students. Students are required to apply theories and concepts learned in previous finance and accounting classes to real world scenarios. Topical coverage includes financial analysis, planning, control, working capital management, long-term investment and financing decisions and corporate valuation. A grade of 'C' or better must be earned to receive credit towards graduation. Prereq: FNCE 3000, 3500 and 3700 all with a grade of C or higher and senior standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 4509 - Global Risk Management

This course is designed to study how risk is transferred globally. The course will include travel to London, which is the home to many of the world's largest insurers and reinsurers. While in London, we will visit and have presentations from insurance brokers, companies, Lloyds of London, and reinsurers. Cross-listed with FNCE 6509 and RISK 4509/6509. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 4709 - Life and Health Insurance

The course is designed to provide the student with the basic understanding of life and health insurance concepts. The course will focus on a needs analysis for individual life insurance needs in preserving an estate or creating an estate. We also focus on the needs of the family and the preservation of the income stream for meeting short and long term needs and how we accomplish this via life insurance. We also will look at life insurance in terms of business planning using such concepts as key person life insurance, funding buy sell agreements, and related needs. On the health side, we will use a needs analysis approach to provide health coverage for the individual and family. We also explore the employee benefits arena and how businesses will focus on providing group medical coverage and related benefits in an ever changing health care environment with health care reform being phased in. We also will explore the internal workings of life and health insurance companies by review Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 4750 - Business Intelligence and Financial Modeling

In this course, the student learns to analyze and solve financial problems with spreadsheet models, apply Oracle Financial and Business Intelligence software that is widely used in corporate financial operations and model risk and uncertainty with Monte Carlo software. Prereq: ISMG 2050, FNCE 3000 and ISMG 3000 (or ACCT 4054) with a grade of 'C' or better. Cross-listed with ISMG 4750. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 4802 - Foundations of Commodities

This course introduces students to the physical aspects of commodities and connects them to the financial markets in which commodities are traded. Fundamental concepts and terminology necessary for understanding commodity production, transportation, economics, financial analysis and marketing are described. Supply chains for several specific commodities are reviewed in detail, as examples of the production and market structure knowledge needed to be successful professional participants in commodity trading capacities. The course also serves a foundation for more focused education in the specific commodity sectors, as well as the applied use of marketing and financial trading concepts learned in other courses. Cross-listed with FNCE 6802 and CMDT 4802/6802. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 4809 - Property & Casualty Insurance

Introduces students to fundamentals of risk & risk management for businesses & uses of property, casualty, liability, directors and officers insurance, including cost and pricing issues. Types of insurance companies, agencies, and brokerages are also explored, along with insurance company financial mgmt & current trends in insurance industry. Restricted to junior standing or higher. Cross-listed with RISK 4809. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 4840 - Independent Study: FNCE

Max hours: 8 Credits. **Semester Hours:** 1 to 8

FNCE 4909 - Corporate Risk Management

The ultimate goal of corporate risk management is to maximize firm value by shaping a firm's risk profile. The risk management team identifies the type and level of risk exposure faced by their company. This helps the executive choose which risks to bear and which risks to transfer to other entities, in three basic ways: modifying the firm's operations, adjusting its capital structure, and employing targeted financial instruments such as derivatives, insurance contracts, and structured financial products. Prereq: FNCE 3809. Coreq: FNCE 3500. Cross-listed with FNCE 6909 and RISK 4909/6909. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 4950 - Special Topics

Research methods and results, special topics and professional development in finance. Prerequisites vary according to topic and instructor requirements. Max hours: 9 Credits. **Semester Hours:** 3 to 3

FNCE 5939 - Internship

Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: 21 semester hours and 3.5 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

FNCE 6290 - Quantitative Methods for Finance

This course provides a statistical foundation for subsequent courses in the Master of Science in Finance program. Major topics include descriptive statistics, probability theory, statistical estimation and inference and regression analysis. The emphasis is on finance applications, such as risk measurement, for portfolio diversification and the "market model". In addition, students develop competence in the use of statistical software packages. This course provides preparation for the statistical portions of the Certified Financial Analyst professional examinations. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6300 - Macroeconomics and Financial Markets

Covers the U.S. financial system in the global economy. Specific topics include financial institutions, money creation and monetary policy; the Federal Reserve System and its operation; the international financial system; interest rate determination, yield curves, and their relation to fiscal policy; the role of households and business in financial markets; stock markets; and money markets and instruments. (Required for the M.S. in Finance degree.) Coreq: BUSN 6620. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6310 - Financial Decisions and Policies

Emphasizes investment and financing decisions, and the analysis of the financial condition of the firm. Specific topics include capital budgeting, cost of capital, financing mix and strategy, firm valuation and management of working capital. Instruction is by the case method. Prereq: BUSN 6640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6330 - Investment Management Analysis

In this course students will learn investment theories and how to apply them to portfolio management. Topics covered include asset allocation, security markets, the analysis and use of investment information, risk analysis and security valuation. This course is required for the M.S. in Finance degree. Prereq: BUSN 6620 and BUSN 6640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6340 - Business Firm Valuation

In this class, students will learn two valuation techniques, fundamental valuation and relative valuation, to value a business. These techniques are useful in such situations as valuing firms for mergers and acquisitions and valuing stocks for investment purposes. Some of the topics included are valuation of start-up firms, valuation of privately held firms, and valuation of firms with negative earnings. Prereq: BUSN 6640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6350 - Financial Innovations

Innovations include zero coupon bonds, inflation indexed bonds, structured notes, asset-backed securities, collateralized mortgage obligations, and interest rate swaps. The student learns about the markets and pricing of these securities, and how they affect interest rate risk. The course prepares the student for careers in corporate treasury management, structured financing, swaps trading, and mortgage backed securities design. Prereq: BUSN 6640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6360 - Management of Financial Institutions

Overview of financial institutions and their risk management/financial performance management issues such as: management of operational, credit, liquidity, interest-rate, capital, off-balance sheet, and environmental risks; Uniform Bank Performance Report (UBPR) risk/performance analysis, hedging techniques and regulations/performance/risk. Prereq: BUSN 6640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6365 - Banking Principles and Practices

Covers money and capital markets, commercial lending, asset and liability management, loan portfolio management and bank management. This class is only available to Colorado Graduate School of Banking students. Similar material is covered in FNCE 6300 and FNCE 6360.

Therefore Business School students must enroll in those courses. Banking students cannot receive credit for FNCE 6300 or FNCE 6360. Max hours: 9 Credits. **Semester Hours:** 3 to 9

FNCE 6370 - International Financial Management

Addresses financial management in an international context that considers international capital movements and foreign exchange problems, and international operations as they affect financial functions. It reviews foreign and international institutions and the foreign exchange process and considers financial requirements, problems, sources and policies of firms doing business internationally. Prereq: BUSN 6640. Cross-listed with INTB 6372. Max hours: 3 Credits.

Semester Hours: 3 to 3

FNCE 6372 - Business Forecasting

Students learn forecasting methodologies such as ARIMA, regression, smoothing, and time-series decomposition applicable to marketing, finance, accounting, human resources management, and supply chain and production management decision-making. This course focuses on practical applications of forecasting techniques, choosing and comparing appropriate methods and applying the results to workplace situations. Prereq: BANA 6610 or FNCE 6290 or (BUSN 6530 taken at CU Denver or consent of instructor - no CBK waivers of BUSN 6530 will be considered. Cross-listed with BANA 6630. Max hours: 3 Credits. Note: Can only receive credit for either DSCI 6230/BANA 6630 or FNCE 6372. **Semester Hours:** 3 to 3

FNCE 6380 - Futures and Options

This covers both speculation and hedging using futures and options. The student learns about futures pricing, how futures are related to the underlying commodities and how to design hedges. Stock index futures and interest rates futures get particular attention. The course covers the theory and application of option pricing, focusing on the binomial and Black-Scholes models. Popular options trading strategies are discussed. This course is useful for those who wish to trade or become portfolio managers, as well as those who plan on corporate treasury management. Prereq: BUSN 6640 and FNCE 6382 or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6382 - Survey of Financial and Commodity Derivatives

This course introduces forward contracts, used in price risk management for millennia. We cover the properties of forward/futures contracts, structure of the markets and strategic implications for speculation and hedging. We price forwards from spot price, and introduce convenience yield. Options used for insurance purpose (think of your car insurance as a put option) is a more expensive way to manage risk; we cover option strategies and basic pricing. The course concludes with swaps, credit derivatives and structured products. Asset classes covered are equity, fixed income, currency, agriculture, energy (oil/gas and electricity) and metal/mining. This course is suitable for both MBA and MS (Finance) students, however, MS-Finance students who are more interested in the more rigorous knowledge necessary for trading derivatives are advised to take FNCE 6380. FNCE 6382 can be substituted by FNCE 6380 for those students who have taken a derivatives course prior to entering our program or with the approval of the FNCE 6380 instructor. Prereq: BUSN 6640. Cross-listed with FNCE 4382. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6410 - Real Options and Decisions Under Uncertainty

This is an applied course in making investment decisions under uncertainty and flexibility. Traditional NPV analysis using tools such as Discounted Cash Flow (DCF) model assumes that once an investment decision has been made, managers have no control over the outcome and they remain passive throughout the life of the project. Most corporate projects, however, have a great deal of flexibility in terms of their execution. This course will help students develop skills to identify and analyze real options so that they may approach real world corporate investment decisions in a strategic manner. This course may be used to fulfill the requirement for an options course in the MS (Finance) program. Prereq: BUSN 6640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6411 - International Corporate Governance

Discusses the structure and goals of the modern corporation, the primary governance mechanisms used to help companies achieve these goals, and how and why these roles, goals, and mechanisms vary across nations. The topics to be covered in the course include how share ownership, particularly by institutional shareholders, managerial compensation and board of director activities are being used to improve corporate governance systems. The class compares the Codes of Best Governance Practices from several countries as well as recent innovations in individual company governance rating systems. Prereq: BUSN 6640. Note: Students cannot receive credit for both FNCE 6411 and INTB 6411. Cross-listed with INTB 6411. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6420 - Mergers and Acquisitions

Examines the processes and decisions by which mergers, takeovers and other corporate restructuring occur, the transactions occur. Analyzes merger and acquisition decisions as part of strategic decision making, and how firms are valued in mergers. Discusses the market for corporate control and the public policy implications of mergers and corporate governance. Prereq: BUSN 6640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6450 - Short-Term Financial Management

This course is a survey of methods for managing short term assets and liabilities. Specific topics include the analysis of the firm's liquidity and cash flow, banking relationships; collection and disbursement systems; management of short term investment and financing; management of receivables, payables and inventory; and short term forecasting. This course is affiliated with the Association of Financial Professionals, allowing students earning at least a 'B' to sit for the Certified Treasury Professional (CTP-A) exam. Prereq: BUSN 6640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6460 - Emerging Market Finance

This course aims to explore key emerging market finance issues from the perspectives of corporations, investors and markets. Emerging economies are deemed to be the engine of growth opportunities in the world economy. However, compared with developed markets, they typically have some unique features in their economic systems and financial markets, and thus different risk and return characteristics, leading to special considerations of capital budgeting, financing and investing in these economies. This course is to help develop a better understanding of financial markets, corporate finance and investments in emerging economies, with case studies on some major emerging markets (e.g., China, India). Prereq: BUSN 6620 and 6640. Cross-listed with INTB 6460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6480 - Financial Modeling

Develops and implements financial models for purposes of financial planning and decision making. This course is intended to allow the student to increase her or his knowledge and skill in the development of various types of computer-based financial planning models. The students are exposed to the uses of a variety of computer software packages that can be used for modeling financial planning problems. Prereq: BUSN 6640, knowledge of computer and spreadsheet software. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6482 - Advanced Portfolio Management

This course puts graduate students at the leading edge of managing investment portfolios across multiple asset classes in CU Denver business school's unique, state-of-the-art Commodities and Finance Lab. Bringing to life latest academic theories such as Kaplan's CVaR in the JP Morgan Center for Commodities will ideally prepare graduate students to pursue accelerated careers in asset management, investment advisory or related financial markets positions. Topics covered include: Asset Classes and Financial Markets: Commodities, Equities, Fixed Income, Hedge Funds, Portfolio Optimization (MVO, CVaR), Risk Management, Trade Execution and Ongoing Portfolio Management, Ethics and Code of Conduct in Asset Management. (Prerequisite: FNCE 6330, Bloomberg and MorningstarDirect Certification). Cross-listed with CMDT 6482. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6509 - Global Risk Management

This course is designed to study how risk is transferred globally. The course will include travel to London, which is the home to many of the world's largest insurers and reinsurers. While in London, we will visit and have presentations from insurance brokers, companies, Lloyds of London, and reinsurers. Cross-listed with FNCE 4509 and RISK 4509/6509. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6800 - Special Topics

Experimental course offered irregularly for the purpose of presenting new subject matter in finance. Prerequisites vary depending upon topics covered. (Consult the 'Schedule Planner' for semester offerings.) Prereq: BUSN 6640 Max hours: 9 Credits. **Semester Hours:** 3 to 3

FNCE 6802 - Foundations of Commodities

This course introduces students to the physical aspects of commodities and connects them to the financial markets in which commodities are traded. Fundamental concepts and terminology necessary for understanding commodity production, transportation, economics, financial analysis and marketing are described. Supply chains for several specific commodities are reviewed in detail, as examples of the production and market structure knowledge needed to be successful professional participants in commodity trading capacities. The course also serves a foundation for more focused education in the specific commodity sectors, as well as the applied use of marketing and financial trading concepts learned in other courses. Cross-listed with FNCE 4802 and CMDT 4802/6802. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6809 - Principles of Risk and Insurance

Prepares students for advanced work in insurance and risk management. The course first covers the nature of risk and risk fundamentals, insurer operations, and insurance regulation. It then considers the principal techniques of managing risk exposures and the bases for decision making in management of business and personal risks. Prereq: BUSN 6640 (not strictly enforced). Cross-listed with RISK 6809. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6840 - Independent Study: FNCE

Instructor approval required. Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study. Max hours: 8 Credits. **Semester Hours:** 1 to 8

FNCE 6909 - Corporate Risk Management

The ultimate goal of corporate risk management is to maximize firm value by shaping a firm's risk profile. The risk management team identifies the type and level of risk exposure faced by their company. This helps the executive choose which risks to bear and which risks to transfer to other entities, in three basic ways: modifying the firm's operations, adjusting its capital structure, and employing targeted financial instruments such as derivatives, insurance contracts, and structured financial products. Prereq: FNCE 3809. Coreq: FNCE 3500. Cross-listed with FNCE 6909 and RISK 4909/6909. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6995 - Travel Study

Max hours: 3 Credits. **Semester Hours:** 3 to 3

Fine Arts

FINE 1001 - Introduction to Art

The course introduces visual analysis and critical examination of art from prehistory to modern times. Through reading, vocabulary development, group discussions, tests, and research projects, students will learn how to appreciate art and critically evaluate form, content, and context. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-AH1. **Semester Hours:** 3 to 3

FINE 1100 - Drawing I

This course explores the act of drawing as a process of visual thought as an initial step to artistic expression. Students will develop an understanding of the basic principles of drawing as a way of learning to see. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

FINE 1120 - Digital Photography for Non-Majors

Students will learn fundamentals of digital photography through creative assignments that promote a broad understanding of the photographic medium. Topics include digital camera operation, sizing and resolution, principles of design, and interpreting photographic meaning. This course is designed for non-art majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 1140 - Topics in Photography

Max hours: 9 Credits. **Semester Hours:** 1 to 3

FINE 1150 - Introduction to Darkroom Photography

Students learn traditional, film-based photographic practice. Topics such as camera functions, film processing, black and white darkroom printing, color theory and alternative darkroom techniques are explored through demonstrations, critiques, readings and discussions of historical and contemporary photography. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 1400 - Two Dimensional Design

Focuses on the concepts and visual elements of all forms of two-dimensional art. Students gain an understanding of basic design principles as they analyze and visually articulate formal concerns in viewing contemporary and historical artworks as applied to studio problems. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 1435 - Intro to Electronic Art and Design

A lecture/art-studio course for high school students that provides an introduction to the computer and its artistic and commercial possibilities. Through projects, lectures, discussions and readings, students explore techniques of production including digital photographic manipulation, sound editing, and web animation. Max hours: 2 Credits. **Semester Hours:** 2 to 2

FINE 1450 - Visual Culture: Ways of Seeing

A core course for majors and non-majors Visual Culture: Ways of Seeing explores how the meaning of imagery is encoded in cultural settings and transforms globally through changing technology and is integrated into daily life. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-AH1. **Semester Hours:** 3 to 3

FINE 1500 - Three-Dimensional Design

Students explore the elements of art and the principles of design applied to three-dimensional design while developing an understanding of material properties, techniques, processes and tools. Creative practice is accompanied by written, theoretical and verbal critical thinking skills. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 1810 - Digital Animation Foundations: Producing Animation

A lecture/lab course that explores the theory, practices and fundamentals of producing 3D animation. Students will explore the foundations of the animation process including the production pipeline, studio organizations, traditional animation techniques, foundational cinematography, storyboarding and character development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 1812 - 3D Computer Graphics: Producing Animation

An online course that explores the theory, practices and fundamentals of the producing 3D animation. Students will explore the foundations of the animation process Note: Offered through Extended Studies. Must provide sufficiently powered computer. See www.cu3d.org Computer Graphics Certificate for details. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 1820 - Digital Animation Foundations: Introduction to Digital 3D

A lecture/lab course that explores the foundations of creating digital 3D content. Primary focus is an introduction to current 3D software. Class lectures, demonstrations and hands-on application will expose the student to the expectations for commercial high-end 3D animation production. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 1822 - 3D Computer Graphics: Introduction to Digital 3D

An online course that explores the foundations of creating digital 3D content. Primary focus is an introduction to current 3D software. Note: Offered through Extended Studies. Must provide sufficiently powered computer. See www.cu3d.org Computer Graphics Certificate for details. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2010 - The Graphic Novel Workshop

This course introduces students to the visual language of the graphic novel through the creation of sequential imagery and page development. Students will delve into the pictorial methods found in both historical and contemporary comic books, Manga and alternative cartooning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2030 - Life Drawing

This course introduces the student to the human figure, addressing anatomy, movement and proportion. Discussion of historic and contemporary critical methods supplement studio practice. Exploring a variety of drawing media, students expand their drawing skills and relate the principles of composition and design to figure drawing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2130 - Experiments in Color/Photography for Non-Majors

Explores both practical and innovative ways to manipulate color materials. Students gain technical mastery in understanding their cameras, using creative camera controls, color balancing film, and exposing color film while creating a portfolio of work that reveals experimental and innovative uses of color photographic materials. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2140 - Topics in Photography

Max hours: 9 Credits. **Semester Hours:** 1 to 3

FINE 2155 - Introduction to Digital Photography

Students learn digital image manipulation, input and output strategies, and digital camera functions through assignments that emphasize conceptual development. Presentations, readings, projects and class discussions help students gain an understanding of the role of digital imaging in contemporary photography. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2200 - Painting I

This course is an introduction to the language of painting. Students will learn to develop composition in layers, working from value to color and from direct observation to abstraction while exploring the range of visual possibilities that painting offers. Max hours: 3 Credits.

Semester Hours: 3 to 3

FINE 2405 - Introduction to Digital Design

A project-based exploration of the design potentials of vector, raster and motion based digital media. Through project critiques, discussion and demonstration students will create projects that examine technology as an art medium and a design strategy. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2415 - Typography Studio

A studio course that teaches principles of typography and organization that is the foundation of design and artistic practice. Through drawing, editing, and moving typographic forms, students will create projects that examine how typography is used to create meaning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2428 - Introduction to Scientific Media Design

Through lectures, writings, readings, and discussions students will be introduced to Scientific Media Design as a profession as well as the history and emerging directions in the field. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2500 - Bronze Casting

Students learn lost wax casting with ceramic shell investment and bonded sand. Modeling, foundry work, centrifugal casting and welding for cast metal are introduced, as is steel fabrication and mixed media. Individual vocabularies are explored and design skills acquired. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2510 - Wood and Metal Sculpture

Wood, metal fabrication and introduction of the found object are premise for the exploration of individual visual vocabularies. Investigation and design are applied towards developing conceptual ideas while students advance skills in the metal and wood studios. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2600 - Art History Survey I

A lecture course studying Western and non-Western art from prehistory to medieval times, including major artists and periods. Through visual analysis, vocabulary acquisition, exams, and writing assignments, students demonstrate knowledge of historical developments and an ability to analyze the arts. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2610 - Art History Survey II

A lecture course studying Western and non-Western art from the Renaissance to today, including major artists and periods. Through visual analysis, vocabulary acquisition, exams, and writing assignments, students demonstrate knowledge of historical developments and an ability to analyze the arts. Prereq: FINE 2600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2810 - Digital Animation Techniques: Surface Modeling

A lecture/lab course focused on the mastery of creating surface models for digital 3D content. Students will develop skills/knowledge about the processes and techniques for building complex 3D objects with an emphasis on artistic excellence through application of current 3D technologies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2812 - 3D Computer Graphics: 3D Surface Modeling

An online course focused on mastery of creating surface models for digital 3D content. Students will develop skills/knowledge about the processes and techniques for building complex 3D objects. Note: Offered through Extended Studies. Must provide sufficiently powered computer. See www.cu3d.org Computer Graphics Certificate for details. Prereq: FINE 1810 or 1812 and 1820 or 1822. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2820 - Digital Animation Techniques: Surface Properties

A lecture/lab course focused on mastery of creating surface textures/materials for digital 3D content. Students will develop skills/knowledge about the processes and techniques for creating realistic 3D textures/materials with an emphasis on artistic excellence through application of current 3D technologies. Note: Offered through Extended Studies (Continuing and Professional Education) due to separate tuition structure. Acceptance to the Digital Animation Center is competitive by interview/portfolio review with the Area Head for the program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2822 - 3D Computer Graphics: 3D Surface Properties

An online course focused on mastery of creating surface textures for digital 3D content. Students will develop skills/knowledge about the processes and techniques for creating realistic 3D textures/materials. Offered through Extended Studies. Must provide sufficiently powered computer. See www.cu3d.org Computer Graphics Certificate. Prereq: FINE 1810 or 1812 and 1820 or 1822. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2830 - Digital Animation Techniques: Lighting

A lecture/lab course focused on mastery of lighting the digital 3D environment. Students will develop skills/knowledge about the processes and techniques for creating realistic 3D lighting/lighting effects with an emphasis on artistic excellence through application of current 3D technologies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2832 - 3D Computer Graphics: 3D Lighting and Rendering

An online course focused on mastery of lighting the digital 3D environment. Students will develop skills/knowledge about the processes and techniques for creating realistic 3D lighting. Note: Offered through Extended Studies. Must provide sufficiently powered computer. See www.cu3d.org Computer Graphics Certificate for details. Prereq: FINE 2812 and 2822. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2850 - Digital Animation Techniques: 3D Character Creation

A lecture/lab course focused on mastery of skills for creating digital 3D characters. Students will develop skills/knowledge to shape, mold, transform/articulate, deform digital 3D shapes creating digital characters with an emphasis on artistic excellence through application of current 3D technologies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2852 - 3D Computer Graphics: 3D Character Creation

An online course focused on mastery of skills for creating digital 3D characters. Students will develop skills/knowledge to create digital characters. Note: Offered through Extended Studies. Must provide sufficiently powered computer. See www.cu3d.org Computer Graphics Certificate for details. Prereq: FINE 2812 and 2822. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2995 - Travel Study

Created for students doing travel study in a foreign country. Students register through the Office of International Education. Max hours: 15 Credits. **Semester Hours:** 1 to 15

FINE 3001 - Digital Illustration Studio

This course focuses on digital mixed media and design thinking in the creation of illustrations within design constraints established by the client rather than the artist. Students learn methods for design thinking, critical assessment and refinement of illustration processes. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3002 - Spatial Draw for Illustrators

Spatial Drawing for Illustrators focuses on the visualization of three-dimensional subjects in pictorial space. Theoretical and historical concepts of linear and optical perspective are examined; projects cover traditional and modernist approaches to creating the illusion of space. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3030 - The Media of Drawing

This course introduces students to the notion of drawing from life through an exploration of drawing methods/materials in the creation of artist's books- including learning various binding techniques and studying movement and juxtaposition as we draw in and from these books. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3050 - Figure Painting

This course is an exploration of representing the human form in pictorial space. Students will gain a knowledge of figural color, proportion, scale and space; and will understand the conceptual and visual weight carried by expressive gesture and figural form. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3110 - Imaging and Identity

A lecture course that analyzes representations of cultural diversity within the arts. Through visual analysis, vocabulary acquisition, discussion, exams, and writing assignments, students will demonstrate knowledge of historical developments and an ability to pursue critical thinking when interpreting imagery. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3120 - Visual Culture Studies

A lecture course about visual culture, theory, and literacy since the Industrial Revolution. Through visual analysis, vocabulary acquisition, discussion, exams, and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze imagery. Max hours: 6 Credits. **Semester Hours:** 3 to 3

FINE 3130 - Photography, Optics and Perspectives in Italy

In this study abroad seminar course, students develop an understanding of their work within the context of the history of art and photography, particularly the artistic and scientific breakthroughs of the Renaissance, by exposing them to strategies and theories exemplified by the remarkably diverse and historically significant artwork that is available in collections in Florence, Italy. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3135 - Historic Photographic Processes in Italy

Investigates the relationship between critical concepts and alternative photographic processes in the unique cultural and artistic setting of Florence, Italy. Students create images using historic photographic methods such as salted paper, P.O.P., albumen, photo-polymer gravure and bromoil. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3150 - Feminism and Art

A lecture course about feminist art, activism, theory, and artists. Through visual analysis, vocabulary acquisition, discussion, exams, and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze art. Max hours: 6 Credits. **Semester Hours:** 3 to 3

FINE 3160 - Color and Studio Lighting

Students explore traditional color photography, lighting techniques, concept development, and expressive uses of the medium. Topics include chromogenic printing, color theory, 4x5 technique and studio lighting. Students gain insight into the creative impact of color on photographic representation. Spring only. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3161 - The Silver Fine Print

Students learn advanced black and white darkroom techniques while translating ideas into photographic form. Techniques include the zone system, split filter printing, toning, montage printing, and film/paper choices. Students gain insight into photographic artists, techniques, and movements. Fall only. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3162 - The Digital Fine Print

Students learn the art of digital printing as it relates to photographic practice and theory. Assignments focus on conceptual development, advanced image manipulation, workflow, color management. Students gain insight into the role of digital imaging in contemporary photography. Fall only. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3171 - Concepts and Processes in Photography

Students develop skills in alternative photographic techniques. Processes covered include camera-less and pinhole photography, reticulation, non-silver printing, liquid emulsions, digital/traditional cross-manipulation. Students gain insights into the relationship between ideas and experimental ways of creating images. Spring only. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3172 - Digital Bookmaking

Students create handmade artists books using digital technologies. Projects build skills in idea development, use of text and image, digital image manipulation, digital printing, scanning and bookbinding. Students learn strategies for creating visual narratives through photography. Spring only. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3175 - Creative Commercial Applications

Students learn how photographers apply creative, technical and conceptual skills to commercial photographic practice. Topics covered may include editorial strategies; studio or location photography; commercial business practices; advertising photography; shooting and lighting techniques; and professional presentation. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3200 - Intermediate Painting and Drawing I

In this course students develop a body of work that expands on previous course work, to make the transition from assignment-based work to an independent body of work, and to prepare for advanced level study in painting and drawing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3210 - Intermediate Painting and Drawing II

In this course students continue to develop a body of work begun in Intermediate I, making the transition from assignment-based work to an independent body of work. Students are prepared in Intermediate II for advanced study in painting and drawing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3240 - Abstract Painting and Drawing

This course explores the methods of abstraction as applied to painting and drawing. Through developing a body of paintings and drawings, students will gain an understanding of complex formal structures in the development of their work. **Semester Hours:** 3 to 3

FINE 3250 - Sculpture: Contemporary Artists and Concepts

Provides the art student (sculpture majors and non- majors) with a focused opportunity to look at contemporary sculpture, installation and performance art and to examine the philosophical issues, processes and methods motivating practicing artists today. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3260 - Portraiture

This is an advanced course in portraiture using both drawing and painting media. Working from observation and focusing on the anatomical structure, the artist will gain a greater command in portraying complex expressions of the human face. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3300 - Painting, Drawing and the Printed Image

This course explores the role of technology in the history of painting/drawing alongside studio practice. Students produce works that explore personal symbolism through the combination of graphically printed and hand-produce marks while utilizing technology as a tool in painting/drawing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3340 - Topics in Studio Art

Max hours: 9 Credits. **Semester Hours:** 1 to 3

FINE 3350 - Topics in Multimedia

Specialized topics are offered in new multimedia technologies, theories, processes and conceptual thinking. Course titles are unique and changing semester to semester. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3400 - Introduction to Web Design and Digital Imaging

A studio course for non-design-majors that explores the design and creation of web sites for personal and professional use. Through critiques, discussion and research, students learn the basics of digital imaging and illustration as well as principles of user-interface design. Note: class may not be taken by Digital Design majors for credit toward degree. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3405 - Introduction to Digital Video

A studio course for non-design-majors that focuses on the basics of storytelling using digital video. Through class projects, screenings, discussions and readings, students explore the concepts of montage and strategies to develop compelling video for artistic and commercial purposes. Note: class may not be taken by Digital Design or Transmedia majors for credit toward degree. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3414 - Motion Design I

A course devoted to understanding time based imagery that focuses on utilizing video and motion graphics as a creative communication tool. Students create projects that explore topics using video, animation, time and motion using a non-linear digital editing software. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3415 - Design Studio I

In a design laboratory students learn to turn ideas into visual solutions through the application of design principles. Through lectures, writings, readings, discussion and critiques of projects assigned students will build visual literacy in relation to digital design. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3417 - Design Research

This seminar class examines methods and processes used by designers to better understand the content they are asked to communicate while addressing increasingly complex social, technological and economic problems. Class topics will include: user interface and experience design, demographics, storyboarding, branding, and concept mapping. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3424 - Interactive Media

A course exploring how interactive media can be used to convey a message and deliver information. Through critiques, discussion and research, students will learn principles of user interface design, aesthetics and structure including their potential cultural impact. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3434 - 3D Motion Design

A course devoted to 3D as a medium for creating works of art. Through demonstration, discussion, readings and project based explorations, students will learn to navigate and create in the 3D digital environment. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3438 - Text, Image and Electronic Art

A workshop-laboratory devoted to examining advanced concepts concerning the role of image and text within time-based and interactive media in design/artistic practices. Through creative investigations, readings and discussion students consider the new and expanding roles of text and image within the electronic sphere. Note: priority is given to Digital Design and Transmedia majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3444 - Interactive Media II

An intense course devoted to using interactivity as a medium for communicating ideas and information. Through creative investigations, readings and discussions, students will create projects that explore active viewer participation using vector/ raster animation, non-linear editing and viewer interaction. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3450 - Digital Painting

Digital Painting is a studio designed for student exploration of artistic expression using digital tools for traditional painting and illustration techniques. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3454 - Motion Design II

An intense course devoted to using time and motion as a medium for communicating ideas and information. Through creative investigations, readings and discussions students explore linkages between non-linear editing, animation and 3-dimensional animation as used in motion graphics. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3464 - Design Studio II

In a studio environment students will develop advanced projects using animation, interactivity and motion graphics to create innovative solutions to design problems. Students will learn to apply design theory to practice through discussion, critiques and assigned projects. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3474 - Narrative and Experience

A workshop-laboratory that focuses on narrative structure and its ability to create, control and manipulate viewer and user-experience. Through creative explorations, students will examine issues of identity, reception and audience and develop approaches to creating user-centered works of art/design. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3500 - Installation Art

Students learn to modify the way a particular space is experienced through material intervention in everyday public or private spaces. Material use ranges from everyday and natural materials to new media such as video, sound, performance, computers and the Internet. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3505 - Environmental Art

Students create site-specific work to exist in a certain place or describe a specific location. This involves temporary outdoor landscaping combined with sited sculptural elements and gallery exhibition. The formal, political, historical, public, ecological, geographical and social context of the urban/rural environment will be explored. Max hours: 9 Credits. **Semester Hours:** 3 to 3

FINE 3510 - Mold Design & Casting

Mold design and construction using rubber, alginate and plaster is introduced for casting in metal, resin, synthetics, concrete, plastic, paper and biodegradable materials. Drawing is included. Exploration of life size and small-scale castings. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3515 - Public Art

Students connect with professional/visiting artists installing public art works on campus for the Auraria Sculpture Park. Public relations, installation techniques, curatorial and administration skills are developed. Students learn to establish, maintain and promote the current sculpture collection on campus. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3520 - Sculpture: Contemporary Artists and Concepts

Provides the art student (sculpture majors and non-majors) with a focused opportunity to look at contemporary sculpture, installation and performance art, and to examine the philosophical issues, processes, and methods, motivating practicing artists today. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3525 - Modeling for Manufacture

The course will focus on contemporary professional practices and will cover topics such as project planning, an introduction to computer-aided design, fabrication, and outsourcing for the production of sculptural works. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3530 - Electronic Art

Video, sound and projection in contemporary sculpture. Introduction to sensors and motors and data visualization. A bridge between the digital laboratory and the sculpture studio in the context of object making, gallery and networked media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3535 - Sculpture Rendering

Students apply traditional and mixed media drawing skills, photography and digital reproduction to depict the sculptural object in two and three-dimensional space. Students learn to construct small-scale models and develop sculpture proposals. Drawing as sculpture medium is explored. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3550 - Iron Casting

Students learn traditional and innovative mold making techniques for casting iron. Casting techniques include working with found objects, lost wax, ceramic shell and sand molds. Furnace design and equipment fabrication are researched. Public performance is integral to the class. **Semester Hours:** 3 to 3

FINE 3630 - History of Photography

Students examine the history of photography from its origins to the present. Emphasis is placed on photography as an artistic medium. Topics covered include important movements, photographers, and technical innovations, as well as photographer's broader role in visual culture. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3631 - Photography: Theory and Criticism

Students investigate the historical texts of photographic criticism. Readings relate to photography as a fine art form, concentrating on 1970 to the present. Through discussions, readings and critical writing, students examine and appreciate the significance of photographic theory. Spring only. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3635 - Photography Now

Students investigate trends in fine art photography from 1990 through the present. By examining current topics, styles, and techniques students gain insights into contemporary photographic practice and its relationship to the history and future of the medium. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3640 - Topics in Art History

Max hours: 9 Credits. **Semester Hours:** 1 to 3

FINE 3810 - Digital Animation Studio: Set/Environment Design

A mid-program capstone studio course focuses on developing a project from preproduction through final product using a standard production pipeline model within a collaborative work environment. Students will design and create high-production value CG set/environment utilizing current 3D technologies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3815 - Storyboarding for Cinema and Game Previsualization

A lecture/lab course covering the foundations of the cinematic storyboarding process/techniques used for previsualization in the film, entertainment design and game industries. Students will develop skills/ knowledge for creating storyboards study and understand film theory, storytelling, film language and grammar, and filmic composition. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3820 - Digital Animation Techniques: Rigging and Animation

A lecture/lab course focused on mastery of skills for rigging and animating digital 3D objects/characters. Students explore the processes/techniques of animation rigging, its relationship to the skeletal/muscular system, articulated joints for manipulating character bones, muscle deformations, clothes and facial features. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3825 - Architectural Visualization

A lecture/lab course covering the 3D visualization of architectural projects. Students will develop skills/ knowledge about the techniques for creating realistic 3D models, texturing, lighting, and presentation. Special emphasis will be placed creating realism in modeling, materials, lighting, and professional renderings. Prereq: FINE 2810. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3830 - Digital Animation Technique: Character Animation

A lecture/lab course focused on mastery of skills for animating digital 3D objects/characters. Students explore the process/techniques of key frame/pose-to- pose animating considering character performance, thought, constraints and velocity with an emphasis on artistic excellence through applications of current 3D technologies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3835 - Procedural Workflows for 3D Animation

A lecture/lab course covering the procedural workflow methods for developing art for 3D animation, dynamics, VFX and motion graphics. Students will develop skills/ knowledge about the techniques for creating procedural 3D models, simulations, texturing, lighting, and rendering in FX Houdini. Intermediate computer skills required. Prereq: FINE 1820, 2810, 2820 and 2830. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3845 - Digital Animation Discovery and Preproduction Seminar

A seminar course focused on the development and preproduction phases for the DAC senior thesis short. The principle focus of the course will be story development, preproduction activities and organizing the production team and production pipeline for the thesis short. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3850 - Digital Animation Techniques: Dynamic Simulation

A lecture/lab course exploring the theory/techniques of dynamic and particle simulations for 3D content. Students explore how to develop effects (smoke, fire, steam, explosions) and dynamic materials (cloth), with an emphasis on artistic excellence through application of current 3D technologies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3939 - Internship

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Max hours: 12 Credits. **Semester Hours:** 1 to 3

FINE 3995 - Travel Study

Created for students doing travel study in a foreign country. Students register through the Office of International Education. Max hours: 15 Credits. **Semester Hours:** 1 to 15

FINE 4001 - Adv Illustration Studio I: Conceptual Illustration

Advanced Illustration Studio I is a conceptual illustration studio course that focuses students on assigned problems with constraints. Design-thinking methods and research are used to communicate a concept and discover the potentials of illustration media from plastic to digital. Prereq: FINE 3002 and 3260. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4002 - Adv Illustration Studio II: Professional Practice

In preparation for BFA Thesis, students refine their visual voice within a marketplace context. Students learn essential illustration marketing and business practices in order to develop a portfolio for a particular market or gallery setting. Prereq: FINE 4001 and 4020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4003 - Advanced Illustration Studio III: BFA Thesis

Advanced Illustration Studio III is a capstone course and the culmination of the Illustration Program. Students focus on the development of individual style and the refinement of a portfolio made ready for submission. Prereq: FINE 4002. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4020 - Anatomy for the Artist

An intensive study of the human figure, focusing on its structure, movement and proportions. Skeletal and muscular systems are explored in depth using the classic texts of artistic anatomy to enhance students' drawings from observation. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4050 - Design in a Global Workplace

Through intensive participatory workshops, study tours, and lectures this class examines the advantages of interdisciplinary community-based collaboration. This class also examines the complexities of cross discipline collaborations including multiple professional agendas, political and business establishments and the needs of the community. Max hours: 6 Credits. **Semester Hours:** 3 to 6

FINE 4100 - Painting & Drawing Theory & Practice

This course focuses on a study of critical art theory from 1900 to now and its effects on art practice. Students read, research, discuss writing, and produce artwork while forming connections between published critical theory and their own creative ideas. Note: Students missing the first 2 classes of this course may be administratively dropped. Students will not be allowed to add course if they have missed the first 2 classes. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4140 - Topics in Photography

Max hours: 9 Credits. **Semester Hours:** 1 to 3

FINE 4195 - Advanced Photography I

Students create an independent body of photographic work that integrates sophisticated concepts with technical mastery. Through critiques, presentations and discussions, students relate subject matter to historical and contemporary context. Students build expertise in the area of professional development in photography. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4196 - Advanced Photography II

Students create an independent body of photographic work that integrates sophisticated concepts with technical mastery. Through critiques, presentations and discussions, students relate subject matter to historical and contemporary context. Students build expertise in the area of professional development in photography. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4200 - Advanced Painting and Drawing I

This is the first level of advanced studies in painting/drawing where students create a body of work that expresses a more complex individual vision. Students learn to develop their artistic practice with self-directed processes in support of focused concepts. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4210 - Advanced Painting/Drawing II

This is the second level of advanced studies in painting/drawing in which students expand and refine their body of creative work in preparation for the BFA Thesis Exhibition and advance their artistic practice by articulating their sources, processes and concepts. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4340 - Topics in Studio Art

Max hours: 12 Credits. **Semester Hours:** 1 to 3

FINE 4350 - Topics in Digital Design

Specialized topics are offered in new design technologies, theories, processes and conceptual thinking. Course subjects are unique and changing semester to semester. Max hours: 6 Credits. **Semester Hours:** 1 to 3

FINE 4400 - Design Studio III

Set up as a collaborative studio, students learn to identify problems in the cultural and urban environment and design solutions that address those problems. Through discovery and research students will learn how design can be a catalyst for change. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4420 - Interactive Media III

An advanced interactive design workshop where students will use current industry tools to explore a range of topics such as emerging technologies, design interactive prototypes, physical computing, application design, experimental game design. Students will end the semester with a finished mobile or desktop application. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4425 - Motion III

An intense workshop-laboratory devoted to advanced motion design techniques. Through creative investigation, the study of motion theory and hierarchy, compositing, filming techniques, broadcast parameters, aesthetics, typography and technical issues students will develop the in-depth knowledge necessary to excel as design professionals. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4434 - Virtual Landscapes

In a studio environment students will explore place in relation to contemporary digital art practice. Through readings, lectures and production of projects assigned, students will create work that addresses the natural, urban and virtual environment. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4446 - Visualization & Infographics

In our data and information-rich society, visual representations of data can be useful for making sense of available information and fostering understanding. This course engages students in critique existing work and encourages a thoughtful design process toward creation of information graphics and simple data/information visualizations. Max hours: 6 Credits. **Semester Hours:** 3 to 3

FINE 4447 - Presenting Science

Sophisticated graphical components can help a viewing audience understand complex scientific information more clearly. This project-based learning course engages students in creation of thoughtful graphic explanations of science for the purpose of enhancing scientific presentations and audience comprehension. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4448 - BioMedical 3D Animation

3D Animation can be a powerful tool for telling stories rooted in science and medicine. This course provides opportunity to learn from existing animated works while honing skills in storyboarding, narrative and 3D animation with focus on biology, science, and health education. SMD students explore and research BFA thesis topics. Max hours: 6 Credits. **Semester Hours:** 3 to 3

FINE 4450 - Social Engagement by Design

Through lectures, discussions and conducting onsite research in international settings, students will become familiar with professional practitioners? Perspectives and experiences in the field of socially engaged design while interrogating current practices, policies, and expectations that inform community engagement and by Design. Max hours: 6 Credits. **Semester Hours:** 3 to 6

FINE 4480 - The Practice of Design

Through lectures, studio visits and research, students will engage the profession and examine the role of the artist as a designer. Projects will focus on resumes, interview techniques, portfolio and business practices to prepare students for entering the design profession. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4495 - Design Studio IV: Thesis

Through critique, research, and writing students will critically explore a thesis topic and develop professional quality visual solutions. Students will create work that expresses their personal artistic vision in relation to significant contemporary and historical artists and practice. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4500 - Electronic Performance

Digital and live performance. The investigation of "Live Media", screen based non-local performance, and social/networked media in conjunction with live viewer engaged performance. Examination of social, political and personal concerns through conceptual idea, time, space, and a relationship between performer and audience. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4505 - Sculptural Rendering

The refinement of personal ideology and practice with traditional or electronic/digital techniques. Each individual problem solves to determine the conceptual basis of their art making in preparation for BFA Thesis and Advanced Sculpture. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4510 - Advanced Sculpture

Individual decision-making is stressed in developing a strong body of work. Competent technical skills and conceptual ideology are expanded to achieve complete visual experiences and development of conceptual ideas. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4520 - Performance/Installation in Fine Art

Individual and collaborative projects, pieces, and events that develop one's attitudes, trust, and abilities to express through the awareness of space, environment, and the human condition and body. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4522 - Interdisciplinary Art in Ireland

The interdisciplinary course introduces students to the methods and concepts of contemporary site-specific art as critical theory through lecture and critique and as practice in the rural/urban landscape and studio along Ireland's County Clare coastline in the Burren region. Max hours: 6 Credits. **Semester Hours:** 6 to 6

FINE 4524 - Topics in Art History

Max hours: 9 Credits. **Semester Hours:** 3 to 3

FINE 4525 - Museum Studies

A seminar about museums and art galleries as institutions for the preservation and exhibition of cultural materials. Through writing assignments, discussions, site visits, and analysis, students will demonstrate knowledge and critical thinking on the display of art. Max hours: 6 Credits. **Semester Hours:** 3 to 3

FINE 4600 - History of Modern Design:Industrial Revolution-Present

A lecture course involving the history of design from the Industrial Revolution to the present. The course will address the graphic design, typography, architecture, "Decorative arts", and new media from each period/major design movement in that time frame. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4610 - Pre-Columbian Art

A lecture course on the art and architecture of Mesoamerica and the Andes before the Spanish conquest. Through visual analysis, vocabulary acquisition, discussion, exams, and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Cross-listed with FINE 5610. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4620 - American Art

A lecture course on the art of the United States from colonial times to the present. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4625 - Studio Creative Process

Provides students with an understanding of the artistic creative process which is learned through an examination of pre-studio, studio and post-studio practices. Prereq: Must have at least two art history survey courses. Max hours: 6 Credits. **Semester Hours:** 3 to 3

FINE 4630 - History of Latin American Art:1520-1820

A lecture course studying Latin American art of 1520-1820, including major artists and periods. Through visual analysis, vocabulary acquisition, exams, and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the arts. Cross-listed with FINE 5630. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4632 - Media History and Aesthetics

This survey class will present the current and historic impact of media technology on the arts and professional design practice. Through lectures, research and discussion students will become familiar with issues specific to digital media and design. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4650 - Nineteenth-Century Art

A lecture course on European movements from the French Revolution through Postimpressionism. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4660 - Twentieth-Century Art

A lecture course on art and architecture from Postimpressionism to the year 2000. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4670 - Greek and Roman Art

A lecture course on art and architecture from ancient Greece and Rome. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4680 - Art of the Middle Ages

A lecture course on western European art and architecture from the fourth to the fourteenth centuries. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4700 - Italian Renaissance Art

A lecture course about developments in Italian Renaissance art and architecture. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4705 - Northern Renaissance Art

A lecture course about developments in Northern Renaissance art and architecture. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4710 - Baroque and Rococo Art

A lecture course on Italy, Spain, France, England, and the Netherlands during the seventeenth and eighteenth centuries. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4712 - Applied Digital Media

This lab course provides students with the opportunity to execute practical applications in the use of digital 3D media for commercial and/or non-profit venue. Max hours: 3 Credits. **Semester Hours:** 1 to 3

FINE 4730 - Arts of Japan

A lecture course on selected themes and periods in Japanese art. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4750 - Arts of China

A lecture course on selected themes and periods in the arts and architecture of China. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4770 - Art of India and Southeast Asia

A lecture course on selected themes and periods in the arts of India and Southeast Asia. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4790 - Methods in Art History

A seminar about the various research methodologies in the history of art. Through reading, discussion, research, writing assignments, and presentations, students will demonstrate knowledge of art historiography. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4810 - Digital Animation Studio: Animation Production I

First semester of a yearlong capstone focuses on production of the BFA thesis short. As a team, students assume key management/production roles to organize, produce and complete a high-production value animated short and student "demo reel" with real-world production pipeline. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4820 - Digital Animation Studio: Animation Production Thesis

This third and final course in the three-semester capstone series focuses on the completion and marketing of the DAC short film, preparation for the BFA thesis defense, and development of the student's self-promotion demo reel and professional package (resume, website). Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4840 - Independent Study: FINE

Max hours: 12 Credits. **Semester Hours:** 1 to 3

FINE 4950 - Studio BFA Thesis

Studio: BFA Thesis involves the preparation, exhibition and critical faculty response to students' Creative work. Course work focuses on contemporary trends in the arts, the commerce of the arts and the professional practices necessary to an artist? Self-promotion. Max hours: 3 Credits.

Semester Hours: 3 to 3

FINE 4951 - Bachelor of Art Thesis

A seminar that emphasizes creative and original research through the composition of a substantial paper on a topic in art history. Through discussion, presentations, and individual readings, students will demonstrate skills in research, writing, and critical thinking. Max hours: 6 Credits. **Semester Hours:** 3 to 3

FINE 4990 - Contemporary Art: 1960 to Present

A lecture course about developments in art and architecture since 1960. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits.

Semester Hours: 3 to 3

FINE 4995 - Travel Study

Created for students doing travel study in a foreign country. Students register through the Office of International Education. Max hours: 15 Credits. **Semester Hours:** 1 to 15

FINE 5020 - Graduate Anatomy for Artists

An intensive figure drawing course that focuses on structure, movement and proportions. Skeletal and muscular systems are studied using the classic texts of artistic anatomy. A research paper examining the figure in relation to architecture, perspective and pictorial narrative is also required. Note: Students missing the first 2 classes of this course may be administratively dropped. Students will not be allowed to add course if they have missed the first 2 classes.

Prereq: Graduate Level Standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5190 - Graduate Photography

Graduate students create an independent body of photographic work that integrates sophisticated concepts with technical mastery. Through critiques, presentations and discussions, students relate subject matter to historical and contemporary context. Students build expertise in professional development in photography. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5200 - Graduate Painting/Drawing I

An intensive painting course for students who want to further their development of an independent body of work beyond the advanced level. Students will produce mature work using self-directed means of rigorous artistic productivity based on previous bodies of work. Note: Students missing the first 2 classes of this course may be administratively dropped. Students will not be allowed to add course if they have missed the first 2 classes. Prereq: Graduate level standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5210 - Graduate Painting/Drawing II

An intensive painting course for students who want to further their development of an independent body of work beyond the advanced level. Students will produce mature work using self-directed means of rigorous artistic productivity based on previous bodies of work. Note: Students missing the first 2 classes of this course may be administratively dropped. Students will not be allowed to add course if they have missed the first 2 classes. Prereq: Graduate level standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5340 - Topics in Studio Art

Max hours: 9 Credits. **Semester Hours:** 1 to 3

FINE 5350 - Topics in Multimedia

Specialized topics are offered in new multimedia technologies, theories, processes and conceptual thinking. Course titles are unique and changing semester to semester. Prereq: Multimedia majors must have completed all required FINE 2000 level classes with a 2.75 GPA or have passed a portfolio review. Other majors must have permission of instructor as course prerequisites may vary depending on course subject matter. Priority seating is given to multimedia majors. Max hours: 6 Credits. **Semester Hours:** 3 to 3

FINE 5446 - Visualization & Infographics

In our data and information-rich society, visual representations of data can be useful for making sense of available information and fostering understanding. This course engages students in critique existing work and encourages a thoughtful design process toward creation of information graphics and simple data/information visualizations. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5447 - Presenting Science

Sophisticated graphical components can help a viewing audience understand complex scientific information more clearly. This project-based learning course engages students in creation of thoughtful graphic explanations of science for the purpose of enhancing scientific presentations and audience comprehension. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5448 - BioMedical 3D Animation

3D Animation can be a powerful tool for telling stories rooted in science and medicine. This course provides opportunity to learn from existing animated works while honing skills in storyboarding, narrative and 3D animation with focus on biology, science, and health education. Max hours: 6 Credits. **Semester Hours:** 3 to 3

FINE 5450 - Social Engagement by Design

Through lectures, discussions and conducting onsite research in international settings, students will become familiar with professional practitioners? Perspectives and experiences in the field of socially engaged design while interrogating current practices, policies, and expectations that inform community engagement and by Design. Max hours: 6 Credits. **Semester Hours:** 3 to 6

FINE 5500 - Graduate Sculpture I

A tutorial format which asks students to be self-directed. Conceptual ideology is expanded through research connected to projects. Portfolio documentation and presentation are required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5510 - Graduate Sculpture II

A self-directed format where students engage in mentored individualized projects as an extension of FINE 5500, Graduate Sculpture I. Conceptual ideology is expanded through research connected to projects. Portfolio documentation and presentation are required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5522 - Interdisciplinary Art in Ireland

The interdisciplinary course introduces students to the methods and concepts of contemporary site-specific art as critical theory through lecture and critique and as practice in the rural/urban landscape and studio along Ireland's County Clare coastline in the Burren region. Max hours: 6 Credits. **Semester Hours:** 6 to 6

FINE 5524 - Topics in Art History

Max hours: 9 Credits. **Semester Hours:** 3 to 3

FINE 5525 - Museum Studies

A seminar about museums and art galleries as institutions for the preservation and exhibition of cultural materials. Through writing assignments, discussions, site visits, and analysis, students will demonstrate knowledge and critical thinking on the display of art. Max hours: 6 Credits. **Semester Hours:** 3 to 3

FINE 5600 - History of Modern Design:Industrial Revolution-Present

A lecture course involving the history of design from the Industrial Revolution to the present. The course will address the graphic design, typography, architecture, "Decorative arts", and new media from each period/major design movement in that time frame. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5610 - Pre-Columbian Art

A lecture course on the art and architecture of Mesoamerica and the Andes before the Spanish conquest. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5620 - American Art

A lecture course on the art of the United States from colonial times to present. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5625 - Studio Creative Process

Provides students with an understanding of the artistic creative process which is learned through an examination of pre-studio, studio and post-studio practices. Prereq: Must have at least two art history survey courses. Max hours: 6 Credits. **Semester Hours:** 3 to 3

FINE 5630 - History of Latin American Art:1520-1820

A lecture course studying Latin American art of 1520-1820, including major artists and periods. Through visual analysis, vocabulary acquisition, exams, and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the arts. Cross-listed with FINE 4630. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5632 - History of Digital Media

Art historical survey and critical discourse of digital and electronic multimedia that covers the influences which have shaped this medium, its major contributors, the technological innovations and cultural impacts on society as an art form and commercial market form. Prereq: Junior standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5644 - Topics in Art History

Max hours: 9 Credits. **Semester Hours:** 1 to 3

FINE 5650 - Nineteenth-Century Art

A lecture course on European movements from the French Revolution through Postimpressionism. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5660 - Twentieth-Century Art

A lecture course on art and architecture from Postimpressionism to the year 2000. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5670 - Greek and Roman Art

A lecture course on art and architecture from ancient Greece and Rome. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5680 - Art of the Middle Ages

A lecture course on western European art and architecture from the fourth to the fourteenth centuries. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5700 - Italian Renaissance Art

A lecture course about developments in Italian Renaissance art and architecture. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5705 - Northern Renaissance Art

A lecture course about developments in Northern Renaissance art and architecture. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5710 - Baroque and Rococo Art

A lecture course on Italy, Spain, France, England, and the Netherlands during the seventeenth and eighteenth centuries. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5730 - Arts of Japan

A lecture course on selected themes and periods in Japanese art. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5750 - Arts of China

A lecture course on selected themes and periods in the arts and architecture of China. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5770 - Art of India and Southeast Asia

A lecture course on selected themes and periods in the arts of India and Southeast Asia. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5790 - Methods in Art History

A seminar about the various research methodologies in the history of art. Through reading, discussion, research, writing assignments, and presentations, students will demonstrate knowledge of art historiography. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5800 - Art Seminar

Required of Fine Arts majors in the B.F.A. and B.A. studio degree tracks majoring in Painting/Drawing, Photography or Sculpture. Course work covers research into professional practices, business practices, creative practice and career development. Note: Students missing the first 2 classes of this course may be administratively dropped. Students will not be allowed to add course if they have missed the first 2 classes. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5825 - 3D Architectural Visualization

A lecture/lab course covering the 3D visualization of architectural projects. Students will develop skills/ knowledge about the techniques for creating realistic 3D Architectural visualization. Special emphasis will be placed creating realism in modeling, materials, lighting, and professional renderings. Intro level 3D/CAD skills req. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5840 - Independent Study: FINE

Max hours: 12 Credits. **Semester Hours:** 1 to 3

FINE 5939 - Internship

Max hours: 12 Credits. **Semester Hours:** 1 to 6

FINE 5990 - Contemporary Art:1960-Present

A lecture course about developments in art and architecture since 1960. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5995 - Travel Study

Created for students doing travel study in a foreign country. Students register through the Office of International Education. Max hours: 15 Credits. **Semester Hours:** 1 to 15

Foundations

FNDS 5000 - Teaching as a Profession

General foundations of education course for pre-service candidates. Provides a broad overview of the historical, sociological, philosophical, and legal foundations of education. Includes an examination of contemporary issues in schooling, school organizational patterns, and the professional rights and responsibilities of the teacher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNDS 5050 - Critical Issues in American Education

Examines the social values and forces in American society which shape or influence the aims, philosophies, methods, content, and problems of the American educational enterprise. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNDS 5100 - Education in Other Countries

Comparative examination of the political, historical, philosophical, sociological, economic, religious and other foundational aspects of education in several selected countries. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNDS 5410 - History and Philosophy of Modern Education

Examines Western intellectual heritage from the 16th to the 20th century; tracing corresponding development of educational theory and practice and its continuing impact on modern society. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNDS 5420 - History and Philosophy of Education: Twentieth Century America

Designed around selected themes from 20th century American social, political, and economic history. Students examine such issues as immigration, racism war, and social reform to identify the larger societal forces, ideas, and values that have shaped contemporary American education. Overriding purpose of the course is the development of an enlarged frame of reference from which to exercise professional judgment. Cross-listed with FNDS 7420. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNDS 5500 - Contemporary Philosophies of Education

Provides an examination of selected contemporary philosophies and their impact on educational thought and practice. Students are challenged to determine their own educational philosophy, while yet recognize and respect the variety of beliefs of educators. Students are asked to re-examine current educational issues from within the perspectives of different philosophies. Cross-listed with FNDS 7500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNDS 5800 - Seminar: Foundations of Education

An in-depth exploration of topics, issues, and ideas largely generated by students through their other course experiences in foundations. Prereq: At least one graduate level course in foundations and permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNDS 5810 - Special Topics

Variable credit courses designed to deal with specific areas of content not covered in-depth in other program offerings; e.g., the social structure of the classroom. Max hours: 3 Credits. **Semester Hours:** 1 to 3

FNDS 5840 - Independent Study: FNDS

Max hours: 4 Credits. **Semester Hours:** 1 to 4

FNDS 5920 - Readings in Foundations of Education

Critical examination of very recent publications in the field of foundations: books and professional journal publications. Prereq: At least one graduate-level course in foundations and permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNDS 6350 - Seminar: Foundations of Education

Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNDS 6600 - Special Topics: Laboratory in Educational Leadership and Innovation

Laboratories are organized by professors to engage students in on-going research programs. They provide opportunities for students to extend and apply knowledge and skills developed in course work. The laboratories enable students to complete portfolio requirements and work on doctoral dissertations. Prereq: Admission to M.A. or PhD programs; permission of instructor. Cross-listed with FNDS 7600. Max hours: 6 Credits. **Semester Hours:** 1 to 6

FNDS 6920 - Readings in Foundations of Education

Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNDS 6950 - Master's Thesis

Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNDS 7370 - Dissertation Seminar

Max hours: 1 Credit. **Semester Hours:** 1 to 1

FNDS 7420 - History and Philosophy of Education: Twentieth Century America

Designed around selected themes from 20th century American social, political and economic history. Students examine such issues as immigration, racism, war, and social reform to identify the larger societal forces, ideas, and values that have shaped contemporary American education. Overriding purpose of the course is the development of an enlarged frame of reference from which to exercise professional judgment. Cross-listed with FNDS 5420. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNDS 7500 - Contemporary Philosophies of Education

Provides an examination of selected contemporary philosophies and their impact on educational thought and practice. Students are challenged to determine their own educational philosophy, while yet recognize and respect the variety of beliefs of educators. Students are asked to re-examine current educational issues from within the perspectives of different philosophies. Cross-listed with FNDS 5500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNDS 7600 - Special Topics: Laboratory in Educational Leadership and Innovation

Laboratories are organized by professors to engage students in on-going research programs. They provide opportunities for students to extend and apply knowledge and skills developed in course work. The laboratories enable students to complete portfolio requirements and work on doctoral dissertations. Prereq: Admission to M.A. or PhD programs; permission of instructor. Cross-listed with FNDS 6600. Max hours: 6 Credits. **Semester Hours:** 1 to 6

FNDS 7840 - Independent Study: FNDS

Max hours: 4 Credits. **Semester Hours:** 1 to 4

FNDS 7930 - Teaching Internship in Foundations of Education

Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNDS 8990 - Doctor of Philosophy Dissertation

Max hours: 10 Credits. **Semester Hours:** 3 to 10

FNDS 8991 - Doctor of Education Dissertation

Max hours: 10 Credits. **Semester Hours:** 3 to 10

French

FREN 1000 - Introduction to Cultures of the French- Speaking World

Introduces students to the many cultures of the French-speaking world. Taught in English for accessibility to students from different colleges at the University. The countries studied are: France, its overseas departments (Guadeloupe and Martinique) and territories (Tahiti); Quebec; Senegal; and other African countries. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-AH1. **Semester Hours:** 3 to 3

FREN 1010 - Beginning French I

Basic grammatical and syntactic structures are introduced, together with an elementary vocabulary and cultural items that allow the student to carry on simple conversations in French. Note: Students may not enroll in any lower division (1000/2000) language skills course in which their level of proficiency exceeds that of the course. Students placing into a course through any means other than following the regular sequence must consult with an appropriate faculty member of the Dept. of Modern Languages prior to enrollment. No previous study of French is required. Max hours: 5 Credits. **Semester Hours:** 5 to 5

FREN 1020 - Beginning French II

(Continuation of FREN 1010.) More complex grammatical structures are introduced, and literary and cultural readings are added. Elementary vocabulary and cultural awareness are expanded to enable the student to carry on more complicated conversations. Note: Students may not enroll in any lower division (1000/2000) language skills course in which their level of proficiency exceeds that of the course. Students placing into a course through any means other than following the regular sequence must consult with an appropriate faculty member of the Dept. of Modern Languages prior to enrollment. Prereq: FREN 1010 with a grade of 'C' (2.0) or higher. Max hours: 5 Credits. **Semester Hours:** 5 to 5

FREN 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

FREN 2110 - Intermediate French I: Grammar Review, Reading and Composition

Designed to further develop all the language skills, with particular emphasis on reading and writing, and to further continue students' introduction to French culture. Students review grammar and vocabulary, read and discuss *Le Petit Prince*, and express their reactions to the text both orally and in writing. Note: Students may not enroll in any lower division (1000/2000) language skills course in which their level of proficiency exceeds that of the course. Students placing into a course through any means other than following the regular sequence must consult with an appropriate faculty member of the Dept. of Modern Languages prior to enrollment. Prereq: FREN 1020 with a grade of 'C' (2.0) or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 2120 - Intermediate French II: Grammar Review and Conversation

Designed to further develop all the language skills, with particular emphasis on speaking, and to continue students' introduction to French culture. Students review grammar and vocabulary, read and discuss short cultural texts and participate in oral activities intended to increase communication skills. Note: Students may not enroll in any lower division (1000/2000) language skills course in which their level of proficiency exceeds that of the course. Students placing into a course through any means other than following the regular sequence must consult with an appropriate faculty member of the Dept. of Modern Languages prior to enrollment. Prereq: FREN 2110 with a grade of 'C' (2.0) or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

FREN 2995 - Travel Study

An intensive language and culture course, taught in Amiens, France. Students are enrolled in either beginning, intermediate, or advanced courses at the University of Picardie/Jules Verne. Afternoon sessions and weekends include excursions to Paris, the northern coasts, lectures, movies, business tours, discussions, and field trips. Register through the Office of International Education. Prereq: FREN 2110. Max hours: 15 Credits. **Semester Hours:** 1 to 6

FREN 3010 - French Phonetics and Pronunciation

Helps students acquire speech habits through knowledge of phonetics. Topics include the function of the speech organs, accurate production and recognition of sound, and the use of phonetic symbols. Note: Students with native or near-native level proficiency in French must consult with the French advisor before enrolling in this course. These students may, in some cases, take this course. The instructor of the course and/or the French advisor reserve the right to determine the level of linguistic proficiency of the student and his or her admission to the class by means of an oral interview and/or placement exam scores. Prereq: FREN 2120 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 3020 - Oral Practice

Conversation course, using dialogues, debates, small-group discussion, and short oral presentations to improve fluency in spoken French and to build vocabulary. Discussions center around current issues. Note: Students with native or near-native-level proficiency will not be allowed to take FREN 3020. The instructor of the course and/or the French advisor reserve the right to determine the level of linguistic proficiency of the student and his or her admission to the class by means of an oral interview and/or placement exam scores. Prereq: FREN 2120 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 3050 - Advanced Grammar and Composition

Rigorous review of grammar (including past and future tenses, conditional mood and nominal phrase), along with development of writing skills through analysis and discussion of selections from French writers. Through questions and written exercises, students familiarize themselves with vocabulary, spelling, syntax and grammar. Note: May be taken before or after FREN 3060. Students with native or near-native level proficiency in French must consult with the French advisor before enrolling in this course. These students may, in some cases, take this course. The instructor of the course and/or the French advisor reserve the right to determine the level of linguistic proficiency of the student and his or her admission to the class by means of an oral interview and/or placement exam scores. Prereq: FREN 2120 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 3060 - Advanced French Language Skills

Rigorous review of grammar (including subjunctive, interrogative, verbal phrase and passive voice), along with development of writing skills through analysis and discussion of selections from French writers. Through questions and written exercises, students familiarize themselves with vocabulary, spelling, and grammar. Note: May be taken before or after FREN 3050. Students with native or near-native level proficiency in French must consult with the French advisor before enrolling in this course. These students may, in some cases, take this course. The instructor of the course and/or the French advisor reserve the right to determine the level of linguistic proficiency of the student and his or her admission to the class by means of an oral interview and/or placement exam scores. Prereq: FREN 2120 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 3112 - Survey of French Literature I

Introduces survey of the major literary trends and prominent writers of French literature from 842 A.D. to the end of the 18th century. Note: May be taken before or after FREN 3122. Prereq: FREN 2120 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 3120 - French Cultural Identities: Myths and Realities

The self-assured demeanor of the average French man or woman both attracts and confounds. In fact, a French person's behavior -- or that of the French government -- can seem impossible to decode if not understood within an authentically French context. This course examines that context and explores how the French view everyday life. Includes analysis of classic French films. Prereq: FREN 2120 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 3122 - Survey of French Literature II

Introduces survey of the major literary trends (romanticism, realism and existentialism) and writers of the 19th and 20th centuries. Students become acquainted with prominent writers of the period such as Beauvoir, Chateaubriand, Hugo, Balzac, Flaubert, Proust, Camus and Sartre. Note: May be taken before or after FREN 3112. Prereq: FREN 2120 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 3130 - Current Topics of the French-Speaking World

Combines discussion and writing on political, economic, and social conditions in contemporary France and the Francophone world. Articles from current French newspapers, news magazines, television broadcasts, and the World Wide Web are analyzed for a better understanding of modern French culture. Prereq: FREN 2120 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 3140 - Contemporary Francophone Cultures

Through the reading of short stories and cultural texts, engages students in the exploration of cultures of the Francophone world. Addresses political, economic and geographic status of each region as well as societal identity, immigration, the individual and cultural identity. Prereq: FREN 2120 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 3200 - The Francophone World in the Post-Colonial Era

Focuses on the many Francophone regions of the world, including (but not limited to) France, North and West Africa, Southeast Asia, and the Caribbean, and surveys a wide span of subject matter as it pertains to the post-colonial situations in these regions. Taught in English. Prereq: Sophomore standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 3840 - Independent Study: FREN

Max hours: 6 Credits. **Semester Hours:** 1 to 3

FREN 3939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 3

FREN 3970 - Special Topics

Varying topics in French and Francophone language, literature and culture appropriate to the 3000 level, not otherwise covered by regular courses. Prereq: FREN 2120 or equivalent. Note: May be taken more than once, provided that the topic is different each time. Max hours: 9 Credits. **Semester Hours:** 3 to 3

FREN 3995 - Travel Study

An intensive language and culture course, taught in Amiens, France. Students are enrolled in either beginning, intermediate, or advanced courses at the University of Picardie/Jules Verne. Afternoon sessions and weekends include excursions to Paris, the northern coasts, lectures, movies, business tours, discussions, and field trips. (Register through the Office of International Education.) Prereq: FREN 2120 or equivalent. Max hours: 15 Credits. **Semester Hours:** 3 to 6

FREN 4010 - Advanced Composition: Stylistics

Focuses on improvement of writing skills and development of the student's ability to compose logically and convincingly. The writing styles to be studied include: narration, description, portrait, persuasive essay and report. Prereq: FREN 3050 or 3060 plus one other 3000-level French course or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 4050 - Advanced French for Business

Concentrates on the technical language necessary to meet the economic and commercial needs of the modern world. Prepares students for the practical certificate of business and economic French of the Paris Chamber of Commerce. Note: Students with native or near-native level proficiency in French must consult with the French advisor before enrolling in this course. These students may, in some cases, take this course. The instructor of the course and/or the French advisor reserve the right to determine the level of linguistic proficiency of the student and his or her admission to the class by means of an oral interview and/or placement exam scores. Prereq: FREN 3050 or 3060 plus one other 3000-level French course or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 4082 - Introduction to Translation

Introduces the methodology and practice of written translation from English to French/French to English. Students will learn techniques on how to avoid word by word translation, faulty sentence structure and anglicisms by focusing on grammar, syntax and vocabulary. Note: Students must demonstrate third-year competence and advanced writing skills in English. Students with native or near-native level proficiency in French must consult with the French advisor before enrolling in this course. These students may, in some cases, take this course. The instructor of the course and/or the French advisor reserve the right to determine the level of linguistic proficiency of the student and his or her admission to the class by means of an oral interview and/or placement exam scores. Prereq: FREN 3050 or 3060 and one other upper-division French class. Cross-listed with FREN 5082. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 4200 - French Civilization Through the Nineteenth Century

Development of French culture and civilization from a historical perspective, beginning with the origins of France and continuing through the 19th century. Includes historical background, sciences and techniques, daily life, the arts, literature and philosophy, and religion. Note: May be taken before or after FREN 4210. Prereq: Two 3000-level courses or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 4210 - French Civilization - Twentieth and Twenty-First Centuries

(Continuation of FREN 4200) The development of French culture and civilization in a historical perspective from the beginning of the 20th century to the present. Includes historical background, sciences and techniques, daily life, the arts, literature and philosophy, and religion. Note: May be taken before or after FREN 4200. Prereq: Two 3000-level courses or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 4310 - Seventeenth Century Literature

An in-depth study of the century considered to be the pinnacle of French theatre. Includes plays by Racine, Moliere and Corneille, as well as poetry by Lafontaine and Boileau. Prereq: FREN 3112 or 3122 plus one other 3000-level French course or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 4360 - Eighteenth Century Novel, Theater and Poetry

Studies several novels and plays characteristic of the 18th century as well as some of the more famous poems. Includes Diderot, Rousseau, Voltaire, Marivaux and Laclos. Prereq: FREN 3112 or 3122 plus one other 3000-level French course or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 4430 - Nineteenth Century French Novel

Development of the French novel during the 19th century. Includes such writers as Stendhal, Hugo, Balzac, George Sand, Flaubert, Maupassant and Zola. Prereq: FREN 3112 or 3122 plus one other 3000-level French course or permission of instructor. Cross-listed with FREN 5430. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 4480 - Twentieth Century French Novel

Represents novels of the 20th century, a period of great innovation in the French novel. Authors generally treated are Camus, Giono, Ernaux and Duras. Prereq: FREN 3112 or 3122 plus one other 3000-level French course or permission of instructor. Cross-listed with FREN 5480. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 4490 - Twentieth Century French Theater

Surveys the major movements in French literature of the 20th century as represented in the theater arts. Such authors as Jarry, Artaud, Apollinaire, Giraudoux, Sartre, and Beckett are discussed. Prereq: FREN 3112 or 3122 plus one other 3000-level French course or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 4500 - Black Literature of the French-Speaking World

Black poetry, drama, and novel of the French-speaking world in the 20th century. Prereq: FREN 3112 or 3122 plus one other 3000-level French course or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 4510 - French Women Writers

Designed to explore writings by French and Francophone women from the Middle Ages to the present. Addresses the question of what it means to be a woman and want to write. The selections include a wide variety of genres: autobiographical writings, stories, poems, manifestos, letters, political and historical documents. Prereq: FREN 3112 or 3122 plus one other 3000-level French course or permission of instructor. Cross-listed with FREN 5510 and WGST 4511/5511. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 4600 - History of the French Language

Studies phonological, morphological, and syntactic changes in the language of Gaul from Latin to modern French. Prereq: FREN 3010 and FREN 3050 or FREN 3060 or permission of instructor. Cross-listed with FREN 5600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 4840 - Independent Study: FREN

Max hours: 12 Credits. **Semester Hours:** 1 to 3

FREN 4970 - Special Topics

Varying topics in French and Francophone language, literature and culture appropriate to the 4000 level, not otherwise covered by regular courses. Prereq: FREN 2120 or equivalent. Note: May be taken more than once, provided that the topic is different each time. Max hours: 9 Credits. **Semester Hours:** 3 to 3

FREN 4995 - Travel Study

For students doing travel study in France; register through the Office of International Education. Cross-listed with FREN 5995. Max hours: 15 Credits. **Semester Hours:** 1 to 15

FREN 5082 - Introduction to Translation

Introduces the methodology and practice of written translation from English to French/French to English. Students will learn techniques on how to avoid word by word translation, faulty sentence structure and anglicisms by focusing on grammar, syntax and vocabulary. Note: Students must demonstrate third-year competence and advanced writing skills in English. Students with native or near-native level proficiency in French must consult with the French advisor before enrolling in this course. These students may, in some cases, take this course. The instructor of the course and/or the French advisor reserve the right to determine the level of linguistic proficiency of the student and his or her admission to the class by means of an oral interview and/or placement exam scores. Prereq: Graduate standing in French. Cross-listed with FREN 4082. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 5200 - French Civilization Through the Nineteenth Century

Development of French culture and civilization from a historical perspective, beginning with the origins of France and continuing through the 19th century. Includes historical background, sciences and techniques, daily life, the arts, literature and philosophy, and religion. Prereq: Graduate standing in French. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 5210 - French Civilization - Twentieth and Twenty-First Centuries

(Continuation of FREN 5200) The development of French culture and civilization in a historical perspective from the beginning of the 20th century to the present. Includes historical background, sciences and techniques, daily life, the arts, literature and philosophy, and religion. Prereq: Graduate standing in French. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 5430 - Nineteenth Century French Novel

Development of the French novel during the 19th century. Includes such writers as Stendhal, Hugo, Balzac, George Sand, Flaubert, Maupassant and Zola. Prereq: Graduate standing in French. Cross-listed with FREN 4430. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 5480 - Twentieth Century French Novel

Represents novels of the 20th century, a period of great innovation in the French novel. Authors generally treated are Camus, Giono, Ernaux and Duras. Prereq: Graduate standing in French. Cross-listed with FREN 4480. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 5510 - French Women Writers

Designed to explore writings by French and Francophone women from the Middle Ages to the present. Addresses the question of what it means to be a woman and want to write. The selections include a wide variety of genres: autobiographical writings, stories, poems, manifestos, letters, political and historical documents. Prereq: FREN 3112 or 3122 plus one other 3000-level French course or permission of instructor. Cross-listed with FREN 4510 and WGST 4511/5511. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 5600 - History of the French Language

Studies phonological, morphological, and syntactic changes in the language of Gaul from Latin to modern French. Prereq: Graduate standing in French. Cross-listed with FREN 4600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 5840 - Independent Study: FREN

Max hours: 3 Credits. **Semester Hours:** 1 to 3

FREN 5995 - Travel Study

For students doing travel study in France; register through the Office of International Education. Cross-listed with FREN 4995. Max hours: 15 Credits. **Semester Hours:** 1 to 15

Geography

GEOG 1102 - World Regional Geography

Analysis of the relationships of man and the landscape based on geographic distributions in the world. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS2. **Semester Hours:** 3 to 3

GEOG 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

GEOG 1202 - Introduction to Physical Geography

The science that studies the processes, forms, and spatial or geographic structures of natural systems operating at or near the earth's surface, including weather, climate, and landform processes. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC2. **Semester Hours:** 3 to 3

GEOG 1302 - Introduction to Human Geography

Systematic introduction to basic concepts and approaches in human geographic analysis. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 1332 - Topics in Science

A series of five-week modules on various topics in physical geography. Section 001. Violent Storms. Analysis of the causes, characteristics, and regional patterns of thunderstorms, tornadoes and hurricanes, emphasizing the hazards associated with each type of storm. Section 002.

Elementary Surveying. Introduces the various techniques of running a traverse, location of points by intersection and resection, determination of distance by pacing, chaining, stadia and trigonometry and carrying of elevations. Section 003. Basic Navigation. Introduces the principles of navigation using the sun as the celestial body. Emphasis is on determining latitude and longitude at solar noon. Section 004. Earthquakes. The characteristics, causes, and results of earth movements along faults. Section 005. Waves and Beaches. Analysis of wind-generated waves in the open ocean and the changes that occur as waves enter shallow water, forming surf. The tides and seismic sea waves are discussed for comparison. Sec Max hours: 9 Credits.

Semester Hours: 1 to 1

GEOG 1602 - Introduction to Urban Studies

Surveys the process of urbanization, emphasizing the development of American cities and using Denver as an example. Topics covered include the evolution of metropolitan form and land use patterns, cultural landscape formation, city planning and architectural design, and urban social and policy issues. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS2. **Semester Hours:** 3 to 3

GEOG 2080 - Introduction to Mapping and Map Analysis

Studies major elements in the preparation of thematic maps, including sources of data collection and manipulation of data, and cartographic techniques for display of data. Max hours: 3 Credits.

Semester Hours: 3 to 3

GEOG 2202 - Natural Hazards

Surveys those physical phenomena that often cause substantial damage when they occur in areas of human settlement. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS2. **Semester Hours:** 3 to 3

GEOG 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

GEOG 3100 - Geography of Colorado

An analysis of the physical environment, history of settlement, and resource base of Colorado in relation to present economic patterns of the state. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 3110 - Geography of North America

Systematic study of the physical, cultural, economic, and political relationships that shape the landscape of the United States, Canada, Greenland, and the U.S.-Mexico Borderlands. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 3120 - Geography of Europe

An analysis of the physical environment, resource utilization, economic development and cooperation in Europe. A cultural and political geography which focuses on continuity and change in Eastern and Western Europe. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 3130 - Central America and the Caribbean

Surveys the physical environment and cultural development of Central America and the Caribbean Islands. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 3140 - Geography of South America

The physical environment, cultural development, and political instability within the area are analyzed. Influence of the landscape and climate, as well as Iberian cultural and land tenure patterns on historic settlement and modern growth are discussed. Problems associated with population, economics, politics, education, and geography are emphasized. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 3150 - Middle East

Physical, cultural, and economic approach to the arid lands of the Middle East, including Arab land of the Sahara. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 3160 - Geography of China

Geographic survey of the physical, cultural, and economic features characterizing the geography of China. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 3232 - Weather and Climate

Introduces the processes and systems that govern both day-to-day weather and longer-term climate variations. Covers instrumentation and weather forecasting techniques. Prereq: GEOG 1202 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 3240 - Colorado Climates

Provides a broad overview of the various weather and climate patterns that are found within the state of Colorado. To accomplish this, the state of Colorado will be divided into regions which (hopefully) have a large degree of homogeneity in terms of weather and climate controls. Note: Taught in a seminar style with students giving presentations and reports on their findings about a given region. Prereq: GEOG 1202 and/or GEOG 3232 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 3300 - Population and Resources in the World Environment

Increasing world human populations are examined in the context of regional and global resources. Opposing viewpoints are studied, and students are required to complete a case study of a self-selected issue analyzing viewpoints associated with relevant opposing opinions. Prereq: upper division standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 3302 - Water Resources

Introduces water resources aimed at students with little or no background in the field. This is a broad course covering topics ranging from the physical aspects of water to water politics and international law. While the course is largely a lecture format, discussion of current issues is a significant part of the class. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 3401 - Geography of Food and Agriculture

An overview of food systems and agriculture as they impact an increasingly urbanized planet. We will survey historical food production and preservation, food justice and insecurity, land-use and preservation, as well as local and global systems of distribution and consumption. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 3411 - Globalization and Regional Development

Addresses global political-restructuring and its implications for regional development in the U.S. Both historical and contemporary processes of globalization are examined. Topics include: the environmental basis of American industrial growth, the relationship between technological change and geographical shifts, the rise and decline of Fordism, the transfer of Japanese manufacturing methods to the U.S., the role of regional and national industrial policy, and the social consequences of globalization for labor and communities. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 3430 - Geography of Tourism

Geographic analysis of trends in recreation, travel, and tourism, and their economic, social, and environmental impacts. Examines growth and change in resorts and tourist destination areas. Prereq: GEOG 1302 or 3411. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 3440 - Ecotourism

The geographic study of a growing segment in contemporary tourism aimed at the provision of low impact travel to fragile, pristine and usually protected areas with the purpose of directly benefitting local communities and ecological conservation. The course surveys leading destination areas for ecotourism worldwide. GEOG 1302, GEOG 3411 or GEOG 3430 recommended. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 3501 - Geography of Health

Offers a critical geographic perspective to human health issues, examining disease distributions, how changing relationships between people and their environments (natural, built, and social environments) influence health, and different approaches to the study of health in geography. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 3770 - Geography and Film

Geographic analysis of past and current film production and distribution systems and the complex relationships between film making and place in feature, documentary and educational film. Prereq: GEOG 1302 or 2411. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 3840 - Independent Study: GEOG

Max hours: 6 Credits. **Semester Hours:** 1 to 3

GEOG 3939 - Internship

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA. Max hours: 9 Credits.

Semester Hours: 1 to 3

GEOG 3990 - Special Topics

Investigation of current topics in geography such as analysis of issues (crime, public transportation), techniques (socioeconomic impact analysis), or areas of specialization (climatology). Prereq: Vary with each topic, but no less than six hours in relevant social or physical science. Max hours: 9 Credits. **Semester Hours:** 3 to 3

GEOG 4000 - Planning Methods I

Focuses on the application of statistical, quantitative, and mathematical techniques and computer applications for urban and regional planning and policy development. Major topics include types of data, sampling, basic probability distributions, hypothesis testing, regression and correlation, and an introduction to multivariate and cluster analysis. Applications in planning and development are emphasized. Cross-listed with URPL 5040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4010 - Landscape Geochemistry

A holistic approach to studying the role chemical elements play in synthesis/decomposition cycles, and the resultant environment from interaction of the lithosphere with the hydrosphere, atmosphere, biosphere, and pedosphere during geological, and ecological timeframes, together with anthropogenic activities. Prereq: Introductory college-level physical geography or environmental science course or permission of instructor. Prereq: GEOG 1202 or GEOL 1072 or permission from instructor. Cross-listed with GEOL 4010/ENVS 5010. Max hours: 3 Credits.

Semester Hours: 3 to 3

GEOG 4020 - Earth Environments and Human Impacts

Basic concepts describing earth's biomes and physical environment are presented in a systems context. Global warming assessment, from both political and scientific perspectives, is then presented. Model visualization of these concepts to consider human impacts on Earth's biomes is discussed. Earth system viewpoint, having links of Earth's biomes to oceans and atmosphere, completes the course discussion. Prereq: GEOG 1202 and 3232 or permission of instructor.

Cross-listed with ENVS 5020, GEOL 4020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4060 - Remote Sensing I: Introduction to Environmental Remote Sensing

An in-depth treatment of the use of aerial photographs and other forms of imagery for the analysis of urban-industrial patterns, vegetation, agriculture, landforms, and geologic structure.

Prereq: GEOG 2080 or permission of instructor. Cross-listed with GEOG 5060, GEOL 4060, GEOL 5060. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4070 - Remote Sensing II: Advanced Remote Sensing

Focuses on digital image processing of satellite and aerial images. Students explore the nature of digital image data, gain an understanding of image analysis using PCs, and learn about the use of analysis products in the development of GIS databases. Prereq: GEOG 4060/5060 or GEOL 4060/5060 or permission of instructor. Cross-listed with GEOG 5070, GEOL 4070, 5070. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4080 - Introduction to GIS

Introduces Geographic Information Systems (GIS), including justification, hardware/software, database design, and data conversion. GIS is a computer-based mapping system providing a graphical interface to locational and relational attribute data. Includes hands-on use of a GIS workstation. Prereq: GEOG 2080. Cross-listed with GEOG 5080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4081 - Cartography and Computer Mapping

Provides an introduction to the art and science of cartography (map making). Students will learn about design principles, tools and techniques of map production, culminating in the creation of a high-quality map through hands-on exercises. Prereq: GEOG 2080. Cross-listed with GEOG 5081. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4085 - GIS Applications for the Urban Environment

Takes a more detailed look at basic concepts presented in the introductory GIS course, concentrating on how GIS is used to solve real-world geographic problems. Various GIS applications within both the natural and social sciences are highlighted. The selection of specific topics is flexible, based on the interests of enrolled students. Prereq: GEOG 4080 or GEOG 5080 or permission of instructor. Cross-listed with GEOG 5085. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4090 - Environmental Modeling with Geographic Information Systems

Expands the basic knowledge of GIS to spatial models. Establishes a comprehensive framework that can be used to address a wide range of applications in natural and built environments. Prereq: GEOG 4080 or GEOG 5080 or permission of instructor. Cross-listed with GEOG 5090. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4095 - Deploying GIS Functionality on the Web

Covers the core principles and technologies that allow the deployment of geographic information system (GIS) functionality over the World Wide Web. Hands-on exercises make use of the latest commercial software as well as open source technologies. Prereq: GEOG 4080 or GEOG 5080, computer science background, or permission of instructor. Cross-listed with GEOG 5095. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4150 - Place, Landscape, and Meaning

Investigates concepts that constitute place and landscape--how they are not just simply "there." Incorporates different schools of thought to help understand why landscapes are objects inseparable from us and open to multiple interpretations and meanings. Prereq: Introductory human geography or instructor permission. Cross-listed with GEOG 5150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4220 - Environmental Impact Assessment

The objective of this course is to provide the foundation for understanding the environmental impact assessment process, its legal context, and the criteria and methods for procedural and substantive compliance. Prereq: URPL 5530 or permission of instructor. Cross-listed with GEOG 5220, URPL 6549. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4230 - Hazard Mitigation and Vulnerability Assessment

Examines hazard mitigation and its planning and policy implications, emphasizing how vulnerability assessments play an integral role. Students explore how mitigation minimizes the impacts from hazards and use GIS to conduct a local study. Prereq: GEOG 2202 or permission of instructor. Cross-listed with GEOG 5230. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4235 - GIS Applications in the Health Sciences

Examines how GIS is used throughout the health care industry and public health. Covers environmental health, disease surveillance, and health services research. Students critically review current literature and gain hands-on experience with GIS software. Prereq: GEOG 4080 or GEOG 5080, public health background, or consent of instructor. Cross-listed with GEOG 5235, HBSC 7235. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4240 - Geomorphology

Investigates changes in Earth's physical landscapes incl. aeolian, coastal, fluvial, glacial, karst, periglacial & volcanic processes & landforms as related to rock decay, soils & climatic forcings. Field trips and hands-on tasks using a variety of geomorphologic methods/techniques. Prereq: GEOG 1202 or GEOL 1072 (required) and GEOG 3232 strongly recommended. Cross-listed with GEOL 4240, 5240 and GEOG 5240. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4260 - Natural Resource Planning and Management

Considers methods for managing renewable and non-renewable resources using both legislative and economic controls. The role of technology, ideologies, and equity are discussed. Decision making techniques are applied to problems of resource and environmental management. The ability to allocate and control resource usage to ensure sustainability are discussed. Cross-listed with URPL 6510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4265 - Sustainability in Resources Management

Sustainability and sustainable development are the dominant economic, environmental and social issues of the 21st century. Follows a multi-disciplinary approach to these concepts. Case studies demonstrate their implementation in different geographical, ecological and socio-economic conditions worldwide. Prereq: ENVS 1042 or permission of instructor. Cross-listed with GEOG 5265. Max hours: 6 Credits. **Semester Hours:** 3 to 3

GEOG 4270 - Glacial Geomorphology

Provides an in-depth view of the processes and systems found in glacial environments. Topics include: evidence of past glaciation; present-day glacial extent; glacier dynamics; glacial erosional processes and landforms; glacial depositional processes and landforms. Prereq: GEOG 1202 or GEOL 1072. Cross-listed with GEOG/GEOL 4270/5270. Max hours: 3 Credits.

Semester Hours: 3 to 3

GEOG 4280 - Environmental Hydrology

Examination of hydrologic processes in relation to climate, soils, vegetation, land-use practices, and human interactions. Natural scientific perspectives emphasized; field and laboratory included. Prereq: GEOG 1202 AND one of: 1) GEOG 3232; 2) GEOG 4240/GEOL 4240/GEOG 5240; 3) GEOG 4010/GEOL 4010/ENVS 5000. Cross-listed with GEOL 4280 and ENVS 5280.

Max hours: 4 Credits. **Semester Hours:** 4 to 4

GEOG 4335 - Contemporary Environmental Issues

Provides an overview of environmental challenges facing society today, focusing on how humans impact and change the environment. Opposing views and environmental policy at the local, state, national, and international levels are explored. Cross-listed with GEOG 5335. Max

hours: 6 Credits. **Semester Hours:** 3 to 3

GEOG 4350 - Environment and Society in the American Past

Overview of the geographical development of North American society from the late 15th century to the mid-20th century. A comparative regional approach emphasizing relationships between natural resource exploitation, cultural landscape formation and environmental change. Cross-

listed with GEOG 5350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4400 - Regional Economic Development

Examines the economies of metropolitan, rural, state, and national regions, placing each within the fabric of global relations that direct capital, manage productive activities, and govern prosperity's geography. Organized both sectorally and spatially, the course addresses key sectors of the emerging global economy, as well as the rationale of the "entrepreneurial" state at the public-private interface. Posits institutional approaches and professional roles in the management of regional economies. Seeks in theory a template of regional change, and both the means and purpose of policy intervention. Finds in strategic planning, an integration of developmental and environmental perspectives. Prereq: URPL 5520 or permission of instructor. Cross-listed with

URPL 6605. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4420 - The Politics of Nature

Examines how economic systems, scientific discovery, institutional policies, and environmental knowledge converge to shape the environment and mediate the way societies understand, manage and respond to environmental changes in both the United States and the developing

world. Cross-listed with GEOG 5420. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4440 - Science, Policy and the Environment

Examines the social, economic and political forces shaping scientific discovery and the development and enforcement of environmental policy. Students will examine perspectives on issues such as risk, expertise, uncertainty and objectivity that influence the problem-defining, standard-setting and policy-making process. Cross-listed with GEOG 5440. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4450 - Urban Food and Agriculture: Perspectives and Research

Provides an overview of research & practices in urban farming. Critically reviews emergent models of local food production/distribution. Compares new practices to traditional agribusiness. Assesses the prospects for solving sustainability problems within the modern agro-food system. Prerequisite GEOG 3401. Cross-list ENV5 5450. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4460 - Sustainable Urban Agriculture Field Study I

Provides a field-based overview of urban farm planning & management. Topics: range/land conservation, native/invasive species, water distribution, animal husbandry, government interaction, local markets, community relations, conservation easements and issues pertaining to urban farming. Prerequisite GEOG 4450. Cross-list ENV5 5460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4470 - Sustainable Urban Agriculture Field Study II

Provides a field-based overview of current practices in local agricultural production. Emphasis will be placed on sustainable practices and their most efficient situation, Special consideration will be given to plausible solutions for food insecure communities both local and global. Prerequisite GEOG 4450, 4460. Cross-list ENV5 5470. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4630 - Transportation Planning I: Transport Network Analysis

Examines several important aspects of the transport network: accessibility and connectivity of nodes and linkages and the volume and direction of the flow of a transport network. Descriptive, predictive, and planning methods and models discussed include graph theoretical measures, connectivity matrices, gravity model, abstract mode model, entropy-maximization, trip generation model and flow allocation models. Prereq: URPL 5510 or permission of instructor. Cross-listed with URPL 6555. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4640 - Urban Geography: Denver and the U.S.

Uses a combined lecture/seminar format to explore research themes in urban geography. Topics covered include both historical and contemporary processes of urban development and transformation. Particular emphasis is placed on the U.S. and Colorado's Front Range. Cross-listed with GEOG 5640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4670 - Transportation Planning II: Urban Transportation Planning

Examines major issues of transportation in urban development, the urban transportation system, the relationship between land use planning and transportation planning, urban transportation planning processes and selected issues. Introduces the use of two state-of-the-art multi-modal transportation computer programs - EMME2 and TransCAD. Prereq: URPL 6673. Cross-listed with URPL 6550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4680 - Urban Sustainability: Perspectives and Practice

Examines various perspectives on sustainability, including ambiguities and opportunities of sustainability as a conceptual framework. Class also examines what sustainability looks like in practice, using numerous topics such as poverty and urban farming to water and climate change. Cross-listed with GEOG 5680. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4700 - Synthesis for Interdisciplinary Science

Synthesis is an approach in interdisciplinary research and education that links ideas, data and methods. This course develops synthesis skills through the lens of systems theory. It includes exercises for synthetic thinking, examination of integrative tools, and a service-learning project. Cross-listed with ENV5 5700. Breadth and depth training in environmental sciences. Interest in interdisciplinary collaboration. Senior standing required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4710 - Disasters, Climate Change, and Health

Provides a review of the impacts of disasters and climate change on human health, using a broad framework of preparedness, mitigation, response, recovery, and adaptation. Prereq: GEOG 2202 or GEOG 3501. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4770 - Applied Statistics for the Natural Sciences

Surveys statistical techniques including: quick review of basic statistics, tests for normality and outliers, display of data; simple and multiple regression; ANOVA and its relation to regression. Emphasis on computer or stat-pak analysis and interpretation of statistical results. Prereq: College algebra and GEOG 3080, or consent of instructor. Cross-listed with ENV5 5600, GEOL 4770, 5770. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4840 - Independent Study: GEOG

Independent research primarily for undergraduate majors. Prereq: Permission of department. Max hours: 12 Credits. **Semester Hours:** 1 to 3

GEOG 4850 - Understanding And Communicating Field Methods

Interdisciplinary course that presents a balanced overview of common field methods and how to communicate them effectively to a general audience. Includes hands-on experience with various field methods (e.g., transects, survey design, historical assessment, GIS, etc.) and communication strategies. Prereq: Introductory geography or environmental science course, and graduate or advanced upper-level standing, or instructor permission. Cross-listed with GEOG 5850 and ENV5 4850/5850. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4900 - Colloquium

Engages students and faculty in discussion of current and pertinent world topics, including specific readings, (guest) presentations, and creation of working research papers, among other items. Students and faculty may work in research groups to accomplish specific goals. Prereq: Advanced Standing (undergrad). Cross-listed with ENVS 4900, ENVS 5900, GEOG 5900. Max hours: 4 Credits. **Semester Hours:** 1 to 1

GEOG 4940 - Senior Seminar

Introduces students to the professional literature in the field. Various professionals and faculty lecture about geography/planning research and careers. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4950 - Honors Thesis

A capstone course designed to promote critical thinking, research methodology, and writing/oral presentation skills. Students design and develop a research project under the supervision of a faculty advisor. Each student gives an oral presentation or defense of his or her thesis at the end of the semester in which they enroll. Prereq: GEOG 4940 and junior or senior standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4990 - Special Topics

Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4995 - Travel Study

Rigorous yet flexible fieldwork-based experience exploring geographical and environmental phenomena in diverse world locations. Course begins with intensive regional and methodological introductions, followed by on-location field investigations in environmental analyses, cultural studies, GIS applications, tourism evaluation and/or hazards assessment. Prereq: GEOG 1202 and GEOG 1302, or permission of instructor. Cross-listed with ENVS 4995, ENVS 5995, and GEOG 5995. Max hours: 12 Credits. **Semester Hours:** 3 to 9

GEOG 4998 - Geography By Rail

Systematic and geographic exploration of region(s) mainly via train, focused on creating broad understanding of peoples, cultures, and landscapes. This course represents an intensive, field-based experience that may encompass both physical and cultural characteristics of place and space. Prereq: GEOG 1202 and 1302, or equivalent as determined by instructor. Cross-listed with GEOG 5998 and ENVS 4998/5998. Max hours: 12 Credits. **Semester Hours:** 1 to 12

GEOG 5060 - Remote Sensing I: Introduction to Environmental Remote Sensing

An in-depth treatment of the use of aerial photographs and other forms of imagery for the analysis of urban-industrial patterns, vegetation, agriculture, landforms, and geologic structure. Cross-listed with GEOG 4060, GEOL 4060, GEOL 5060. Completion of GEOG 2080 with a C or better is recommended for optimal student success. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5070 - Remote Sensing II: Advanced Remote Sensing

Focuses on digital image processing of satellite and aerial images. Students explore the nature of digital image data, gain an understanding of image analysis using PCs, and learn about the use of analysis products in the development of GIS databases. Prereq: GEOG 5060/4060 or GEOL 5060/4060 or permission of instructor. Cross-listed with GEOG 4070, GEOL 5070, 4070. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5080 - Introduction to GIS

Introduces Geographic Information Systems (GIS), including justification, hardware/software, database design, and data conversion. GIS is a computer-based mapping system providing a graphical interface to locational and relational attribute data. Includes hands-on use of a GIS workstation. Cross-listed with GEOG 4080. Completion of GEOG 2080 with a C or better is recommended for optimal student success. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5081 - Cartography and Computer Mapping

Provides an introduction to the art and science of cartography (map making). Students will learn about design principles, tools and techniques of map production, culminating in the creation of a high-quality map through hands-on exercises. Cross-listed with GEOG 4081. Completion of GEOG 2080 with a C or better is recommended for optimal student success. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5085 - GIS Applications for the Urban Environment

Takes a more detailed look at basic concepts presented in the introductory GIS course, concentrating on how GIS is used to solve real-world geographic problems. Various GIS applications within both the natural and social sciences are highlighted. The selection of specific topics is flexible, based on the interests of enrolled students. Prereq: GEOG 4080 or GEOG 5080 or permission of instructor. Cross-listed with GEOG 4085. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5090 - Environmental Modeling with Geographic Information Systems

Expands the basic knowledge of GIS to spatial models. Establishes a comprehensive framework that can be used to address a wide range of applications in natural and built environments. Prereq: GEOG 4080 or GEOG 5080 or permission of instructor. Cross-listed with GEOG 4090. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5095 - Deploying GIS Functionality on the Web

Covers the core principles and technologies that allow the deployment of geographic information system (GIS) functionality over the World Wide Web. Hands-on exercises make use of the latest commercial software as well as open source technologies. Prereq: GEOG 4080 or GEOG 5080, computer science background, or permission of instructor. Cross-listed with GEOG 4095. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5150 - Place, Landscape, and Meaning

Investigates concepts that constitute place and landscape--how they are not just simply "there." Incorporates different schools of thought to help understand why landscapes are objects inseparable from us and open to multiple interpretations and meanings. Prereq: Introductory human geography or graduate standing. Cross-listed with GEOG 4150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5220 - Environmental Impact Assessment

The objective of this course is to provide the foundation for understanding the environmental impact assessment process, its legal context, and the criteria and methods for procedural and substantive compliance. Prereq: URPL 5530 or permission of instructor. Cross-listed with GEOG 4220, URPL 6549. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5230 - Hazard Mitigation and Vulnerability Assessment

Examines hazard mitigation and its planning and policy implications, emphasizing how vulnerability assessments play an integral role. Students explore how mitigation minimizes the impacts from hazards and use GIS to conduct a local study. Prereq: GEOG 2202 or permission of instructor. Cross-listed with GEOG 4230. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5235 - GIS Applications in the Health Sciences

Examines how GIS is used throughout the health care industry and public health. Covers environmental health, disease surveillance, and health services research. Students critically review current literature and gain hands-on experience with GIS software. Prereq: GEOG 4080 or GEOG 5080, public health background, or consent of instructor. Cross-listed with GEOG 4235, HBSC 7235. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5240 - Geomorphology

Investigates changes in Earth's physical landscapes incl. aeolian, coastal, fluvial, glacial, karst, periglacial & volcanic processes & landforms as related to rock decay, soils & climatic forcings. Field trips and hands-on tasks using a variety of geomorphologic methods/techniques. Prereq: GEOG 1202 or GEOL 1072 and GEOG 3232. Cross-listed with GEOL 4240, 5240 and GEOG 4240. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5265 - Sustainability in Resources Management

Sustainability and sustainable development are the dominant economic, environmental and social issues of the 21st century. Follows a multi-disciplinary approach to these concepts. Case studies demonstrate their implementation in different geographical, ecological and socio-economic conditions worldwide. Prereq: ENVS 1042 or permission of instructor. Cross-listed with GEOG 4265. Max hours: 6 Credits. **Semester Hours:** 3 to 3

GEOG 5270 - Glacial Geomorphology

Provides an in-depth view of the processes and systems found in glacial environments. Topics include: evidence of past glaciation; present-day glacial extent; glacier dynamics; glacial erosional processes and landforms; glacial depositional processes and landforms. Prereq: GEOG 1202 or GEOL 1072. Cross-listed with GEOG/GEOL 4270/5270. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5335 - Contemporary Environmental Issues

Provides an overview of environmental challenges facing society today, focusing on how humans impact and change the environment. Opposing views and environmental policy at the local, state, national, and international levels are explored. Cross-listed with GEOG 4335. Max hours: 6 Credits. **Semester Hours:** 3 to 3

GEOG 5350 - Environment and Society in the American Past

Overview of the geographical development of North American society from the late 15th century to the mid-20th century. A comparative regional approach emphasizing relationships between natural resource exploitation, cultural landscape formation and environmental change. Cross-listed with GEOG 4350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5420 - The Politics of Nature

Examines how economic systems, scientific discovery, institutional policies, and environmental knowledge converge to shape the environment and mediate the way societies understand, manage and respond to environmental changes in both the United States and the developing world. Cross-listed with GEOG 4420. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5440 - Science, Policy and the Environment

Examines the social, economic and political forces shaping scientific discovery and the development and enforcement of environmental policy. Students will examine perspectives on issues such as risk, expertise, uncertainty and objectivity that influence the problem-defining, standard-setting and policy-making process. Cross-listed with GEOG 4440. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5640 - Urban Geography: Denver and the U.S.

Uses a combined lecture/seminar format to explore research themes in urban geography. Topics covered include both historical and contemporary processes of urban development and transformation. Particular emphasis is placed on the U.S. and Colorado's Front Range. Cross-listed with GEOG 4640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5680 - Urban Sustainability: Perspectives and Practice

Examines various perspectives on sustainability, including ambiguities and opportunities of sustainability as a conceptual framework. Class also examines what sustainability looks like in practice, using numerous topics such as poverty and urban farming to water and climate change. Cross-listed with GEOG 4680. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5710 - Disasters, Climate Change, and Health

Provides a review of the impacts of disasters and climate change on human health, using a broad framework of preparedness, mitigation, response, recovery, and adaptation. Prereq: GEOG 2202 or GEOG 3501. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5840 - Independent Study

Section 1, economic; 2, physical; 3, urban; 4, social; 5, quantitative; 6, transportation. Max hours: 3 Credits. **Semester Hours:** 1 to 3

GEOG 5850 - Understanding And Communicating Field Methods

Interdisciplinary course that presents a balanced overview of common field methods and how to communicate them effectively to a general audience. Includes hands-on experience with various field methods (e.g., transects, survey design, historical assessment, GIS, etc.) and communication strategies. Prereq: Introductory geography or environmental science course, and graduate or advanced upper-level standing, or instructor permission. Cross-listed with GEOG 4850 and ENVS 4850/5850. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5900 - Colloquium

Engages students and faculty in discussion of current and pertinent world topics, including specific readings, (guest) presentations, and creation of working research papers, among other items. Students and faculty may work in research groups to accomplish specific goals. Prereq: graduate student status. Cross-listed with ENVS 4900, ENVS 5900, GEOG 4900. Max hours: 4 Credits. **Semester Hours:** 1 to 1

GEOG 5939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 6

GEOG 5990 - Special Topics In Geography

Course content varies from semester to semester, depending on faculty member teaching the course. Prereq: Graduate standing. Max hours: 6 Credits. **Semester Hours:** 1 to 6

GEOG 5995 - Travel Study

Rigorous yet flexible fieldwork-based experience exploring geographical and environmental phenomena in diverse world locations. Course begins with intensive regional and methodological introductions, followed by on-location field investigations in environmental analyses, cultural studies, GIS applications, tourism evaluation and/or hazards assessment. Prereq: GEOG 1202 and GEOG 1302, or permission of instructor. Cross-listed with ENVS 4995, ENVS 5995, and GEOG 4995. Max hours: 12 Credits. **Semester Hours:** 3 to 9

GEOG 5998 - Geography By Rail

Systematic and geographic exploration of region(s) mainly via train, focused on creating broad understanding of peoples, cultures, and landscapes. This course represents an intensive, field-based experience that may encompass both physical and cultural characteristics of place and space. Prereq: GEOG 1202 and 1302, or equivalent as determined by instructor. Cross-listed with GEOG 4998 and ENVS 4998/5998. Max hours: 12 Credits. **Semester Hours:** 1 to 12

GEOG 6300 - Foundations Seminar in Human-Environmental Interaction

This seminar allows students to gain a deeper appreciation for historical and contemporary geographical approaches to understanding the relationship between society and the environment through a survey review of seminal concepts, theories and debates that have shaped the discipline. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 6700 - Integrated Methods

Geographers employ a variety of quantitative and qualitative methods in their research. The course presents these methods as a continuum, rather than separate typologies, and reviews the difference between integrated and mixed methods. Students will evaluate how and when to apply various methods to most appropriately elicit data. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 6750 - Research Design

Reviews research framework common to all geographers. Reviews the key steps in designing and executing high-caliber independent research, including topic selection, literature review and data collection analysis. Students will develop competence in applying relevant theories from the natural and social sciences through projects. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 6800 - Community-Based Research Practicum

Service-based learning course for students to apply the concepts and skills presented throughout the masters program in a community setting. Students will participate in a real-world, studio based project that meets the needs of a government, non-governmental, or private sector organization and will produce a scoped product. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 6840 - Independent Study: GEOG

Independent research for graduate major students. Prereq: Permission of department. Max hours: 3 Credits. **Semester Hours:** 1 to 3

GEOG 6950 - Master's Thesis

Max hours: 6 Credits. **Semester Hours:** 6 to 6

GEOG 8990 - Doctor's Thesis

Max hours: 8 Credits. **Semester Hours:** 1 to 8

Geology

GEOL 1022 - History of Life

Non-technical study of fossils through time and their relationships to environments through earth history. Includes discussion of evolution and extinction events and current controversies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 1072 - Physical Geology: Surface Processes

Introductory course in physical geology that covers surface processes and landforms, and includes one all-day field trip. Note: Required for geology majors. Max hours: 4 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1. **Semester Hours:** 4 to 4

GEOL 1082 - Physical Geology: Internal Processes

Introductory course in physical geology that covers internal processes and properties of the earth's interior, with plate tectonics as the underlying theme. Includes one all-day field trip. Note: Required for geology majors. Max hours: 4 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1. **Semester Hours:** 4 to 4

GEOL 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

GEOL 1115 - Earth Sciences Content

Covers content areas of undergraduate earth sciences. Topics include physical geology; historical geology; oceanography; meteorology; and astronomy. Max hours: 3 Credits. **Semester Hours:** 1 to 3

GEOL 1202 - Introduction to Oceanography

Surveys modern scientific knowledge of the world's oceans. Intended for non-science students, the course offers a non-quantitative introduction to the major facts and principles of physical, chemical, biological, and geological oceanography. The impact of natural and anthropic events on the marine environment are included. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 1302 - Introduction to Astrogeology

Surveys the geology of the planets and their environments in space, including the origin and destiny of the universe. Intended for non-majors, the course provides an introduction to the geological origin, evolution, structure, and geomorphology of the planets. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 1400 - Geology of the National Parks

Combines lecture and laboratory exercises to help students interpret Earth history using the national parks as examples. Students learn to identify the common rocks and minerals, and how to interpret topographic and geologic maps. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 1402 - Introduction to the Ice Ages

Surveys the natural history of earth's ice ages, the processes that led to paleoclimatic change, environmental changes, and the effects on the geological earth. Included are topics in ocean-atmosphere influences, glaciers, glacial geology, influences on world flora and fauna, extinction of pleistocene mammal populations and the emergence of hominids. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 1840 - Independent Study: GEOL

Max hours: 3 Credits. **Semester Hours:** 1 to 3

GEOL 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

GEOL 3011 - Mineralogy

Principles of mineralogy, including crystallography, crystal chemistry, and a systematic study of the more important nonsilicate and silicate minerals. Origins and occurrences of minerals.

Prereq: Physical geology and college-level chemistry. Max hours: 4 Credits. **Semester Hours:** 4 to 4

GEOL 3032 - Geology of Colorado

Introductory course focused on the geology of Colorado. The course is divided into two parts: the first half covers general principles of geology, and the second is devoted to the observation of rock types, structures, and geologic relationships in the field. Discussion of plate tectonics, rock formation, construction and interpretation of geologic maps, the geologic time scale, geologic provinces of Colorado, evolution of major landforms, formation and development of mineral resources of Colorado, and current topics in environmental geology. Max hours: 3 Credits.

Semester Hours: 3 to 3

GEOL 3100 - Current Perspectives on the Evolution of Consciousness and Culture

Studies of evolution traditionally regard morphology (anatomy)/behavior and mind/consciousness as separate fields that belong either in biology/paleontology or in psychology/philosophy. The "middle ground" behavior, anthropology, social systems, is also treated separately in most cases. Recent approaches tend toward a more holistic view using unifying principles and "laws of nature" that show similar processes (dissipative effects, information theory, development theory) operating across all fields. Examines the relationships and common threads between the physical anatomical evolution of organisms and their behavior perception and consciousness. Prereq: Introductory course in evolution (biology/paleontology), psychology, philosophy, anthropology or permission of instructor. Cross-listed with PHIL 3100 and RLST 4280. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 3102 - Dinosaurs Past and Present

A broad-based, non-technical new look at the world's most popular prehistoric animals. Stresses the rapid and perennial growth of knowledge about dinosaurs and the relevance of such knowledge in the 20th century. Prereq: Introductory geology and/or biology are recommended. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 3231 - Introductory Petrology

Introduces classification, distribution, and origin of igneous, metamorphic, and sedimentary rocks, including their identification in hand-held specimens. Prereq: Physical geology and mineralogy. Max hours: 4 Credits. **Semester Hours:** 4 to 4

GEOL 3411 - Introductory Paleontology

Studies invertebrate fossils, including a survey of the organic world and its history in the geological past. Includes an introduction to evolution and paleoecology, and discussion of the uses of fossils in geologic correlations. Prereq: Introductory geology-surface processes, or an introductory biology class. Max hours: 4 Credits. **Semester Hours:** 4 to 4

GEOL 3415 - Museum Studies in Paleontology

A practical laboratory-based course covering aspects of museum studies related to paleontological collections. Students learn how to stabilize and prepare bones removed from fossil quarries; learn molding and casting techniques for bones and fossils; assist with the cataloging and curation of the collection; and participate in designing museum displays. Prereq: At least one science class. Cross-listed with ELED 5480, SECE 5480. Max hours: 3 Credits.

Semester Hours: 3 to 3

GEOL 3418 - Field Paleontology

Introduces methods of paleontological field techniques, including care and maintenance of a late Jurassic dinosaur quarry, field conservation techniques, quarry map-making and surveying, paleontological sampling, and fossil extraction. Students also contribute to research and fossil collections at CU-Denver. Prereq: At least one science class. Max hours: 1 Credit. **Semester**

Hours: 1 to 1

GEOL 3421 - Sedimentation and Stratigraphy

Introduces the principles of sedimentology and stratigraphy. Emphasis is on dynamic processes within sedimentary environments and the resulting stratigraphic record. Prereq: GEOL 1082 or equivalent. Max hours: 4 Credits. **Semester Hours:** 4 to 4

GEOL 3840 - Independent Study: GEOL

Max hours: 6 Credits. **Semester Hours:** 1 to 3

GEOL 3939 - Internship

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA. Max hours: 9 Credits.

Semester Hours: 1 to 3

GEOL 4010 - Landscape Geochemistry

A holistic approach to studying the role chemical elements play in synthesis/decomposition cycles, and the resultant environment from interaction of the lithosphere with the hydrosphere, atmosphere, biosphere, and pedosphere during geological, and ecological timeframes, together with anthropogenic activities. Prereq: GEOG 1202 or GEOL 1072 or permission of instructor. Cross-listed with GEOG 4010/ENVS 5010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 4020 - Earth Environments and Human Impacts

Basic concepts describing earth's biomes and physical environment are presented in a systems context. Global warming assessment, from both political and scientific perspectives, is then presented. Model visualization of these concepts to consider human impacts on Earth's biomes is discussed. Earth system viewpoint, having links of Earth's biomes to oceans and atmosphere, completes the course discussion. Cross-listed with ENVS 5020, GEOG 4020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 4030 - Environmental Geology

Applies geological information to interactions between people and the physical environment. Increasing awareness of its importance in our society means that this is an expanding field as companies are required to address the environmental consequences of their actions. Prereq: Entry into MSES program, senior standing in sciences or geography, or permission of instructor. Cross-listed with ENVS 5030 and GEOL 5030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 4060 - Remote Sensing I: Introduction to Environmental Remote Sensing

An in-depth treatment of the use of aerial photographs and other forms of imagery for the analysis of urban-industrial patterns, vegetation, agriculture, landforms, and geologic structure. Prereq: GEOG 3080 or consent of instructor. Cross-listed with GEOL 5060, GEOG 4060, 5060. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 4111 - Field Methods In Geology

Introduction to the basic methods of geologic mapping (metamorphic, sedimentary, and igneous rocks), including use of the Brunton compass and Jacob Staff, as well as preparation of measured stratigraphic sections, geologic maps, and geologic cross-sections. Prereq: GEOL 1072 or GEOG 1202, GEOL 3421 strongly recommended. Cross-listed with GEOL 5111. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 4240 - Geomorphology

Investigates changes in Earth's physical landscapes incl. aeolian, coastal, fluvial, glacial, karst, periglacial & volcanic processes & landforms as related to rock decay, soils & climatic forcings. Field trips and hands-on tasks using a variety of geomorphologic methods/techniques. Prereq: GEOG 1202 or GEOL 1072 (required) and GEOG 3232 strongly recommended. Cross-listed with GEOG 4240, 5240 and GEOL 5240. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 4270 - Glacial Geomorphology

Provides an in-depth view of the processes and systems found in glacial environments. Topics include: evidence of past glaciation; present-day glacial extent; glacier dynamics; glacial erosional processes and landforms; glacial depositional processes and landforms. Prereq: GEOG 1202 or GEOL 1072. Cross-listed with GEOG/GEOL 4270/5270. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 4280 - Environmental Hydrology

Examination of hydrologic processes in relation to climate, soils, vegetation, land-use practices, and human interactions. Natural scientific perspectives emphasized; field and laboratory included. Prereq: GEOG 1202 and one of: 1) GEOG 3232; 2) GEOG 4240/GEOL 4240/GEOG 5240; 3) GEOG 4010/GEOL 4010/ENVS 5000. Cross-listed with GEOG 4280 and ENVS 5280. Max hours: 4 Credits. **Semester Hours:** 4 to 4

GEOL 4402 - Unsaturated Zone Hydrology

Focuses on water and contaminant transport through the unsaturated zone, infiltration and drainage, and heat and gas transport. Students learn to design, perform field installation, and collect data in order to model and predict contaminant movement on/off site. Prereq: Chemistry, physics, calculus or permission of instructor. Cross-listed with ENVS 5403. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 4460 - Vertebrate Paleontology and Evolution

Surveys the evolutionary history of the backboned animals from primitive fish through dinosaurs to man. Includes paleoecology, functional morphology, and uses of vertebrate fossils in geologic correlations. Prereq: Introductory geology, biology or anthropology. Max hours: 3 Credits.

Semester Hours: 3 to 3

GEOL 4513 - Geology of the Grand Canyon

Raft down the Grand Canyon and examine the geology of igneous, sedimentary, and metamorphic rocks from the Precambrian to the Holocene. Study marine and terrestrial fossils, migmatization and observe modern sedimentary processes. Prereq: GEOL 1072 or 1082. Cross-listed: ENVS 5513. Max hours: 5 Credits. **Semester Hours:** 3 to 5

GEOL 4770 - Applied Statistics for the Natural Sciences

Surveys statistical techniques including: quick review of basic statistics, tests for normality and outliers, display of data; simple and multiple regression; Anova and its relation to regression. Emphasis on computer or stat-pak analysis and interpretation of statistical results. Prereq: College algebra and GEOG 3080, or consent of instructor. Cross-listed with GEOL 5770, GEOG 4770, ENVS 5600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 4780 - Engineering Geology

Studies geology as utilized in engineering and environmental practice. Emphasizes a conceptual integration of geologic materials, processes, and rates of change as a basis for successful application of geologic knowledge to environmental planning and engineering design projects. Prereq: MATH 2411 and CVEN 2121. Cross-listed with GEOL 5780 and CVEN 4780. Max hours: 4 Credits. **Semester Hours:** 4 to 4

GEOL 4840 - Independent Study: GEOL

Max hours: 12 Credits. **Semester Hours:** 1 to 3

GEOL 4995 - Travel Study

Fieldwork- and research-based experience studying a diverse selection of geologic settings worldwide. Students individually research geologic areas of interest in an assigned region, followed by on-location field investigations and measurements of geologic data and phenomena. Note: Topics vary depending on region under study, student interest, and faculty specialty. Prereq: GEOL 1072 and 1082, or permission of instructor. Cross-listed with GEOL 5995. Max hours: 12 Credits. **Semester Hours:** 3 to 9

GEOL 5001 - RM-MSMSP: Earth Processes I

Systematic study of geological concepts, rock and mineral formation, plate tectonics, volcanism and earthquakes, landforms and weathering, historical environmental interpretation. Includes a field component. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: Permission of project director. Max hours: 4 Credits. **Semester Hours:** 4 to 4

GEOL 5002 - RM-MSMSP: Earth Sciences II - Sedimentology and Paleontology

Field and lecture course building on Earth Sciences I, which covers internal earth processes. Students learn about erosional processes and how sedimentary rocks are deposited and may be preserved; the different ways fossils are preserved; describing rocks in the field; and collecting, preparing and describing fossils. Provides an overview of the geology of the area so that students can place the detailed studies in context. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: GEOL 5001 (or equivalent) or permission of project director. Max hours: 4 Credits. **Semester Hours:** 4 to 4

GEOL 5003 - RM-MSMSP: Earth Science in Context

Designed for teachers in the RM-MSMSP program. Topics include global climate change, glaciers, coastal geology, volcanism, and their effects on culture. Monuments such as Florissant Fossil Beds, Ice Core, Cave of the Winds and a quarry will be visited. Note: This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Max hours: 4 Credits. **Semester Hours:** 4 to 4

GEOL 5004 - RM-MSMSP Research Experience for Teachers - Geology Cohort

A five-week research exploration in which RM-MSMSP teachers will raise their level of relevant scientific understanding by engaging in a "hands-on" workshop, transforming what they have learned into new curricular materials that will improve the scientific abilities of their students and hopefully stimulate them to consider a STEM career. Note: credit may not apply toward any CLAS degree. Max hours: 6 Credits. **Semester Hours:** 1 to 6

GEOL 5030 - Environmental Geology

Applies geological information to interactions between people and the physical environment. Increasing awareness of its importance in our society means that this is an expanding field as companies are required to address the environmental consequences of their actions. Prereq: Entry into MSES program, senior standing in sciences or geography, or permission of instructor. Cross-listed with GEOL 4030 and ENVS 5030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 5060 - Remote Sensing I: Introduction to Environmental Remote Sensing

An in-depth treatment of the use of aerial photographs and other forms of imagery for the analysis of urban-industrial patterns, vegetation, agriculture, landforms, and geologic structure. Prereq: GEOG 3080 or consent of instructor. Cross-listed with GEOL 4060, GEOG 4060, 5060. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 5111 - Field Methods in Geology

Introduction to the basic methods of geologic mapping (metamorphic, sedimentary, and igneous rocks), including use of the Brunton compass and Jacob Staff, as well as preparation of measured stratigraphic sections, geologic maps, and geologic cross-sections. Prereq: GEOL 1072 or GEOG 1202, GEOL 3421 strongly recommended. Cross-listed with GEOL 4111. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 5240 - Geomorphology

Investigates changes in Earth's physical landscapes incl. aeolian, coastal, fluvial, glacial, karst, periglacial & volcanic processes & landforms as related to rock decay, soils & climatic forcings. Field trips and hands-on tasks using a variety of geomorphologic methods/techniques. Prereq: GEOG or GEOL 1072 and GEOG 3232. Cross-listed with GEOG 4240, 5240 and GEOL 4240. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 5270 - Glacial Geomorphology

Provides an in-depth view of the processes and systems found in glacial environments. Topics include: evidence of past glaciation; present-day glacial extent; glacier dynamics; glacial erosional processes and landforms; glacial depositional processes and landforms. Prereq: GEOG 1202 or GEOL 1072. Cross-listed with GEOG/GEOL 4270/5270. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 5770 - Applied Statistics for the Natural Sciences

Surveys statistical techniques including: quick review of basic statistics, tests for normality and outliers, display of data; simple and multiple regression; Anova and its relation to regression. Emphasis on computer or stat-pak analysis and interpretation of statistical results. Prereq: College algebra and GEOG 3080, or consent of an instructor. Cross-listed with GEOL 4770, GEOG 4770, ENVS 5600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 5780 - Engineering Geology

Studies geology as utilized in engineering and environmental practice. Emphasizes a conceptual integration of geologic materials, processes, and rates of change as a basis for successful application of geologic knowledge to environmental planning and engineering design projects. Cross-listed with GEOL 4780 and CVEN 5780. Max hours: 4 Credits. **Semester Hours:** 4 to 4

GEOL 5939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 6

GEOL 5950 - Master's Thesis

Max hours: 8 Credits. **Semester Hours:** 1 to 8

GEOL 5995 - Travel Study

Fieldwork- and research-based experience studying a diverse selection of geologic settings worldwide. Students individually research geologic areas of interest in an assigned region, followed by on-location field investigations and measurements of geologic data and phenomena. Note: Topics vary depending on region under study, student interest, and faculty specialty. Prereq: GEOL 1072 and 1082, or permission of instructor. Cross-listed with GEOL 4995. Max hours: 12 Credits. **Semester Hours:** 3 to 9

GEOL 6840 - Independent Study: GEOL

Max hours: 9 Credits. **Semester Hours:** 1 to 3

GEOL 6950 - Master's Thesis

Max hours: 8 Credits. **Semester Hours:** 1 to 8

GEOL 6960 - Master's Project

Max hours: 8 Credits. **Semester Hours:** 1 to 8

German

GRMN 1000 - Germany and the Germans

Introduces the ways in which the various aspects of German culture help define German life and national identity. By examining art, music and media, primarily of the 20th century, students explore what it means to be German. Note: Taught in English. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-AH1. **Semester Hours:** 3 to 3

GRMN 1010 - Beginning German I

Introduces basic grammar, sentence structure and speech patterns. Note: Students may not enroll in any lower division (1000/2000) language skills course in which their level of proficiency exceeds that of the course. Students placing into a course through any means other than following the regular sequence must consult with an appropriate faculty member of the Dept. of Modern Languages prior to enrollment. Max hours: 5 Credits. **Semester Hours:** 5 to 5

GRMN 1020 - Beginning German II

(Continuation of GRMN 1010.) Note: Students may not enroll in any lower division (1000/2000) language skills course in which their level of proficiency exceeds that of the course. Students placing into a course through any means other than following the regular sequence must consult with an appropriate faculty member of the Dept. of Modern Languages prior to enrollment. Prereq: GRMN 1010 or one year of high school German. Max hours: 5 Credits. **Semester Hours:** 5 to 5

GRMN 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

GRMN 2110 - Intermediate German I

(Continuation of German 1020.) Note: Students may not enroll in any lower division (1000/2000) language skills course in which their level of proficiency exceeds that of the course. Students placing into a course through any means other than following the regular sequence must consult with an appropriate faculty member of the Dept. of Modern Languages prior to enrollment. Prereq: GRMN 1020 or two years of high school German. Max hours: 3 Credits.
Semester Hours: 3 to 3

GRMN 2130 - Intermediate German II

A fourth-semester course designed for those majoring or minoring in International Affairs. Along with grammar review, the course deals with contemporary topics in cultural, political, economic and social affairs. Note: Open to all those wanting to satisfy a fourth semester language requirement to qualify for upper division German courses. Satisfies the language requirement for the minor in International Affairs, may be applied to the major and minor in German, and will satisfy the fourth-semester foreign requirement at most graduate schools. Prereq: GRMN 2110 or placement by exam. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 2150 - Intermediate German II: Grammar Review and Oral Practice

Prepares students for upper division German language skills courses. Students practice abilities gained in previous semesters of language instruction, improve conversational abilities, develop skills using reference works, learn tactics for reading and discussing newspaper style German and develop written composition abilities. Note: Students may not enroll in any lower division (1000/2000) language skills course in which their level of proficiency exceeds that of the course. Students placing into a course through any means other than following the regular sequence must consult with an appropriate faculty member of the Dept. of Modern Languages prior to enrollment. Taught in German. Prereq: GRMN 2110 or equivalent. Max hours: 3 Credits.
Semester Hours: 3 to 3

GRMN 2210 - Readings and Translation

Stresses reading and translation skills rather than speaking. Students work with short German texts in a variety of areas: natural and social sciences, history and literature. Note: Taught in English. Prereq: GRMN 1020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 2240 - Intermediate Composition and Vocabulary Building

A fourth-semester composition and vocabulary building course. Note: Taught in English. Prereq: GRMN 2110 or 2210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 2840 - Independent Study: GRMN

Max hours: 3 Credits. **Semester Hours:** 1 to 3

GRMN 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours with 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

GRMN 2995 - Travel Study

For students doing travel study in Germany; register through the Office of International Education. Max hours: 15 Credits. **Semester Hours:** 1 to 15

GRMN 3030 - Advanced Conversation: Idioms and Vocabulary Building

An advanced conversation course, using small-group discussion, skits, and short oral presentations to improve fluency in spoken German and to build vocabulary. Prereq: GRMN 2130 or fourth semester equivalency. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 3050 - Phonetics and Pronunciation of German

Students acquire skills for articulating German with a high degree of accuracy, and systematically develop a more native-like pronunciation of German. Students learn basic linguistic principles for the purpose of gaining insight into the mechanics of spoken German. Note: Taught in German. Prereq: GRMN 2130. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 3060 - Advanced German Language Skills I

An advanced course in German language skills with equal emphasis devoted to speaking, listening, reading and writing. Students improve their cultural awareness, pronunciation, and vocabulary as well. Specific grammar topics include: subjunctive I and II, participles I and II, extended adjectives, verb tenses, gender of nouns, and reflexive. Note: Primary language of instruction for this course is German. Prereq: GRMN 2130 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 3070 - Advanced German Language Skills II

An advanced course in German language skills with equal emphasis devoted to speaking, listening, reading and writing. Students improve their cultural awareness, pronunciation and vocabulary. Specific grammar topics include: semantic categories, functions of nouns, determiners, adjectives, relative clauses, pronouns. Note: Primary language of instruction for this course is German. Prereq: GRMN 2130 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 3080 - Advanced German Language Skills III

An advanced course in German language skills with equal emphasis devoted to speaking, listening, reading and writing. Students improve their cultural awareness, pronunciation, and vocabulary as well. Specific grammar topics include: prepositions and idioms, "da" compounds, German syntax, clause typology numerals, and time expressions. Note: Primary language of instruction for this course is German. Prereq: GRMN 2130 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 3090 - Advanced German Language Skills IV

An advanced course in German language skills with equal emphasis devoted to speaking, listening, reading, and writing. Students improve their cultural awareness, pronunciation and vocabulary. Specific grammar topics include: modal verbs, complex clause and sentence structure, "werden," passive voice, double infinitives, perfect infinitives, and dependent infinitives. Note: Primary language of instruction for this course is German. Prereq: GRMN 2130 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 3110 - Introduction to German Literature I

Selected readings from German short stories, drama, and poetry, primarily from the modern period. Emphasis on techniques of reading. Note: Primary language of instruction for this course is German. Prereq: GRMN 2110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 3130 - Current Topics of the German-Speaking World

Combines discussion and writing on political, economic, and social conditions in contemporary Germany, Austria and Switzerland. Articles from current German newspapers, magazines, television broadcasts, and the World Wide Web are analyzed for a better understanding of how citizens of these countries see themselves and the world. Prereq: Any third-year German course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 3200 - Current German Society and Culture

Provides students with a detailed overview of the systems in modern, united Germany such as social, educational, and political. Examines how Germany sees itself as a vital member of the EU. Exposes students to rudimentary use of the German language. Prereq: Sophomore standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 3230 - German Civilization I: From Medieval Through Age of Idealism

Selected highlights of major cultural aspects of the Middle Ages, the Reformation, the Enlightenment, and the Age of Idealism. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 3240 - German Civilization II: The Modern Age

Selected highlights of major cultural aspects of the later 19th century, the Wilhelminian period, the Weimar Republic, the Third Reich, and the period since 1945. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 3310 - Techniques of Translation

Trains students in strategic translation skills that aid in rapid comprehension of short German texts and the ability to render them into well written contemporary English. Students choose content areas of individual interest (e.g. history, literature, chemistry). Prereq: GRMN 2130 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 3512 - Faust in Literature and Music

Surveys the Faust legend in literature and music. Includes works by Marlowe, Goethe, Berlioz, Schumann, Gounod, Boito and others. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 3540 - German Cinema and Society

Studies several key German films from 1918 to the present that illuminate the political/cultural discourses of their times. Readings from historical and film-critical texts aid in contextualizing the films. Note: Taught in English. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 3840 - Independent Study: GRMN

Max hours: 6 Credits. **Semester Hours:** 1 to 3

GRMN 3939 - Internship

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA. Max hours: 9 Credits.

Semester Hours: 1 to 3

GRMN 3995 - Travel Study

For students doing travel study in Germany; register through the Office of International Education. Max hours: 15 Credits. **Semester Hours:** 1 to 15

GRMN 4050 - Advanced German Phonetics and Language History

Students develop advanced phonetic skills for analyzing the sounds and orthography of German. They apply these skills by examining the diachronic (historic) developments in the grammatical and phonological structures of German over the last two millennia. Note: Taught in German.

Prereq: GRMN 3050 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 4840 - Independent Study: GRMN

Max hours: 12 Credits. **Semester Hours:** 1 to 3

GRMN 4995 - Travel Study

For students doing travel study in Germany; register through the Office of International Education. Max hours: 15 Credits. **Semester Hours:** 1 to 15

GRMN 5995 - Travel Study

For students doing travel study in Germany; register through the Office of International Education. Max hours: 15 Credits. **Semester Hours:** 1 to 15

Global Energy Management

GEMM 6000 - 21st Century Global Energy Issues and Realities

Introduction to the global energy industry's past, present and future. Current and historical issues in regions such as: Atlantic Basin, former Soviet Union, east of Suez, North and South America will be covered. World production centers and markets are discussed to include relevant energy security, scenario planning, risk management and regulation, deregulation, and environmental concerns. Note: Students will learn the geographic distribution of energy resources worldwide including governmental systems. Max hours: 6 Credits. **Semester Hours:** 3 to 3

GEMM 6100 - Global Energy Economics

Course includes energy geo-economics with an introduction to managerial tools of the trade. Topics will include world energy markets-demand and supply; refining and marketing, energy forecasts, oil and gas transportation, and National Oil Companies vs. International Oil Companies. An introduction to environmental economics will also help students connect the energy industry to sustainable work practices. In addition students will learn the geographic distribution of energy resources worldwide along with the political and government systems associated with those resources. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEMM 6200 - Environmental, Regulatory, Legal & Political Environment in the Energy Industry

Exploration of current political situations regarding the energy industry, its environmental impact in the short and long term. Topics include climate change, pollution, solid wastes and conversions to natural resources. Students will become familiar with national and international energy laws and regulations, financial arrangements, confidentiality, and bidding agreements.

Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEMM 6210 - Energy and the Law: Property and Contracts

The elective will focus on the process of managing the use and development of land resources in a sustainable way. Topics such as; public controls, powers used for land regulation, and an intro to real estate will be covered to enhance students understanding of land management and its application to the energy industry. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEMM 6220 - Interacting With Foreign Governments And State Enterprises

Globalization of many energy companies, dwindling U.S. energy sources, and growing overseas energy demand have increased the need for energy professionals to gain expertise in doing business with foreign governments and state enterprises, which play a much greater role in the ownership and operation of energy extraction and energy delivery in virtually all countries beyond the United States and Canada. This course reviews negotiation strategies in the context of uncertain contract enforcement, volatility and uncertainty of prices and restrictions, and highly contentious political contexts. It also reviews the approaches for interacting effectively with state enterprises that are often undercapitalized and inefficient, and examines how valuation of energy assets can take into account political risk, and requirements to provide infrastructure and social services. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEMM 6300 - Technical Aspects of Energy Science

This course will familiarize students with the newest renewable and alternative energy sources. The course does not focus on hydrocarbon sources but examines challenges and opportunities that exist for the establishment of the new energy sources to become viable in the industry. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEMM 6400 - Leadership and Decision Making in the Global Energy Environment

Students will examine leadership from an energy executive perspective. Topics include: how execs lead, change, innovation, interacting with top management teams, the board, leadership issues involved with governance of the firm, strategies for enhancing executive influence and ethics and responsibilities associated with exec. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEMM 6410 - People Management in the Global Energy Environment

Explains that people are energy's most important asset. Students will learn the latest research in human resource theories, study models, and learn how to develop organizational effectiveness from the firm's human capital. Concepts on: effective teamwork, attracting and retaining talent and using HR processes such as performance management and development to drive engagement will be discussed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEMM 6430 - Organizational Behavior in the Energy Industry

Students will learn how to lead and manage human assets inside energy industries. Students will be exposed to fundamental principles of human behavior and increase their competence of working in diverse settings. Proper management can lead to a sustainable competitive advantage, because of management of employees and developing them into enthusiasts of your firm. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEMM 6450 - Strategic Management of the Energy Industry

The course focuses on how to improve an organization's competitiveness in a changing global environment. Emphasis on sustainable strategies, students develop skills to formulate, implement and evaluate organizational strategies in the rapidly changing environment. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEMM 6460 - Integrated Information Management for Energy Firms

This course covers issues associated with developing an integrated information managing strategy to identify major information categories used with an energy firm. It covers relationships to business processes to guide applications development and facilitate the integration and sharing of data. Using case studies from energy firms operational, administrative and strategic systems will be discussed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEMM 6470 - Energy Marketing and Communications

This course covers the challenges faced by energy industries in developing branding, and developing new markets. Marketing both products and the company to its stakeholders, in the face of competitive pressures, students learn practical marketing tools and how they can be used to effect corporate strategy. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEMM 6500 - Energy Accounting in the Global Markets

The course builds a basic understanding of how to convey to decision makers, in and out of the firm, information about its resources. Emphasis on; analysis of income statements, balance sheet, statement and cash flows (historical financial accounting information) with specific coverage of cost-volume-profit, variance, forecasting, joint interest accounting and measurement of divisional performance. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEMM 6600 - Introduction To Financial Management In The Energy Industry

Introduction to fundamental principal of asset valuation and financing in competitive global markets. Providing the tools necessary to analyze day-to-day financial issues in the energy industry (time value of money, valuation of income streams, risk weighted investment returns.) Topics such as: risk management, arbitrage, hedging and foreign exchange will be covered. Max hours: 6 Credits. **Semester Hours:** 3 to 3

GEMM 6610 - Advanced Financial Management in the Energy Industry

This course is focused on understanding the costs and benefits of various forms of capital. By examining internal and external managers, students will be able to assess alternative capital sources to achieve their strategic objectives. The course will introduce effective investor communication techniques. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEMM 6620 - Energy Asset & Production Management for the Energy Industry

The course covers management of an organization's energy resources and facilities as well as broader coverage of project management. Portfolio strategy, planning, scope, time, cost, quality and organizational effectiveness will be addressed. Also when budget, material, vendor relations or other factors disrupt a project, students will be prepared on how to react. Max hours: 6 Credits. **Semester Hours:** 3 to 3

GEMM 6630 - Commercialization Management of Renewable Energies

This course will focus on the business aspects running a renewable energy entity either as a separate company or sector within an established company. Students taking this course have completed a previous course on the basic science of renewable energy. This course is intended to focus on leadership issues and decision making regarding renewable energy. As a significant part of the course, students will learn how to review information and data supplied to them by engineers, accountants, finance, marketing, scientists, and other stakeholders within and outside their company including federal, state, and local governments and regulatory agencies to make sound business decisions. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEMM 6690 - Special Topics

This elective course is intended to be a variable-credit course specially designed to provide national and international learning opportunities. The course will offer concentrated problem-solving experiences within the energy industry through travel to industry-significant cities and regions, while meeting and visiting with people working and dealing with issues in the industry. Max hours: 3 Credits. **Semester Hours:** 1 to 3

Greek

GREK 1010 - Greek I: Biblical

Intended for students of languages, religious studies, and philosophy. Introduces the forms and syntax of Greek so that in the 13th week students will be able to read about 85% of the New Testament in the original language. Max hours: 5 Credits. **Semester Hours:** 5 to 5

GREK 1020 - Greek II: Biblical

A continuation of 1st-semester Biblical and Classical Greek. Covers the remaining forms and syntax of the textbook, with an emphasis on sight-reading passages from the New Testament. At the end of the course we will read, translate and study short fragments and lines written by some Pre-Socratic philosophers such as Thales, Anaxagoras, Anaximander, Heraclitus, and Parmenides. Prereq: GREK 1010. Max hours: 5 Credits. **Semester Hours:** 5 to 5

GREK 2110 - Greek III: Classical

Introduction to classical Greek, followed by reading of Plato's "Apology" with selections from "Pre-Socratic philosophers" (e.g. Xenophanes of Colophon, Zeno of Elea, Pythagoras) and Aristotle. Prereq: GREK 1020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Health Administration

HLTH 6010 - Health Care Systems

Introduces the structure and function of the medical care delivery system. Includes basic concepts and measures of health, disease, quality, values, needs and utilization; issues in health care manpower, institutions and system organization; general issues in policy, reimbursement and regulation; broad community, and organizational considerations in medical care organizations. The student is introduced to the principles of epidemiology and environmental health and demonstrates the application of epidemiology concepts to planning for the healthcare service needs of a population. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HLTH 6040 - Healthcare Economics

Application of economics to health care, with particular emphasis on the role of government and insurance. Topics include market failure, benefits design, rationing and competitive approaches to cost containment. Prereq: BUSN 6620 or 6621. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HLTH 6055 - Transformational Leadership/Transforming Organizations

Focuses on the manager's ability to generate transformational changes within the organization. In order to heal the organization, the manager must become a transformational leader, skilled in metaphysical as well as traditional management skills. Transformation means to change the structure of the organization - to move it to a higher form. In this course, we focus on characteristics of transformational leaders and metaphysical management, a spiritual process that expands the awareness of everyone in the organization. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HLTH 6070 - International Health Policy and Management

A framework for understanding national health reform policy and management issues in the U.S. and other nations, including industrialized, developing, and transforming nations. This course combines classroom and on-line teaching. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HLTH 6071 - Introduction To Health Information Technology

Examines what needs transforming in healthcare to improve value, safety, and appropriateness of care, and what the role of IT is in that transformation. IT also examines the challenges of cultural change and IT strategy in succeeding with clinical information projects. Differences between installation, implementation, transition and actual transformation are suggested, and methods for managing subcultures in healthcare (IT, clinical, administrative) are reviewed. Cross-listed with ISMG 6071. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HLTH 6072 - Management of Healthcare Information Technology

Provides an introduction to the management of information technology in healthcare. A description of information processing, the origin, content, evolution of healthcare information systems, and the methodologies deployed to acquire and manage information requirements are discussed. Cross-listed with ISMG 6072. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HLTH 6075 - International Health Travel Study

Experiential course, which is designed to open students up to innovative health delivery practices in an international location. Students learn how health issues such as reproductive health, infectious diseases, mental health, health and economy, and chronic diseases are handled in community and public health settings. Class trips are usually 14-18 days to an Asian country during the month of January. Prereq: HLTH 6010 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HLTH 6740 - Profiles in Health Care

This colloquium provides a rare opportunity for students to interact with top CEOs from health care organizations around the country. Students learn about HMOs, hospitals, medical group practices, consulting, managing careers, how to get jobs, and how to be successful in a job. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HLTH 6770 - Healthcare Quality and Outcomes

Studies the identification, measurement and improvement of healthcare quality. Covers, historic and contemporary views of quality, improvement theories and methods, organizational quality systems, leadership, patient safety, cost and quality, quality measurement and reporting, clinical outcomes, care redesign and medical terminology. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HLTH 6800 - Special Topics

Offered irregularly. Current interests in the health management field. Topics recently offered include: international health, ethics, general systems theory, and key issues for health systems. Consult the current 'Schedule Planner' for semester offerings. Prerequisites vary according to topics and instructor requirements. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HLTH 6840 - Independent Study: HLTH

Instructor approval required. Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study. Max hours: 8 Credits. **Semester Hours:** 1 to 8

HLTH 6911 - Health Field Studies

The objective of this course is to expose students to health care organizations with which they are not familiar. Each student is assigned to a health care organization and given a specific problem or project to complete. Prereq: HLTH 6010 or permission of instructor. After registration, please contact Errol.Biggs@ucdenver.edu for further instructions. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Health & Behavioral Sciences

HBSC 5020 - Global Health: Comparative Public Health Systems

Within a limited period of time, middle and low income countries have experienced dramatic changes that affect the length and quality of peoples' lives. The health indicators for each country reflect a rich and meaningful context within interacting systems of economic, social, cultural patterns, and environmental and social justice. Analysis and contrast of public health indicators such as the millennium development goals develop an understanding of the complexity against a background of change. Prereq: Upper division and/or graduate standing. Cross-listed with HBSC 4020 and PBHL 4020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 5021 - Community Health Assessment

Introduces applied methods of public health, including: analyzing community-level assessment data, developing a casual model for selected health outcomes, maximizing community participation in the assessment process, developing assessments as a team, and setting the stage for effective intervention and evaluation. Prereq: Upper division standing, a course in statistics, and an introductory course in epidemiology (HBSC 5001, 4001). Max hours: 3 Credits.

Semester Hours: 3 to 3

HBSC 5031 - Ethnographic Research in Public Health

Qualitative, ethnographic tools for practical applications in public health, including methods of direct observation, informant interviews, focus groups, structured ethnographic methods, rapid assessment and participatory action research. Basic analytic strategies, including review of computer software, coding and data display techniques. Cross-listed with PBHL 4031. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 5040 - Social Determinants of Health

This course explores social inequalities in physical and mental health, the illness experience, the healing professions, health policy, relations between providers and patients, and the structure, access to, and financing of health care organizations, with some cross-national discussions. Prereq: Graduate standing. Cross-listed with PBHL 4040, SOCY 4040/5040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 5060 - Evolutionary Medicine

Evolutionary medicine is a relatively new approach for understanding patterns of human health and disease. In this course, students will learn how human evolutionary history has shaped our susceptibility and resistance to both chronic and infectious diseases. Prereq: ANTH 1303. Cross-listed with ANTH 4060 and 5060, PBHL 4060. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 5080 - Global Health Practice

A travel-study course that provides students the opportunity to work on global health issues in the context of a supervised internship experience. In addition to a formal internship placement or directed research opportunity, students attend formal lectures and participate in seminars devoted to addressing those health issues most relevant to the country in which the course is being taught. Prereq: HBSC/ANTH 5014/4010, HBSC/ANTH 5024/4020, HLTH 6070 or equivalent. Cross-listed with ANTH 4080 and 5080, PBHL 4080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 5090 - Political Economy of Drugs

Psychotropic drugs, both legal and illicit, are a predominant part of our everyday lives. This course examines their use and meaning within cultures, and the social, political and economic issues that surround their production, use and misuse. Prereq: Introductory course in Cultural Anthropology. Cross-listed with ANTH 4090/5090 and PBHL 4090. Max hours: 3 Credits.

Semester Hours: 3 to 3

HBSC 5110 - Public Health Perspectives on Family Violence

Public health views family violence from a prevention perspective. Our exploration of child abuse, intimate partner violence, and other forms of family violence will complement other disciplinary approaches by focusing heavily on the community and social factors that contribute to abusive relationships. Theories of power and coercion and approaches to researching these issues will be analyzed and discussed through our exploration of the various forms of family violence. Prereq: Graduate standing. Cross-listed with PBHL 4110. Max hours: 3 Credits.

Semester Hours: 3 to 3

HBSC 5200 - The Global HIV/AIDS Epidemic

Provides a foundation for a critical analysis of HIV/AIDS in global context, concerning topics such as disease, the body, ethnicity/race, gender, sexuality, risk, addiction, power, and culture together with a set of ethnographic texts that explore the epidemic's impact. Cross-listed with HBSC 4200 and PBHL 4200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 5620 - Health Risk Communication

Acquaints students with contemporary theory, research, and practice in health risk communication. Cross-listed with COMM 5620/4620, ENVS 5620, and PBHL 4620. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 5840 - Independent Study

This course requires active independent learning based upon a written curricular outline and agreement with a faculty from Health and Behavioral Sciences who supervises the student's work throughout the semester. Prereq: Permission of instructor required. Max hours: 9 Credits.

Semester Hours: 3 to 3

HBSC 5939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 6

HBSC 5995 - Travel Study

A flexible format that permits courses to be taught in various areas of the world. Prereq: Graduate standing and permission of instructor. Max hours: 12 Credits. **Semester Hours:** 3 to 9

HBSC 5999 - Topics in the Health and Behavioral Sciences

An in-depth study of selected social science perspectives/theories and their applications to population health. Topics will vary from semester to semester, with a particular emphasis on current, salient population health problems. Prereq: Graduate standing or permission of instructor. Cross-listed with PBHL 4999. Max hours: 9 Credits. **Semester Hours:** 3 to 3

HBSC 6320 - Human Genetics: Legal, Ethical and Social Issues

Examines legal, ethical, and social issues that have come about with advances in human genetics. Topics include privacy, informed consent, discrimination, forensics, medical malpractice, and property rights. Prereq: Graduate standing. Cross-listed with HBSC 7320, ANTH 6041. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 6840 - Independent Study: HBSC

Max hours: 9 Credits. **Semester Hours:** 1 to 3

HBSC 7001 - Colloquium Series in the Health and Behavioral Sciences

Features presentations by core, affiliated and adjunct faculty; alumni; distinguished guest speakers; and students nearing completion of the dissertation. The goal is to expose students to cutting-edge applications of health-related social and biological science research and to introduce students to the research interests of core and affiliated HBS faculty, advanced students, and alumni who they might otherwise not have the opportunity to meet. Note: Required for ALL first and second year students but open to all graduate students and faculty. May be taken up to three times for credit. Max hours: 3 Credits. **Semester Hours:** 1 to 1

HBSC 7011 - Theoretical Perspectives in Health and Behavioral Science I

Covers the following subject areas: philosophy and epistemology of the social and behavioral sciences as they are applied in public health and health care contexts; historical perspectives of Western biomedicine and public health; cross-cultural perspectives on health systems; class, ethnic, and gender correlates of health and sickness; critical perspectives on Western health and health care models; and the structure and organization of health care systems. Note: Part I of a required, two-semester, interdisciplinary, team-taught, seminar-format course that meets three hours a week for the academic year. Prereq: Admission to the Health and Behavioral Sciences program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 7021 - Theory in Health and Behavioral Sciences

Covers theories utilized in development and assessment of public health programs with goals to improve health. Students acquire skills in theory building and testing and how to best utilize theory to address pressing health concerns. Prereq: HBSC 7011. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 7031 - Human Ecology and Environmental Adaptation

Focuses on the interplay of biology, environment, culture, and behavior in the causes and exacerbation of disease. The course includes the following topics: health in environmental and evolutionary contexts; models of causation in biomedicine and other medical systems; individual, community, and population manifestations of health and disease; and biocultural interaction in disease process. Specific case studies drawn from contemporary health problems are used to illustrate in detail the nature of these processes. Prereq: Admission to the Health and Behavioral Sciences program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 7041 - Research Design and Methods in the Health and Behavioral Sciences I

This course has four principal aims: (1) to provide students a working knowledge of research methodology as applied to field research efforts; (2) to enable students to apply research methodologies to areas of particular interest in the health and behavioral sciences; (3) to expose students to data manipulation techniques common to social science quantitative research; and (4) to teach basic research proposal development techniques. Prereq: Admission to the Health and Behavioral Sciences program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 7051 - Qualitative Research Design and Methods

Much of the data collected in the social sciences is interview- and text-based. This course explores methods for collecting and analyzing these data and theoretical paradigms that underlie these methods. Cross-listed with ANTH 6063. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 7061 - Social Statistics

This course covers the theory and application of basic and advanced statistical methods for social and health research. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 7071 - Social and Behavioral Determinants of Health and Disease

Surveys the distribution, determinants, and psychological and behavioral aspects of health and disease. Social, economic, environmental, and cultural variations in and determinants of health, disease, and quality of life, as well as barriers to access and utilization, geopolitical influences, environmental and social injustice, historical trends, and future directions are addressed. Prereq: HBSC 5001 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 7111 - Applications of the Health and Behavioral Sciences

The purpose of this course is to help students select and refine a dissertation research topic. Each student, through presentations and discussions of their work, will receive feedback from fellow students and the instructor, and will have an opportunity to improve written and oral presentation skills. Prereq: HBSC 7041. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 7120 - Human Reproductive Technologies and the Law

Examines the legal, ethical, and social issues that have come about with advances in assisted reproductive technologies (ART). Illustrates how lawyers, judges, bioethicists, legislators, and policy makers have addressed these issues. Prereq: Graduate standing. Max hours: 3 Credits.

Semester Hours: 3 to 3

HBSC 7121 - Dissertation Proposal and Research

Max hours: 8 Credits. **Semester Hours:** 6 to 8

HBSC 7210 - Human Health and Environmental Pollution

Examines the roles of technology and society in the etiology and control/prevention of adverse health outcomes associated with releases of toxic substances. Examples come from experience and the literature on occupational cancer and reproductive hazards, occupational and environmental regulation of hazardous wastes, air, and water pollution. Cross-listed with ENVS 6210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 7235 - GIS Applications in the Health Sciences

Examines how GIS is used throughout the health care industry and public health. Covers environmental health, disease surveillance, and health services research. Students critically review current literature and gain hands-on experience with GIS software. Prereq: GEOG 4080 or GEOG 5080, public health background, or consent of instructor. Cross-listed with GEOG 4235, GEOG 5235. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 7310 - Environmental Epidemiology

Provides a basic understanding of the methods used to study the effects on human health of exposures to physical, chemical, or biological factors in the external environment. The course explains the use of epidemiologic methods through a problem solving approach to investigating environmental health case studies. Prereq: A basic statistics course and graduate standing or permission of instructor. Cross-listed with ENVS 6230. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 7320 - Human Genetics: Legal, Ethical and Social Issues

Examines legal, ethical, and social issues that have come about with advances in human genetics. Topics include privacy, informed consent, discrimination, forensics, medical malpractice, and property rights. Prereq: Graduate standing. Cross-listed with HBSC 6320, ANTH 6041. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 7340 - Risk Assessment

The process of determining the likelihood and extent of harm that may result from an activity or event. Topics covered are: hazard identification, dose-response evaluation, exposure assessment, and risk characterization. The subjects of risk management, risk perception, and risk communication are also discussed. Prereq: Graduate standing or permission of instructor. Cross-listed with CVEN 5494, ENVS 6200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 7360 - Toxicology

Introduces the field of toxicology. Emphasizes the mechanisms by which chemicals produce toxic effects and the methods for assessing toxicity. Note: Designed for students in the environmental sciences and occupational health fields. Prereq: One year college chemistry and one year college biology. Cross-listed with ENVS 6220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 7400 - Topics in the Health and Behavioral Sciences

A flexible seminar format for dealing with topics of special interest in the health and behavioral sciences. Topics to be considered vary from semester to semester. Prereq: Graduate standing. Max hours: 9 Credits. **Semester Hours:** 3 to 3

HBSC 8990 - Doctoral Dissertation

Prereq: Admission to the Health and Behavioral Sciences program. Max hours: 30 Credits. **Semester Hours:** 1 to 10

Health Humanities

HEHM 3100 - Introduction to Culture, Society and Medicine

This course introduces students to the rich field of medical humanities. It examines how various disciplines analyze relationships among culture, society and medicine, and what humanistic approaches can teach us about biomedical theory and health care training and practice. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Historic Preservation

HIPR 6010 - Preservation Theory and Practice

The practice of historic preservation has evolved in a specific policy context. This introductory course introduces basic American institutions and laws associated with preservation as well as standards, definitions, and practices associated with these. Cross-listed with URPL 6499. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIPR 6090 - Special Topics in Historic Preservation

Various topics in historic preservation, according to current faculty and student interests. Prereq: HIPR 6010 or permission of instructor. Max hours: 12 Credits. **Semester Hours:** 3 to 3

HIPR 6110 - Regionalisms & the Vernacular

This class explores the history of the built environment from the perspective of evolutionary change; peoples attempting to meet utilitarian needs, respond to environmental forces, societal expectations, and aesthetic aspirations through design. The course looks closely at vernacular structures in a global context. Prereq: HIPR 6010 or permission of instructor. Cross-listed with ARCH 6350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIPR 6170 - Preservation Design Studio

Preservation Design Studio provides a project-based learning experience for Historic Preservation students; who are typically integrated into a pre-approved studio of one of the College of Architecture & Planning's departments. Topics vary according to faculty interests. Co-req: HIPR 6171. Cross-listed: Varies by semester. Max hours: 8 Credits. **Semester Hours:** 4 to 4

HIPR 6171 - Preservation Design Seminar

Preservation Design Seminar supports fuller discussion of key themes and concepts in HIPR 6170. Topics vary according to faculty interests. Co-req: HIPR 6170. Cross-listed: Varies by semester. Max hours: 4 Credits. **Semester Hours:** 2 to 2

HIPR 6210 - Survey, Significance, Recognition

This course covers the concept of "historic significance" and develops skills in understanding and professionally utilizing this concept. Procedures and skills are introduced. Prereq: HIPR 6010 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIPR 6310 - Documentation, Analysis, Representation

This methods course focuses on skills development in in-situ documentation of the historic environment. The course includes modules on: a) historic records, b) archaeological evidence, c) building and site measurement, d) photographic & photometric methods, e) geo-spatial data, f) graphic representation, and g) reporting formats. Prereq: HIPR 6010 or permission of instructor. Cross-listed with ARCH 6352. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIPR 6410 - Urban Conservation: Context for Reuse

This course begins with the premise that human habitats, and especially cities, are dynamic and ever changing; and that the preservationist cannot (and should not try) to freeze cities in a static representation of the past. The course deals with both the philosophical and political contexts, but emphasizes the role of strategic design intervention in the shaping of evolving cities. This includes traditional preservation activities, but also recognizes the importance of progressive change. Readings are diverse, but at least two case study cities are used to ground the concepts. Class activities include: a) research, b) field study, c) design, and d) presentation. Prereq: HIPR 6010 is recommended. Cross-listed with ARCH 6355. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIPR 6510 - Building Conservation

This course emphasizes the relationship between knowledge acquisition, professional judgement, and design modification. Topics include: 1) Historic Building Types & Methods, 2) Field and Lab Methods of Building Assessment, and 3) Management of Building Rehabilitation. The course takes an integrative approach to the scientific, aesthetic, managerial and legal dimensions of preservation. Prereq: HIPR 6010 or permission of instructor. Cross-listed with ARCH 6351. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIPR 6610 - Reading the City

Design and planning professionals, including preservationists, must learn to work in environments with which they have had little previous knowledge. This course emphasizes gaining understanding of a novel environment and translating that knowledge into a well researched and media savvy professional presentation. Students prepare a research plan, then conduct research on a relatively unfamiliar urban environment, such as Chicago (or other major city), returning to prepare, present, and critically reflect upon their applied research through a media-savvy final project. Prereq: HIPR 6410 is recommended. Cross-listed with ARCH 6232. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIPR 6840 - Independent Study

Studies initiated by students or faculty and sponsored by a faculty member to investigate a special topic or problem related to historic preservation. Prereq: Permission of instructor. Max hours: 3 Credits. **Semester Hours:** 1 to 3

HIPR 6851 - Professional Project

The Professional Project is one of two options for completing the Capstone Requirement. There are multiple ways of satisfying this requirement, but the agreed upon Project must show critically reviewed evidence of professional competence in the field of historic preservation. Prereq: Permission of instructor. Max hours: 3 Credits. **Semester Hours:** 1 to 3

HIPR 6930 - Internship

Designed to provide professional practice experience. The internship is composed of eight to twelve hours per week working in a professional preservation setting during the regular semester. Prereq: Permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIPR 6951 - Thesis

Thesis is one of two options for completing the Capstone Requirement. Students may choose to develop a specialized thesis in some topic related to historic preservation. Prereq: LDAR 6949. Max hours: 6 Credits. **Semester Hours:** 6 to 6

History

HIST 1016 - World History to 1500

Surveys the rise of civilizations and their interactions from prehistoric to modern times. The emphasis is on the understanding of the various styles or characteristics of civilizations within a global context. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 1026 - World History Since 1500

Surveys the interactions of the world's civilizations in modern times. The emphasis is on understanding the concept of modernization within a global context. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

HIST 1211 - Western Civilization I

Introduces ancient Mediterranean civilization and the birth of Europe. Covers topics on economics and society, political organization, intellectual history, and art from 3000 B.C. to A.D. 1500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 1212 - Western Civilization II

Introduces modern European civilization and its spread over the world. Covers topics on economics and society, political organization, intellectual history, and art from A.D. 1500 to the 20th century. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 1361 - U.S. History to 1876

Provides an introduction to the major forces, events and individuals that shaped the historical development of American society, beginning with the European settlement of America and concluding with the Civil War, reconstruction and the early growth of an industrial order. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-HI1. **Semester Hours:** 3 to 3

HIST 1362 - U.S. History Since 1876

Provides an introduction to the major forces, events, and individuals that shaped the historical development of American society from the Civil War to the present. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-HI1. **Semester Hours:** 3 to 3

HIST 1381 - Paths to Present

Examines several topics of profound interest to historians world wide: nature and technology, secular and religious faiths, and concepts of political union. The experience of the U.S. as it relates to the experiences of other periods and cultures. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-HI1. **Semester Hours:** 3 to 3

HIST 1400 - Controversies in History

Examines a variety of cases where historians have significant disagreement or diverse interpretations regarding "what happened" and "why," to come to an understanding of what historians do and how they do it. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

HIST 3031 - Theory and Practice of History: An Introduction to the Major

Introduces history majors to the discipline at the outset of their course work. Covers historiographical trends and methodologies, and familiarizes students with the various types of research and writing they are likely to encounter in their classes. Note: This course should be taken as early as possible, and must be taken before HIST 4839. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3121 - The World at War, 1914-1945

Examines World Wars I and II as episodes in a protracted conflict among the nations of the capitalist West, the emerging states of Asia and the colonial world, and the USSR. Studies the causes and consequences of the wars. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3230 - The American Presidency

Explores the presidency in U.S. History. Topics include: ideological and constitutional foundations; expansion of presidential power in domestic politics and international relations; evolution of presidential campaigns; and dimensions of presidential leadership in politics, society and culture. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3231 - Famous U.S. Trials

This introduction to the history of the U.S. trial court system will contextualize significant trials in historic and cultural moments. The course will explore the roles of legal communication and mass communication in contemporary and subsequent representations of the trial. Cross-list COMM 3231. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3232 - The American Colonies to 1750

The maturation of the American colonies within the British Empire, the development of commercial and intellectual centers, the creation of uniquely American politics, and the unfolding of critical differences between North and South. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3235 - U.S. Labor History, 1800 to the Present

Explores the experiences, contributions, and struggles of working-class Americans from the Civil War to the present. Areas of focus include pre-industrial and post-industrial labor, slavery, agricultural labor, gender and working class culture outside of the work place. Particular attention is paid to immigration, ethnicity, race and gender, as they relate to the history of America's laboring class. Prereq: Upper division standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3343 - Women in U.S. History

An analysis of women's place in society, in the work place, and in the political arena over the last 300 years. Cross-listed with WGST 3343. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3345 - Immigration and Ethnicity in American History

Explores the personal and collective experience of immigrants to America. Discusses problems of assimilation, urban and rural experiences, and implications for politics, the economy and social attitudes. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3347 - African-American History, 1619-Present

Explores the African-American experience, including definitions of citizenship, strategies for protest and resistance, models of leadership, religious life and cultural expression, divisions of class, color and gender. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3348 - The African-American Protest Tradition, 1865 - Present

Examines a series of influential African-American activists and considers such themes as intra-racial divisions, Pan-Africanism, black nationalism, the use of the courts and legal efforts, and black conservatism. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3349 - Social Movements in 20th Century America

By surveying the major American social movements of the twentieth century, this course will explore how Americans have created categories of race, ethnicity, culture, and sexuality and how elite and marginalized citizens have deployed these categories in politics. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3350 - Colonial Latin America

Surveys the creation of colonial empires by Spain and Portugal, 1492-1808. Topics include Native American responses to European incursions, women in colonial society, and slavery in Latin America. Cross-listed with ETST 3350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3360 - Denver History

Introduces the social, political, economic, and cultural life of this mile high metropolis. Founded in the 1858 gold rush, Denver has grown into a five-county metropolis of over two million. Explore this boom and bust history in lectures, slide shows and walking tours. This course offers students a chance to do their own primary source research project, as well as exams and book reports. Note: Open to all students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3364 - Native Americans and Spaniards in North America

Examines the interactions between Native Americans and Spanish invaders beginning in the 16th century. The course explores the impact of colonialism in what is today the American Southwest. Focuses on Native American adaptation and resistance to the European presence. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3365 - Aztlan in the United States: Chicano History from 1821

Explores the impact of U.S. rule on the Southwest, paying particular attention to legal, economic, and social changes that created new political and cultural identities in the Southwest. Cross-listed with ETST 3365. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3366 - Environmental History of North America

Examines the conversation that the peoples of North America have had with the earth, from Indian prehistory to modern industrial civilization. Out of the people-land dialogue has emerged a variety of cultures, some of which, as we shall see, successfully adapted to their environment, while others failed. Prereq: HIST 1361, 1362, 1381 or 1382. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3396 - History of the American Indian

Indigenous nations in North America comprise hundreds of diverse cultures. This course examines U.S. Indian policy and how indigenous nations responded; how they creatively adapted, and resisted cultural change; and how they continue to persist culturally, socially, and politically. Cross-listed with ETST 3396. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3451 - Introduction to African History

By looking at specific examples of the cultural, political, and economic experience of African society, this course attempts to introduce and make comprehensive the diverse history of the people of Africa. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3460 - Modern Latin American History

Surveys the historical development of the modern Latin American countries, beginning with the independence movements of the early 19th century. Emphasizes the 20th century issues and problems that have characterized these countries and affected their relations with the United States. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3469 - Intro to East Asia: To 1800

This course introduces the history of China, Japan and Korea to 1800 focusing on political, economic and social changes. It is designed for lower division undergraduates with no background in Asian history. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3470 - Intro to East Asia: Since 1800

This course introduces the history of China, Japan and Korea from 1800 to the present, focusing on political, economic and social changes. It is designed for lower division undergraduates with no background in Asian history. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3471 - Islam and Asia

The course traces patterns of identity construction and compares social, political and cultural practices across regions and through Asia's diverse states and empires. Taking a broad survey of historical processes led by Asian Muslims, the course asks: why did some regions of Asia convert to Islam in large measure and others not? Why has the nineteenth century been called "Islam's Indian century?" "What is the difference..." between creating a Muslim homeland like Pakistan and an Islamic state like Iran? Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3480 - Introduction to European History

Students are introduced to the major themes of European history and culture from the Enlightenment to the present. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3481 - Ancient Greece

A history of the Greek-speaking world, from the Bronze Age depicted in Homer's epics to Alexander the Great and the Hellenistic Kingdoms. The course addresses the political, intellectual, socioeconomic, and military history of the eastern Mediterranean, with an emphasis on Greece. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3482 - Rome: City and Empire

Pagan Rome from its earliest beginnings to the rise of Christianity. Emphasis is on the military, socio-economic, and political history of Rome, its empire in Italy, and its domination of the Mediterranean World (ca. 800 B.C. to A.D. 300). Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3483 - Introduction to Modern South Asia

Surveys the social, economic, and political processes that shaped modern South Asia. Considers issues in contemporary political debates within their original historical contexts and trace the power of relationships that affected changes, long-term continuities, and revivals. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3484 - British Isles to 1714

A sampler of the rich, diverse, and dramatic history of the peoples of the British Isles. State formation, economic and social change and cultural values are several of the themes threaded through this survey course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3485 - British Isles Since 1714

This course examines the dramatic rise of the British industrial, commercial, and political empire during the 18th and 19th centuries and its equally dramatic decline in the 20th century. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3486 - Renaissance and Reformation

Explores the late 13th through middle 17th centuries when European art and culture changed dramatically, and when Europe was torn by explosive ideological conflicts and religious upheaval. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3487 - Medieval Europe

Surveys the general history of Europe from the fall of Rome to the opening of modern Europe. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3488 - Tudor-Stuart England

England's rise from obscurity in 1487 to the dawn of her age of European and world dominance in the early 18th century. Family life and popular culture as well as Henry VIII, Queen Elizabeth, Parliament, and Cromwell. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3500 - African History in Novels and Films

Introduces modern Africa through the eyes of creative artists. Various topics, such as childhood, religion, and colonialism, are presented from various points of view--African and non-African. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3601 - Colorado History

Presents the story of the people, society, and culture of Colorado from the earliest Native Americans, through the Spanish influx, the fur traders and mountain men, the gold rush, railroad builders, the cattlemen and farmers, the silver boom, the tourists, and the modern twentieth-century state. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3606 - Science, Technology, and Society in the Modern World

Examines the relationships among science, technology, and society from the early 19th century to the present. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3706 - Age of Revolution

Examines revolutions in selected societies around the world during the period from 1750 to 1950. The specific revolutions chosen may vary, but representative upheavals in both the Western and non-Western worlds are examined. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3810 - Topics

Topics in history with varying subtitles reflecting course content. Max hours: 9 Credits. **Semester Hours:** 3 to 3

HIST 3840 - Independent Study: History

Max hours: 6 Credits. **Semester Hours:** 1 to 3

HIST 3939 - Internship

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

HIST 3995 - Travel Study

Created for students doing travel study in a foreign country; register through the Office of International Education. Max hours: 15 Credits. **Semester Hours:** 1 to 15

HIST 4027 - Enlightenment and Revolution

In this course students explore the relationship of ideas and events in Europe during the 17th and 18th centuries. Modernizing trends in the European economy, religion, science, states and international affairs leading up to the French Revolution. Cross-listed with HIST 5027. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4028 - Nations and Classes: 19th Century Europe

Focuses on material and ideological changes in 19th century Europe, exploring social, cultural, political, economic, and intellectual developments. Cross-listed with HIST 5028. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4029 - Age of Anxiety in Europe

Looks at Europe at the end of the nineteenth century in an effort to determine if there is any relation between the peculiarities in culture at the time and the horrors in politics that followed. Cross-listed with HIST 5029. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4030 - Europe During the World Wars

Covers the history of the two world wars and their origins, political and social upheaval during the interwar economic crisis, the rise of communism, Italian fascism and Nazism, with an emphasis on cultural production and intellectual life. Cross-listed with HIST 5030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4031 - Contemporary Europe

History of Europe since 1945. Students study the economic, social, and political history of Europe since World War II, with a special emphasis on the Cold War and intellectual currents. Cross-listed with HIST 5031. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4032 - Globalization in World History Since 1945

An interdisciplinary course on contemporary world history and globalization. While the course is historically structured, economic, political, and sociological matters are explored. Cross-listed with HIST 5032. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4034 - Core Themes in European History

Core themes in modern Europe, 1750 to the present. Cross-listed with HIST 5034. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4035 - Crisis and Transformation: Europe's 20th Century

This course examines 20th century European history focusing on themes of crisis and transformation. We will explore how devastating wars, economic depression, stark ideological divisions, and revolutionary social, political and cultural movements dramatically changed Europe over the course of the century. Cross-listed with HIST 5035. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4046 - Victorians and Victorianism

Taking an interdisciplinary perspective, this course examines English people and English life during the reign of Queen Victoria, 1837-1901. What were the defining features of the Victorian age? What did it mean to be "Victorian?" When and why did the Victorian paradigm break down? Cross-listed with HIST 5046. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4051 - Britain and The Empire

Examines 19th and 20th century British history, addressing social, cultural, and political themes. Explores industrialization, state growth, and imperialism; relationships between race, gender, and class; and the ways in which colonizers and the colonized experienced empire. Cross-listed with HIST 5051. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4055 - The Atlantic Slave Trade: Africa, Caribbean and U.S.

Presents a broad overview of the slave trade in the Atlantic World, including discussion of the slave plantation, the creation of Caribbean societies and the consequences of independence from Britain. Cross-listed with HIST 5055. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4062 - Modern France, 1789 to the Present

Considers the shaping of modern France from the 18th century Bourbon Monarchy and aristocratic society to today's liberal democracy, in which multiculturalism, globalization and supranational institutions call into question the very nature of French identity. Cross-listed with HIST 5062. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4071 - Modern Germany

Surveys the major political, institutional, social, economic, and cultural developments that have occurred in Germany since the late 18th century. Cross-listed with HIST 5071. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4074 - Post-War Germany

Historical survey of Germany since the second world war, with an emphasis on culture and society. Cross-listed with HIST 5074. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4075 - Travel Stories and Origins of Cultural Anthropology

Examines the early history of cultural anthropology by means of classic travel literature. Cross-listed with HIST 5075. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4076 - History of Modern Science

Surveys the history of science from the 18th century to the present. Treats all disciplines, from physics to physiology, in an attempt to understand how the natural world came to dominate our sense of ourselves. Cross-listed with HIST 5076. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4082 - Reform and Revolution in Russia: The 1860s to 1917

Emphasis upon Russia's attempts to modernize, beginning with great reforms of the 1860s and 1870s; increasing polarization of government and opposition groups. Examines governmental point of view through several monographs and revolutionary theory, including those of Marx, Engels, Lenin and Trotsky. Cross-listed with HIST 5082. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4083 - Russia Since 1917

Studies the development of the Soviet Union from its formation in the October Revolution, through the Civil War, the new economic policy, industrialization, collectivism, the Stalinist purges, up to the present. Cross-listed with HIST 5083. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4086 - Eastern Europe

Studies the countries of Eastern Europe from their origins in the Middle Ages to the present. Cross-listed with HIST 5086. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4133 - Management of Material Culture and Museum Collections

This course provides in-depth knowledge of the rudiments of material culture documentation, preservation and management. While we have designed this class for those interested in working in history museums, this is also appropriate for those students who want to learn the place of artifacts in studying history. Cross-listed with HIST 5133. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4201 - Core Themes in U.S. History

This course surveys major themes in U.S. history. Cross-listed with HIST 5201. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4210 - The American Revolution

The crisis of the British Empire in North America from the end of the French and Indian War to the ratification of the American Constitution. Topics include the emerging economy, constitutional arguments against Britain, the conduct of the war, and the definition of a republic. Cross-listed with HIST 5210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4212 - Civil War and Reconstruction

Begins with the causes and outbreak of the American Civil War, describes the military conflict and the social aspects of the war, examines the federal efforts to reconstruct the southern states, and protect the rights of Black citizens after 1865. Cross-listed with HIST 5212. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4213 - The Gilded Age and Early 20th Century Challenges: U.S. History, 1865-1932

Topical study of major events in America, including Reconstruction; the rise of industry and the workers' response; westward expansion and the plight of Native Americans; urbanization and immigration; agrarian upheaval; Progressivism; World War I; the challenges of the 1920s and the onset of the Great Depression. Cross-listed with HIST 5213. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4216 - History of American Popular Culture

Explores the evolution of film, radio, television, and popular music from the 1940s to the 1980s. The course uses these and other forms of popular art to examine American history in this era. The course focuses on the shifting trends in popular culture, how that culture reflects the larger themes in American history, and how these media have impacted the national experience. Cross-listed with HIST 5216. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4217 - Consumer Culture

This interdisciplinary course examines the dynamics of the consumer culture in the context of social, economic, and technological history. The analysis begins with 17th century European origins, and continues through recent world developments, emphasizing the U.S. since 1800. Note: Open to all students. Cross-listed with HIST 5217. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4219 - Depression, Affluence and Anxiety: U.S. History, 1929 to the Present

Examines major developments, focusing on the causes of the Depression and efforts to combat it; World War II and postwar readjustments; the Cold War and challenges of world leadership; unparalleled prosperity; Civil Rights movement; the Vietnam War; and economic uncertainties amidst general prosperity. Cross-listed with HIST 5219. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4220 - U.S. Foreign Policy Since 1912

The main thrust is the emergence of the U.S. from isolation toward full-scale participation in the affairs of Europe and other areas. Special attention is given to U.S. intervention in two world wars, the Cold War, and the over extension of U.S. commitments since 1960. Cross-listed with HIST 5220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4222 - U.S. Society and Thought to 1860

Major topics include the evolution of Protestantism from Puritans to Transcendentalists; humanitarian reforms such as abolition, temperance, and women's rights; European influences on American thought; the effect of industrialization on the development of class society; and American nostalgia for agrarian life. Cross-listed with HIST 5222. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4223 - U.S. Society and Thought Since 1860

Topical survey of the main currents of American thought and their impact upon society. Topics include American philosophy, literature (extensively), art, music, immigration and urbanization, technology, extremism of both left and right, and education. Cross-listed with HIST 5223. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4225 - Urban America: Colonial Times to the Present

Rise of the American city from colonial times to present. Major emphasis on the process of urbanization since 1840: town promotion, the industrial city, immigration, boss politics and reform, urban technology, transportation systems, minorities, city planning, and the future of urban America. Cross-listed with HIST 5225. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4226 - U.S. Business History

Surveys the major changes in business practices from colonial times to the present. Primary emphasis is placed on the Industrial Revolution and after. Topics include the emergence of major personalities in the Industrial Revolution; the rise of giant corporations; the response of industrial labor unions; government intervention and regulations and the emergence of the post-industrial society. Cross-listed with HIST 5226. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4227 - American West

Introduces the diverse peoples, places, and approaches to the development of the trans-Missouri West from prehistoric times to the present. Cross-listed with HIST 5227. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4228 - Western Art and Architecture

Introduces art and architecture of the American West, emphasizing their historical context. Students are required to do book reports and a research paper. Course includes walking tours and museum visits. Cross-listed with HIST 5228. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4229 - Colorado Historic Places

Introduces community architecture, folklore, and history for all students. Students learn how to survey, describe, and designate significant historical structures and districts. Cross-listed with HIST 5229. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4230 - Women in the West

Focuses on ways in which women, from the mid-19th century through the mid-20th century, of different races, classes, and ethnic background, have interacted and been active participants in the development of the Western states. Cross-listed with HIST 5230 and WGST 4230/5230. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4231 - History in Museums

This core course for the museum studies area of public history introduces students to the theory and practice of museum operations. It covers the basics of museum administration, museum collection and preservation, and museum interpretation from both theoretical and practical points of view. Cross-listed with HIST 5231. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4232 - Historic Preservation

Introduces the history, methodology, and goals of historic preservation. Guest speakers, field trips, research projects, and book reports. Cross-listed with HIST 5232. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4234 - Introduction to Public History

An overview of history outside the academic setting. Students have the opportunity to learn about jobs through on-site visits and presentations made by people engaged in a wide variety of occupations in history other than teaching. Cross-listed with HIST 5234. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4235 - Sports and American Society

Examines American society and culture through the history of recreational and professional sport. Issues include class, race, gender, religion, business and politics. Cross-listed with HIST 5235. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4236 - Colorado Mining and Railroads

Focuses on the transportation network that shaped the inland West, and its key role in the extractive industry that gave Colorado its start and nourished the highest state through adolescence. Cross-listed with HIST 5236. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4238 - U.S. History Through Fiction

Explores American history through novels, based on the idea that fiction offers a superb "window" through which to view the past, especially to understand the texture of American society. Prereq: Upper division standing. Cross-listed with HIST 5238. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4240 - National Parks History

Introduces how the National Park Service uses history to identify, designate, preserve, and interpret America's most outstanding historic and natural history sites. After tours of NPS sites, students select from a wide range of projects. Note: Open to all students. Cross-listed with HIST 5240. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4242 - Oral History

Trains public history students in the collection of oral history interviews. Students master core readings on the theory, practice, and ethics of oral history. Cross-listed with HIST 5242. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4243 - Public History Administration

Introduces students to the skills, practice, and ethics of public history administration. Cross-listed with HIST 5243. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4244 - Interpretation of History in Museums: Exhibits and Education

This course allows students to gain in-depth knowledge of historical interpretation through exhibits and education in a museum setting. This class is designed for those preparing to work in history museums but is also appropriate for teachers and others who want to learn how museum programs interpret history with artifacts and other historical materials. Cross-listed with HIST 5244. **Semester Hours:** 3 to 3

HIST 4245 - Heritage Tourism

History and historic sites have become big business in 21st century tourism. The heritage tourism industry is explored in this introductory course for all interested students focusing on how academic history and historians can partner with tourism and recreation interests. Cross-listed with HIST 5245. **Semester Hours:** 3 to 3

HIST 4303 - Sex and Gender in Modern Britain

Examines modern British history by focusing on sex and gender as central aspects in people's lives. Considers the ways gender shapes the realms of politics, economics, society and culture in Britain from the 18th century to the present. Cross-listed with HIST 5303 and WGST 4303/5303. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4306 - Survey of Feminist Thought

Examines changes and continuities in feminist thought from the 18th century to the present, using historical and literary materials. Explores the ways that women's characteristics, experiences, and capabilities have been understood and challenged. Cross-listed with ENGL 4306, 5306, HIST 5306, WGST 4306, 5306. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4307 - History of Sexuality

Explores the relationships between gender and norms, sexual practice, and ideas about sexuality in Europe and the United States. Examines how sex and sexuality have changed over time and how those changes relate to social, cultural, political and economic history. Cross-listed with HIST 5307 and WGST 4307/5307. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4308 - Crime, Policing, and Justice in American History

Focuses on changing legal and cultural definitions of crime, the role of the police, the evolution of punishment in theory and practice, and the role of mass culture in shaping the social history of crime and justice. Cross-listed with HIST 5308. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4345 - Gender, Science, and Medicine: 1600 to the Present

Examines the ways science and medicine have both shaped and been shaped by ideas about gender. Pays particular attention to the relationship between scientific/medical ideas about the sexes and the social organization of gender. Cross-listed with HIST 5345 and WGST 4345/5345. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4346 - Medicine and Society: the Ancients to the Present

Surveys change and continuity in definitions of health and illness, interactions between patients and practitioners, the practice of medical authority, and the relationships between science, clinical medicine, and the provision of health care. Cross-listed with HIST 5346. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4347 - History of Biology

Examines the development of modern biology from the mid-18th century to the present. Students will look at intellectual, methodological, institutional and social contexts in an attempt to answer the question of how biology became the "pre-eminent" science. Cross-listed with HIST 5347. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4348 - Mind and Malady: A History of Mental Illness

Examines the history of mental illness from the mid-18th century to the present, focusing on the institutionalization of the mentally ill, the origin of psychiatry, the development of models of mental illness and the evolution of clinical treatment. Cross-listed with HIST 5348. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4411 - Modern Mexico

Designed to familiarize students with the critical issues in Mexican political, economic and social history. Traces the emergence of independence and the difficult consolidation of an independent nation state. Cross-listed with HIST 5411, ETST 4411. Max hours: 3 Credits.

Semester Hours: 3 to 3

HIST 4412 - Mexico and the United States: People and Politics on the Border

Examines the convoluted relations between these two republics, focusing on diplomatic, cultural, and social interactions. Cross-listed with HIST 5412. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4414 - Nationalism and State Building in Latin America, 1750-1850

Explores the problems of nationalism and post-colonial state building by examining the late colonial and early national periods of Latin American history. The course discusses the impact of the enlightenment, the events of the Wars of Independence, and the quandaries faced by the new nations. Cross-listed with HIST 5414. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4415 - Social Revolutions in Latin America

A theoretical framework and an empirical basis for understanding the large-scale social movements that have influenced the course of Latin American nations. Cross-listed with HIST 5415. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4416 - The Age of Imperialism

Examines causes, character, and consequences of imperialism in the industrial era (ca. 1840-1975). Through intense study of selected cases, students gain an understanding of the different dynamics and varieties of imperialist control. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4417 - Commodities and Globalization: Dessert in World History

Traces the impact of "dessert commodities" (sugar, cacao, vanilla and coffee) on Latin America during an early period of globalization (nineteenth century). Explores cultural shifts in North Atlantic countries that created the incessant demand for dessert. Prereq: Senior or graduate student standing. Cross-listed with HIST 5417. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4418 - Trade and Premodern World History

Explores the interconnections that shaped premodern world history, considering the ways that the production, exchange, and consumption of cloth were tied to specific forms of political power, social and religious organization, and long distance economic relationships. Cross-listed with HIST 5418. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4420 - Traditional China: China to 1600

A general introduction to the history of China from the advent of historic civilization to the point of the great encounter with the West. Cross-listed with HIST 5420. Max hours: 3 Credits.

Semester Hours: 3 to 3

HIST 4421 - Modern China

Surveys Chinese history in the modern era. Includes examination of Western domination of China; revolution and internal fragmentation of China; Japanese attacks and World War II; and civil war and the communist revolution. Cross-listed with HIST 5421. Max hours: 3 Credits.

Semester Hours: 3 to 3

HIST 4422 - Lvng thr Mao's China: Life, Mat. Cult, Movies, 1949-76

Introduces students to ordinary people's daily life in Mao's China (1949-1976) through an exploration of material culture, movies and scholarship. This course pays particular attention to the ways people's everyday living intertwined with politics. Cross-listed with HIST 5422. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4431 - Modern Japan

Course of Japanese history since the Perry expedition. Covers Japanese Westernization and industrialization, the expansion of empire and defeat in World War II, the occupation, and the amazing technological and social transformation since the occupation years. Cross-listed with HIST 5431. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4451 - Southern Africa

An in-depth history of the clash of peoples and cultures in Africa south of the Zambezi River. African and Afrikaner political, economic and cultural development in a single land and the consequences of several competing nationalisms existing side by side are examined. Apartheid and African opposition to it are analyzed. Cross-listed with HIST 5451. Max hours: 3 Credits.

Semester Hours: 3 to 3

HIST 4455 - African Struggle for Independence

An assessment of African leadership from the colonial era to the present. Cross-listed with HIST 5455. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4460 - The Islamic World's Golden Age

The Islamic world's golden age before European expansion was characterized by sophisticated business institutions, scholarship, new technologies, and art. This class asks: What roles did Islam play in connecting diverse societies across broad regions? What characterized these territories? Cross-listed with HIST 5460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4461 - The Modern Middle East

Cross-listed with HIST 5461. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4471 - The Second World War

The War in its totality: causes, military strategies (equal treatment to European and Pacific theaters), campaigns, impact of technology and weapons, political and social upheaval. Cross-listed with HIST 5471. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4472 - The 1950s: Korean War, the Cold War and Social Transformation

A critical and methodical exploration of several of the social, cultural, and political events of the 1950s. Investigates the complex interaction between politics and culture during this decade, paying close attention to anti-Communist thought and the Korean War. Cross-listed with HIST 5472. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4475 - The Vietnam War

Covers the conflict in Vietnam, with roots in the period prior to World War II. Main topics include the rise of nationalism in French Indochina, the war against the French, the Northern move to unify Vietnam, American intervention, and eventual victory of the Northern regime. Cross-listed with HIST 5475. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4501 - World History for Educators

Introduces world history for candidates for teaching positions. Discussion of themes, problems of research and interpretation, and relevant instructional methods. Prereq: Upper division standing. Cross-listed with HIST 5501. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4503 - Topics in History of Science

Themes vary from year to year. Possible topics: Darwinism, Nature of Memory, Time and Space, Origins. Cross-listed with HIST 5503. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4504 - Animals in U.S. History

Human-animal relationships offer powerful and unexpected perspectives on the American past. An eclectic range of readings and viewings, written assignments and contemplative experiences will contextualize contemporary practices, beliefs, and ethics -- vegetarianism, hunting, pet-keeping, and many others -- in historical context. Cross-listed with HIST 5504. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4621 - Explorers and Exploration

Examines the history of travel and exploration from the 13th century to the present. Readings draw primarily from first-person accounts to understand why people voyage, what they hope to discover, and what happens to them along the way. Cross-listed with HIST 5621. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4622 - Oceans In History

Explores emerging historical scholarship of transoceanic exchanges, relations, and transformations in early modern world history. Examines how historians analyze and conceptualize global interactions. Topics include voluntary and forced migrations, resistance and revolution, transoceanic economic relations, piracy, and environmental change. Cross-listed with HIST 5622. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4645 - Archival Management

This course studies theory and principles pertaining to the management of current and non-current records, public and private archival materials, as well as the administration of archival manuscript depositories for housing records of historical value. Cross-listed with HIST 5645. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4810 - Special Topics

Cross-listed with HIST 5810. Max hours: 12 Credits. **Semester Hours:** 1 to 3

HIST 4839 - History Seminar

Covers the use of documentary sources and historical criticism, with students utilizing these skills in a historical research paper. Note: Required for history majors. Preferably taken in the senior year. Prereq: HIST 3031 with a grade of C or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4840 - Independent Study: HIST

Max hours: 12 Credits. **Semester Hours:** 1 to 3

HIST 4849 - Independent Study History Honors Research Paper

Students competing for history honors must take this course to prepare their honors paper. The course requires students to produce a finished research paper of professional quality under the direction of a history faculty member. Prereq: Open to advanced history majors only. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4850 - History in the Community: History Day Mentoring

Under direction of UCD history faculty, students participate in the Denver Public Schools National History Day program. They gain teaching experience by mentoring DPS students in preparation of History Day projects, and may also participate in judging local and state History Day contests. Prereq: Permission of department chair. Max hours: 3 Credits. **Semester Hours:** 1 to 3

HIST 5027 - Enlightenment and Revolution

In this course students explore the relationship of ideas and events in Europe during the 17th and 18th centuries. Modernizing trends in the European economy, religion, science, states and international affairs leading up to the French Revolution. Cross-listed with HIST 4027. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5028 - Nations and Classes: 19th Century Europe

Focuses on material and ideological changes in 19th century Europe, exploring social, cultural, political, economic, and intellectual developments. Cross-listed with HIST 4028. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5029 - Age of Anxiety in Europe

Looks at Europe at the end of the nineteenth century in an effort to determine if there is any relation between the peculiarities in culture at the time and the horrors in politics that followed. Cross-listed with HIST 4029. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5030 - Europe During the World Wars

Covers the history of the two world wars and their origins, political and social upheaval during the interwar economic crisis, the rise of communism, Italian fascism and Nazism, with an emphasis on cultural production and intellectual life. Cross-listed with HIST 4030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5031 - Contemporary Europe

History of Europe since 1945. Students study the economic, social, and political history of Europe since World War II, with a special emphasis on the Cold War and intellectual currents. Cross-listed with HIST 4031. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5032 - Globalization in World History Since 1945

An interdisciplinary course on contemporary world history and globalization. While the course is historically structured, economic, political, and sociological matters are explored. Cross-listed with HIST 4032. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5034 - Core Themes in European History

Core themes in modern Europe, 1750 to the present. Cross-listed with HIST 4034. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5035 - Crisis and Transformation: Europe's 20th Century

This course examines 20th century European history focusing on themes of crisis and transformation. We will explore how devastating wars, economic depression, stark ideological divisions, and revolutionary social, political and cultural movements dramatically changed Europe over the course of the century. Cross-listed with HIST 4035. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5046 - Victorians and Victorianism

Taking an interdisciplinary perspective, this course examines English people and English life during the reign of Queen Victoria, 1837-1901. What were the defining features of the Victorian age? What did it mean to be "Victorian?" When and why did the Victorian paradigm break down? Cross-listed with HIST 4046. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5051 - Britain and The Empire

Examines 19th and 20th century British history, addressing social, cultural, and political themes. Explores industrialization, state growth, and imperialism; relationships between race, gender, and class; and the ways in which colonizers and the colonized experienced empire. Cross-listed with HIST 4051. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5055 - The Atlantic Slave Trade: Africa, Caribbean and U.S.

Presents a broad overview of the slave trade in the Atlantic World, including discussion of the slave plantation, the creation of Caribbean societies and the consequences of independence from Britain. Cross-listed with HIST 4055. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5062 - Modern France: 1789 to the Present

Considers the shaping of modern France from the 18th century Bourbon Monarchy and aristocratic society to today's liberal democracy, in which multiculturalism, globalization and supranational institutions call into question the very nature of French identity. Cross-listed with HIST 4062. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5071 - Modern Germany

Surveys the major political, institutional, social, economic, and cultural developments that have occurred in Germany since the late 18th century. Cross-listed with HIST 4071. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5074 - Post-War Germany

Historical survey of Germany since the second world war, with an emphasis on culture and society. Cross-listed with HIST 4074. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5075 - Travel Stories and Origins of Cultural Anthropology

Examines the early history of cultural anthropology by means of classic travel literature. Cross-listed with HIST 4075. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5076 - History of Modern Science

Surveys the history of science from the 18th century to the present. Treats all disciplines, from physics to physiology, in an attempt to understand how the natural world came to dominate our sense of ourselves. Cross-listed with HIST 4076. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5082 - Reform and Revolution in Russia: The 1860s to 1917

Emphasis upon Russia's attempts to modernize, beginning with great reforms of the 1860s and 1870s; increasing polarization of government and opposition groups. Examines governmental point of view through several monographs and revolutionary theory, including those of Marx, Engels, Lenin and Trotsky. Cross-listed with HIST 4082. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5083 - Russia Since 1917

Studies the development of the Soviet Union from its formation in the October Revolution, through the Civil War, the new economic policy, industrialization, collectivism, the Stalinist purges, up to the present. Cross-listed with HIST 4083. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5086 - Eastern Europe

Studies the countries of Eastern Europe from their origins in the Middle Ages to the present. Cross-listed with HIST 4086. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5133 - Management of Material Culture and Museum Collections

This course provides in-depth knowledge of the rudiments of material culture documentation, preservation and management. While we have designed this class for those interested in working in history museums, this is also appropriate for those students who want to learn the place of artifacts in studying history. Cross-listed with HIST 4133. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5201 - Core Themes in U.S. History

This course surveys major themes in U.S. history. Cross-listed with HIST 4201. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5210 - The American Revolution

The crisis of the British Empire in North America from the end of the French and Indian War to the ratification of the American Constitution. Topics include the emerging economy, constitutional arguments against Britain, the conduct of the war, and the definition of a republic. Cross-listed with HIST 4210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5212 - Civil War and Reconstruction

Begins with the causes and outbreak of the American Civil War, describes the military conflict and the social aspects of the war, and examines the federal efforts to reconstruct the southern states and protect the rights of Black citizens after 1865. Cross-listed with HIST 4212. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5213 - The Gilded Age and Early 20th Century Challenges: U.S. History, 1865-1932

Topical study of major events in America, including Reconstruction; the rise of industry and the workers' response; westward expansion and the plight of Native Americans; urbanization and immigration; agrarian upheaval; Progressivism; World War I; the challenges of the 1920s and the onset of the Great Depression. Cross-listed with HIST 4213. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5216 - History of American Popular Culture

Explores the evolution of film, radio, television, and popular music from the 1940s to the 1980s. The course uses these and other forms of popular art to examine American history in this era. The course focuses on the shifting trends in popular culture, how that culture reflects the larger themes in American history, and how these media have impacted the national experience. Cross-listed with HIST 4216. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5217 - Consumer Culture

This interdisciplinary course examines the dynamics of the consumer culture in the context of social, economic, and technological history. The analysis begins with 17th century European origins, and continue through recent world developments, emphasizing the U.S. since 1800. Note: Open to all students. Cross-listed with HIST 4217. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5219 - Depression, Affluence and Anxiety: U.S. History, 1929 to the Present

Examines major developments, focusing on the causes of the Depression and efforts to combat it; World War II and postwar readjustments; the Cold War and challenges of world leadership; unparalleled prosperity; Civil Rights movement; the Vietnam War; and economic uncertainties amid general prosperity. Cross-listed with HIST 4219. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5220 - U.S. Foreign Policy Since 1912

The main thrust is the emergence of the U.S. from isolation toward full-scale participation in the affairs of Europe and other areas. Special attention is given to U.S. intervention in two world wars, the Cold War, and the overextension of U.S. commitments since 1960. Cross-listed with HIST 4220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5222 - U.S. Society and Thought to 1860

Major topics include the evolution of Protestantism from Puritans to Transcendentalists; humanitarian reforms such as abolition, temperance, and women's rights; European influences on American thought; the effect of industrialization on the development of class society; and American nostalgia for agrarian life. Cross-listed with HIST 4222. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5223 - U.S. Society and Thought Since 1860

Topical survey of the main currents of American thought and their impact upon society. Topics include American philosophy, literature (extensively), art, music, immigration and urbanization, technology, extremism of both left and right, and education. Cross-listed with HIST 4223. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5225 - Urban America: Colonial Times to the Present

Rise of the American city from colonial times to present. Major emphasis on the process of urbanization since 1840: town promotion, the industrial city, immigration, boss politics and reform, urban technology, transportation systems, minorities, city planning, and the future of urban America. Cross-listed with HIST 4225. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5226 - U.S. Business History

Surveys the major changes in business practices from colonial times to the present. Primary emphasis is placed on the Industrial Revolution and after. Topics include the emergence of major personalities in the Industrial Revolution; the rise of giant corporations; the response of industrial labor unions; government intervention and regulation; and the emergence of the post-industrial society. Cross-listed with HIST 4226. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5227 - American West

Introduces the diverse peoples, places, and approaches to the development of the trans-Missouri West from prehistoric times to the present. Cross-listed with HIST 4227. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5228 - Western Art and Architecture

Introduces Western art and architecture, emphasizing their historical context. Students are required to do book reports and a major research paper. Course includes walking tours and museum visits. Cross-listed with HIST 4228. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5229 - Colorado Historic Places

Introduces community architecture, folklore, and history for all students. Students learn how to survey, describe, and designate significant historical structures and districts. Cross-listed with HIST 4229. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5230 - Women in the West

Focuses on ways in which women, from the mid-19th century through the mid-20th century, of different races, classes, and ethnic background, have interacted and been active participants in the development of the Western states. Cross-listed with HIST 4230 and WGST 4230/5230. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5231 - History in Museums

This core course for the museum studies area of public history introduces students to the theory and practice of museum operations. It covers the basics of museum administration, museum collection and preservation, and museum interpretation from both theoretical and practical points of view. Cross-listed with HIST 4231. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5232 - Historic Preservation

Introduces the history, methodology, and goals of historic preservation. Guest speakers, field trips, research projects, and book reports. Cross-listed with HIST 4232. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5234 - Introduction to Public History

An overview of history outside the academic setting. Students have the opportunity to learn about jobs through on-site visits and presentations made by people engaged in a wide variety of occupations in history other than teaching. Cross-listed with HIST 4234. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5235 - Sports and American Society

Examines American society and culture through the history of recreational and professional sport. Issues include class, race, gender, religion, business and politics. Cross-listed with HIST 4235. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5236 - Colorado Mining and Railroads

Focuses on the transportation network that shaped the inland West, and its key role in the extractive industry that gave Colorado its start and nourished the highest state through adolescence. Cross-listed with HIST 4236. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5238 - U.S. History Through Fiction

Explores American history through novels, based on the idea that fiction offers a superb "window" through which to view the past, especially to understand the texture of American society. Cross-listed with HIST 4238. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5240 - National Parks History

Introduces how the National Park Service uses history to identify, designate, preserve, and interpret America's most outstanding historic and natural history sites. After tours of NPS sites, students select from a wide range of projects. Note: Open to all students. Cross-listed with HIST 4240. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5242 - Oral History

Trains public history students in the collection of oral history interviews. Students master core readings on the theory, practice, and ethics of oral history. Cross-listed with HIST 4242. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5243 - Public History Administration

Introduces students to the skills, practice, and ethics of public history administration. Cross-listed with HIST 4243. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5244 - Interpretation of History in Museums: Exhibits and Education

This course allows students to gain in-depth knowledge of historical interpretation through exhibits and education in a museum setting. This class is designed for those preparing to work in history museums but is also appropriate for teachers and others who want to learn how museum programs interpret history with artifacts and other historical materials. Cross-listed with HIST 4244. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5245 - Heritage Tourism

History and historic sites have become big business in 21st century tourism. The heritage tourism industry is explored in this introductory course for all interested students focusing on how academic history and historians can partner with tourism and recreation interests. Cross-listed with HIST 4245. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5303 - Sex and Gender in Modern Britain

Examines modern British history by focusing on sex and gender as central aspects in people's lives. Considers the ways gender shapes the realms of politics, economics, society and culture in Britain from the 18th century to the present. Cross-listed with HIST 4303 and WGST 4303/5303. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5306 - Survey of Feminist Thought

Examines changes and continuities in feminist thought from the 18th century to the present, using historical and literary materials. Explores the ways that women's characteristics, experiences, and capabilities have been understood and challenged. Cross-listed with ENGL 4306, 5306, HIST 4306, WGST 4306, 5306. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5307 - History of Sexuality

Explores the relationships between gender and norms, sexual practice, and ideas about sexuality in Europe and the United States. Examines how sex and sexuality have changed over time and how those changes relate to social, cultural, political and economic history. Cross-listed with HIST 4307 and WGST 4307/5307. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5308 - Crime, Policing, and Justice in American History

Focuses on changing legal and cultural definitions of crime, the role of the police, the evolution of punishment in theory and practice, and the role of mass culture in shaping the social history of crime and justice. Cross-listed with HIST 4308. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5345 - Gender, Science, and Medicine: 1600 to the Present

Examines the ways science and medicine have both shaped and been shaped by ideas about gender. Pays particular attention to the relationship between scientific/medical ideas about the sexes and the social organization of gender. Cross-listed with HIST 4345 and WGST 4345/5345. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5346 - Medicine and Society: the Ancients to the Present

Surveys change and continuity in definitions of health and illness, interactions between patients and practitioners, the practice of medical authority, and the relationships between science, clinical medicine, and the provision of health care. Cross-listed with HIST 4346. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5347 - History of Biology

Examines the development of modern biology from the mid-18th century to the present. Students will look at intellectual, methodological, institutional and social contexts in an attempt to answer the question of how biology became the "pre-eminent" science. Cross-listed with HIST 4347. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5348 - Mind and Malady: A History of Mental Illness

Examines the history of mental illness from the mid-18th century to the present, focusing on the institutionalization of the mentally ill, the origin of psychiatry, the development of models of mental illness and the evolution of clinical treatment. Cross-listed with HIST 4348. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5411 - Modern Mexico

Designed to familiarize students with the critical issues in Mexican political, economic and social history. Traces the emergence of independence and the difficult consolidation of an independent nation state. Cross-listed with HIST 4411, ETST 4411. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5412 - Mexico and the United States: People and Politics on the Border

Examines the convoluted relations between these two republics, focusing on diplomatic, cultural and social interactions. Cross-listed with HIST 4412. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5414 - Nationalism and State Building in Latin America, 1750-1850

Explores the problems of nationalism and post-colonial state building by examining the late colonial and early national periods of Latin American history. The course discusses the impact of the enlightenment, the events of the Wars of Independence, and the quandaries faced by the new nations. Cross-listed with HIST 4414. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5415 - Social Revolutions in Latin America

A theoretical framework and an empirical basis for understanding the large-scale social movements that have influenced the course of Latin American nations. Cross-listed with HIST 4415. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5417 - Commodities and Globalization: Dessert in World History

Traces the impact of "dessert commodities" (sugar, cacao, vanilla and coffee) on Latin America during an early period of globalization (nineteenth century). Explores cultural shifts in North Atlantic countries that created the incessant demand for dessert. Prereq: Senior or graduate student standing. Cross-listed with HIST 4417. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5418 - Trade and Premodern Wrld Hstry

Explores the interconnections that shaped premodern world history, considering the ways that the production, exchange, and consumption of cloth were tied to specific forms of political power, social and religious organization, and long distance economic relationships. Cross-listed with HIST 4418. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5420 - Traditional China: China to 1600

A general introduction to the history of China from the advent of historic civilization to the point of the great encounter with the West. Cross-listed with HIST 4420. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5421 - Modern China

Surveys Chinese history in the modern era. Includes examination of Western domination of China, revolution, and internal fragmentation of China; Japanese attacks and World War II; and civil war and the communist revolution. Cross-listed with HIST 4421. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5422 - Lvng thr Mao's China: Life, Mat. Cult, Movies, 1949-76

Introduces students to ordinary people's daily life in Mao's China (1949-1976) through an exploration of material culture, movies and scholarship. This course pays particular attention to the ways people's everyday living intertwined with politics. Cross-listed with HIST 4422. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5431 - Modern Japan

Course of Japanese history since the Perry expedition. Covers Japanese Westernization and industrialization, the expansion of empire and defeat in World War II, the occupation, and the amazing technological and social transformation since the occupation years. Cross-listed with HIST 4431. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5451 - Southern Africa

An in-depth history of the clash of peoples and cultures in Africa south of the Zambezi River. African and Afrikaner political, economic and cultural development in a single land and the consequences of several competing nationalisms existing side by side are examined. Apartheid and African opposition to it are analyzed. Cross-listed with HIST 4451. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5455 - African Struggle for Independence

An assessment of African leadership from the colonial era to the present. Cross-listed with HIST 4455. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5460 - The Islamic World's Golden Age

The Islamic world's golden age before European expansion was characterized by sophisticated business institutions, scholarship, new technologies, and art. This class asks: What roles did Islam play in connecting diverse societies across broad regions? What characterized these territories? Cross-listed with HIST 4460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5461 - The Modern Middle East

Cross-listed with HIST 4461. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5464 - Problems and Methods in Teaching History and Social Studies I

Introduces students to problems and methods in secondary education history and social studies teaching. This course focuses primarily on the teaching of history. Note: Open to students in the Initial Professional Teacher Education program or a relevant graduate program, and to practicing teachers. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5465 - Problems and Methods in Teaching History and Social Studies II

Introduces students to problems and methods in secondary education history and social studies teaching. This course focuses broadly on the teaching of all the social studies fields, including history, economics, government, and geography. Note: Open to students in the Initial Professional Teacher Education program or a relevant graduate program, and to practicing teachers. Prereq: HIST 5464. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5466 - Teaching About Ethnicity, Race, and Prejudice

Examines the history of ethnic identity and race relations in North America and applies that knowledge to teaching practices. Questions how teachers should approach the topics of race, ethnicity, and discrimination in our collective history and society. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5471 - The Second World War

The war in its totality: causes, military strategies (equal treatment to European and Pacific theaters), campaigns, impact of technology and weapons, political and social upheaval. Cross-listed with HIST 4471. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5472 - The 1950s: Korean War, the Cold War and Social Transformation

A critical and methodical exploration of several of the social, cultural, and political events of the 1950s. Investigates the complex interaction between politics and culture during this decade, paying close attention to anti-Communist thought and the Korean War. Cross-listed with HIST 4472. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5475 - The Vietnam War

Covers the conflict in Vietnam, with roots in the period prior to World War II. Main topics include the rise of nationalism in French Indochina, the war against the French, the Northern moves to unify Vietnam, American intervention, and eventual victory of the Northern regime. Cross-listed with HIST 4475. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5501 - World History for Educators

Introduces world history for candidates for teaching positions. Discussion of themes, problems of research and interpretation, and relevant instructional methods. Prereq: Upper division standing. Cross-listed with HIST 4501. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5502 - World History For Educators Workshops

Designed for world history teachers who wish to enhance their knowledge of world history content and pedagogy. If taken in total, the course is comparable to a college survey course in world history plus teaching guides. Max hours: 8 Credits. **Semester Hours:** 1 to 1

HIST 5503 - Topics in History of Science

Themes vary from year to year. Possible topics: Darwinism, Nature of Memory, Time and Space, Origins. Cross-listed with HIST 4503. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5504 - Animals in U.S. History

Human-animal relationships offer powerful and unexpected perspectives on the American past. An eclectic range of readings and viewings, written assignments and contemplative experiences will contextualize contemporary practices, beliefs, and ethics -- vegetarianism, hunting, pet-keeping, and many others -- in historical context. Cross-listed with HIST 4504. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5621 - Explorers and Exploration

Examines the history of travel and exploration from the 13th century to the present. Readings draw primarily from first-person accounts to understand why people voyage, what they hope to discover, and what happens to them along the way. Cross-listed with HIST 4621. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5622 - Oceans In History

Explores emerging historical scholarship of transoceanic exchanges, relations, and transformations in early modern world history. Examines how historians analyze and conceptualize global interactions. Topics include voluntary and forced migrations, resistance and revolution, transoceanic economic relations, piracy, and environmental change. Cross-listed with HIST 4622. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5645 - Archival Management

This course studies theory and principles pertaining to the management of current and non-current records, public and private archival materials, as well as the administration of archival manuscript depositories for housing records of historical value. Cross-listed with HIST 4645. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5810 - Special Topics

Cross-listed with HIST 4810. Max hours: 9 Credits. **Semester Hours:** 1 to 3

HIST 5840 - Independent Study: History

Max hours: 9 Credits. **Semester Hours:** 1 to 3

HIST 5939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 6

HIST 5995 - Travel Study

Created for students doing travel study in a foreign country; register through the Office of International Education. Max hours: 15 Credits. **Semester Hours:** 1 to 15

HIST 6013 - Introduction to the Professional Study of History

Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 6840 - Independent Study: HIST

Max hours: 9 Credits. **Semester Hours:** 1 to 3

HIST 6920 - Readings in European History

Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 6925 - Readings in Early U.S. History

Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 6926 - Readings in Later U.S. History, 1865-1932

Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 6927 - Readings in Public History

Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 6929 - Readings in Later U.S. History, 1929 to the Present

Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 6931 - Readings: Special Subjects in History

Readings in topics in history with varying subtitles reflecting course content. Prereq: Graduate standing. Max hours: 6 Credits. **Semester Hours:** 3 to 3

HIST 6939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 6

HIST 6950 - Master's Thesis

Max hours: 6 Credits. **Semester Hours:** 1 to 6

HIST 6951 - Masters Project: Advanced History Curriculum Development

Students develop curricula for secondary-level history courses; must demonstrate thorough knowledge of subjects; understanding of historiographic and methodological problems; command of primary sources and their uses in teaching; and describe teaching strategies, methods, and assessments to be used in the curricula. Prereq: Permission of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 6

HIST 6952 - Master's Project: Public History

Public history students may use one to six credits to complete a single public history project. Projects 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 the project. Max hours: 6 Credits. **Semester Hours:** 1 to 6

HIST 6980 - Seminar in European History

Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 6981 - Seminar in British History

Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 6986 - Seminar in Later U.S. History

Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 6989 - Seminar: Special Subjects in History

Max hours: 9 Credits. **Semester Hours:** 3 to 3

HIST 6992 - Seminar: Colorado Studies

This advanced interdisciplinary seminar on Colorado starts with a survey of the published literature. Students then select a research topic of their own and complete a publishable paper using primary sources. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 6993 - Seminar: History of Technology

Explores American and worldwide cases, modern and pre-modern, of technological development through seminar readings and individual research. Considers how technologies evolve within historical contexts and how societies demonstrate values and beliefs as they manipulate nature, building lifestyles and social orders. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Human Development and Family Relations

HDFR 1000 - Global Human Development & Learning

The purpose of this course is to examine the contextual nature of human development and learning at the global level. Emphasis is placed on the ecological development of individuals and learning and schooling within familial, cultural and educational contexts. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 1010 - Life Span Development in Ecological Settings

This course is designed to introduce students to human development in ecological settings in particular family, school and community contexts as it occurs across the lifespan, including emotional, physical, and cognitive development, and emphasizes personal adjustment and achievement. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 2000 - Introduction to Family and Community Services

Through ecological systems theories this course is designed to provide students with an introduction to family and community services within community and educational environments. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 2100 - Families in Global Perspectives

Students will become familiar with family life across the world. Through ecological systems theories, this course is designed to provide an understanding of families in global perspectives. The impact of family policy and practices on international families will be examined. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 2110 - Child Ecology

This course focuses on the study of human growth and ecology from conception to adolescence. The emphasis is on the major theories of child growth, development, and ecology and the implications of classic and contemporary research in the community. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 2200 - Love, Family and Human Development

This course provides an introduction to understanding love, intimate relationships, and family relations through an ecological systems perspective. The course provides an exploration of contemporary diverse family systems and their relationships across the life span. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 2400 - Love, Couples and Family

This course provides an introduction to understanding love, intimacy, couples and families through an ecological systems perspective. An examination of contemporary interpersonal relationships within couples and family systems is explored. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 3000 - Family and Cultural Diversity

The examination of familial, gender, cultural, linguistic, social and other ecological factors on diverse family systems in the United States will be covered. An ecological theoretical analysis of minority family systems within a familial, educational and social justice perspective will be explored. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 3100 - Adolescent Ecology

Through ecological systems theories this course is designed to provide an understanding of adolescent ecological development and growth. Students will become familiar with adolescent development and growth from ecological perspectives in contexts of families, schools and communities. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 3500 - Introduction to Higher Education

The course examines the history and structure of the institutions higher education in U.S. This course will also examine the relationship between institutions of higher education, students, faculty, administrators, and society at large. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 4000 - Human Sexuality

Students will become familiar with human sexuality across the life span. Ecological and family systems theories will provide an understanding of human sexuality from a systemic perspective. Implications for working with individuals, families, and couples will be examined. Cross-listed with CPCE 5000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 4200 - Adult Ecology

The emphasis is on the major theories of adult ecology and growth and the implications of classic and contemporary research in the community. Specifically, biological, psychological, psychosocial, cognitive, and cross-cultural theories will be explored. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 4500 - Diversity, Inclusion, Social Justice in Higher Education

An examination of society, media, and public and educational policy and their impact on higher education access and persistence for marginalized groups. Students are called to consider how student affairs professionals might promote social justice for marginalized student groups. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Humanities

HUMN 1012 - The Humanistic Tradition: Modes of Expression

Familiarizes students with humanistic modes of expression through the study of history, literature, philosophy, music, and the visual and dramatic arts. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 3250 - Introduction to Law Studies

Introduces students to the materials and methods of law studies. Students learn how to read case law, brief a case, make a course outline, analyze fact patterns, and perform legal research and writing projects. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 4984 - Topics: Interdisciplinary Humanities

Concerned with specialized aspects of the humanities from various theoretical and research perspectives. These courses are interdisciplinary and serve as a forum for discussion of individual projects and theses. Max hours: 6 Credits. **Semester Hours:** 1 to 3

HUMN 5000 - 19th Century Philosophy

Covers the systematic work of such German idealists as Hegel, Fichte, and Shelling, as well as responses to those systems by such authors as Marx, Kierkegaard, and Nietzsche. Prereq: PHIL 3002 or 3022. Cross-listed with PHIL 4000/5000 and SSCI 5000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5013 - Philosophical Problems in the Social Sciences and the Humanities

Presents an overview of key theoretical issues currently emerging across academic disciplines. Examines questions about reality, knowledge, ethics that affect social research and writing in the humanities. Readings explore how contemporary philosophical and cultural discourses have altered theory and method. Assignments include influential theoretical pieces by key historical and contemporary thinkers, examples of application in social research, and interpretations of thought and affect in cultural contexts. Cross-listed with PHIL/SSCI 5013. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5020 - Elements of Social Thought

Introduces students to the disciplines that comprise the social sciences (classical anthropology, sociology, sociology of religion, philosophy of history, political theory, classical psychology, etc.). Provides necessary tools for interdisciplinary students to understand the social infrastructure of contemporary society. Cross-listed with SSCI 5020 and PHIL 5020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5025 - Methods and Texts of the Humanities

Exposes the beginning graduate student to exemplary works and methodologies of select humanistically oriented disciplines, such as philosophy, fine arts, literature, history, communication, music, and theatre. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5101 - Pragmatism: Classical American Philosophy

The most significant philosophical tradition born in the United States is pragmatism. Examines several of the most important classical works of this tradition, the influence of thinkers who have helped pragmatism, and the contemporary relevance of this tradition. Figures who may be included in this course are: Emerson, Pierce, Royce, James, Dewey, Mead, Rorty. Prereq: An introductory course in philosophy. Cross-listed with PHIL 4101, 5101, SSCI 5101. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5220 - Aesthetics and the Philosophy of Art

Introduction to major theories of aesthetics and contemporary discussions of problems in aesthetics and the philosophy of art, including topics such as: the nature of art, interpretation and evaluation in art. Cross-listed with PHIL 4220/5220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5242 - Bioethics

Examines some of the major moral issues confronting the nation's health care system. The class will search for solutions to such problems as financing health care for those unable to do so on their own, determining the extent of a patient's right to both refuse and demand certain types of medical treatment, and allocating scarce medical resources such as life-saving vital organs. The springboard for examining these issues will be the doctor or patient relationship framed by the moral principles of respect for persons and beneficence. Cross-listed with PHIL 4242, PHIL 5242, SSCI 5242. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5250 - Environmental Ethics

While human industry/technology creates enormous material prosperity, it can result in devastating environmental damage. This course analyzes the moral values, consequences and duties implied in relationships between human beings, animals and ecological systems, while seeking out new and ethical approaches. Cross-listed with PHIL 4250/5250 and SSCI 5250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5520 - The City Beautiful: Art, Architecture and Theory in Urban History

How did cities develop and what were the buildings that filled these spaces? Posing this question initially, this course takes a case-study approach to surveying the concerns confronting different cultures as they developed their urban environments sociologically, anthropologically, architecturally and spatially. Cross-listed with SSCI 5520. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5550 - Paris 1910: Art, Philosophy and Psychology

Traces the influences of philosophy, psychology, and art in the English, French, and German-speaking worlds in the early twentieth century. This intellectual history is extended to broader cultural and political contexts. Key period is between 1910 and 1968, when modernity's key aspirations and tensions became explicit. Cross-listed with PHIL 5550 and SSCI 5550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5600 - Philosophy of Religion

Nature of religion and methods of studying it. Cross-listed with PHIL 4600, 5600, RLST 4060, 5060, and SSCI 5600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5650 - Reflections on Modernity

Explores modernity as a historical epoch and a theoretical space, looking at the commentaries and reflections of influential 20th century thinkers including Adorno, Arendt, Levinas, Merleau-Ponty, Habermas and Foucault. Examines how the theoretical inclinations of modernity were influenced by politics, art, literature and culture. Cross-listed with PHIL 5650 and SSCI 5650. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5660 - Visual Arts: Interpretations and Contexts

Provides graduate-level interdisciplinary study in the historiography, methodologies, and theories used to understand how visual arts, including painting, sculpture, photography, film and performance art influence the making of culture. Students gain critical skills for analyzing a variety of visual and aesthetic products of culture. Prereq: Upper-division undergraduate or graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5710 - Women and Religion

A sociological exploration of the contemporary roles of women in religion. Course examines American and world religious groups with an eye to women's involvement. Considers how women have changed these traditions as they take on leadership roles and discusses the tensions that arise within these traditions as a result of their expanded participation. Cross-listed with SSCI 4710/5710, WGST 4710/5710, RLST 4710/5710. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5720 - Sexuality, Gender and Their Visual Representation

Studies sexuality, gender and identity representation from classical antiquity through the present in the visual arts. Uses the literature of visibility, feminism, race and queer theory. Explores representations of femininity, masculinity and androgyny and their reinforcement and challenge to gender-identity norms. Cross-listed with SSCI 5720 and WGST 5720. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5750 - Philosophical Psychology

Explores debates about psyche and body, mind and world, self and others, and consciousness and nature. Examines the philosophical questions related to those debates that arise within theories of perception, affect and cognition offered by influential psychological models. Cross-listed with PHIL 5755, SSCI 5750. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5770 - Imperialism, Post-Colonial Theory & Visual Discourse

Western empires disseminate political, social, economic & cultural practices through complex interplay of cultural practices. Visual production is a complex site for meaning making within imperialism. Examines how visual discourses operated to create meaning for audiences, through focus on postcolonial critique. Cross-list SSCI 5770. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5833 - Existentialism

Examines one of the most influential movements in recent European thought, beginning with existentialism's 19th century roots, and continuing on to the existentialist philosophers of the 20th century. Figures covered may include Dostoyevsky, Kierkegaard, Nietzsche, Heidegger, Sartre and de Beauvoir. Cross-listed with PHIL 4833/5833 and SSCI 5833. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5840 - Independent Study: HUMN

Max hours: 9 Credits. **Semester Hours:** 1 to 3

HUMN 5920 - Philosophy of Media and Technology

A philosophical examination of interrelationships between contemporary media, technology, and their impacts upon character of contemporary life and values. Topics may include ethics, epistemology, democracy, advertising, media literacy and criticism. Cross-listed with PHIL 4920, 5920, SSCI 5920. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5924 - Directed Research and Reading in Interdisciplinary Humanities

Provides background reading, theory and research approaches for students to develop a thesis, project, or an individualized theme for the oral exam based on their interdisciplinary focus. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5933 - Philosophy of Eros

What does it mean to understand philosophy as an erotic activity? This question will be examined, first by studying Plato's dialogues-such as Lysis, Symposium and Republic-and then by reading texts from Sigmund Freud, Michael Foucault and others. Cross-listed with PHIL 4933, WGST 4933/5933 and SSCI 5933. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 6

HUMN 5950 - Master's Thesis

Max hours: 8 Credits. **Semester Hours:** 1 to 8

HUMN 5960 - Master's Project

Max hours: 8 Credits. **Semester Hours:** 1 to 8

HUMN 5984 - Topics: Interdisciplinary Humanities

Max hours: 9 Credits. **Semester Hours:** 3 to 3

Information Systems

ISMG 2050 - Introduction to Business Problem Solving

Focuses on the technology and problem solving skills necessary for students to succeed both at school and in the business world. Focuses on business decision making using spreadsheets, database and web tools. Students solve problems in statistics, accounting, finance, marketing, management and information systems. The objective is to provide problem solving methods necessary for students to succeed in the business community. This is a business core course therefore a grade of a 'C' or better must be earned to satisfy Business graduation and prerequisites for other business courses. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 2075 - Introduction to Microsoft Access

Introduction to Microsoft Access prepares students to use data bases to analyze data and solve real-life business problems. It challenges students to use critical thinking and analysis to find efficient and effective solutions to real-life business situations. Students will use databases to solve problems in accounting, finance, and information systems. Prereq: Computer Competency. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ISMG 2200 - Introduction to Business Programming

Examines how business applications are developed. Emphasis is placed on developing complete and user-friendly programming solutions to business problems. Students are introduced to an object-oriented programming language for implementing event-driven business problem solutions. Prereq: ISMG 2050. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 2800 - Designing for the Web

Students examine how the Web is evolving to support a variety of business needs. The course covers the design and usability principals necessary for improving online interactions via traditional websites as well as using technologies promoting collaboration and information sharing (e.g. social networks, blogs, wikis, forms). Topics include: the principles of web page and web site design; hypertext markup language, cascading style sheets, streaming video, online collaboration technologies; client and server scripting; and the process of testing and publishing web sites. Prereq: ISMG 2050 or taken concurrently with ISMG 2050. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 3000 - Technology In Business

Covers the role of information technology in business organizations. It exposes students to innovative and interesting technologies and illustrates how those technologies are changing the way businesses operate. It highlights the importance of IT in organizations, including the relationship between technology & competitiveness, the alignment of business and IT strategy, the development and management of an effective IT infrastructure and the use of IT strategy, the development and management of an effective IT infrastructure and the use of IT-enabled organizational processes. Topics include: coping with information intensity, web sites, social networks and blogs; business intelligence at each level of management; IT based reports and data; collaboration and the impact of technology on organizational interaction; the use of IT for controlling and enhancing business processes; security, privacy & disaster recovery; and emerging technologies. Note: Business core course therefore a grade of a "C" or better must be earned to satisfy graduation requirements. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 3100 - Information Technology Hardware and Software

Provides the hardware/software technology background to enable systems development personnel to understand tradeoffs in computer architecture for effective use in business environment. System architecture for single user, central, and networked computing systems; single and multi-user operating systems. Prereq: ISMG 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 3200 - Programming, Data, File and Object Structures

Provides an understanding of algorithm development, programming, computer concepts, and the design and application of data and file structures. Includes an understanding of the logical and physical structure of both programs and data. The "JAVA" programming language will be used as the vehicle for investigating a variety of data structure topics. Topics include: data structures and representation; characters, records, files and multimedia; precision of data; information representation, organization and storage; algorithm development; object representation compared to conventional data flow notation; programming control structures; program correctness, verification, and validation; file structures and representation. Prereq: ISMG 2200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 3300 - Social Media in Business

Social media has become a central component of many business activities including marketing, HR, product management and the supply chain. In this course, we examine the organizational use of social media technologies such as blogs and social networks, as well as the use of social media analytics to drive business strategy. Cross-listed with MKTG 3300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 3500 - Enterprise Data and Content Management

The success of today's business often hinges on the ability to turn mountains of data into critical information to make right decisions quickly and efficiently. This course introduces students to data, content and multimedia management using current enterprise data management tools. Topics include: Oracle SQL for relational database and for multi-media content; Oracle forms and reports, XML, and content management. Prereq: ISMG 2050 or equivalent, transfer credit VALIDATION (may need ISMG 2075 - 1 credit). Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 3600 - System Strategy, Architecture and Design

This course is designed to provide the understanding of current concepts related to information systems development in an organizational context. It emphasizes the interactive nature of the analysis and design process. Topics include: requirements analysis, model based analysis and design; evaluating outsourcing, COTS and other systems acquisition options; and quality, six-sigma, and ethics in design. New concepts such as agile modeling and extreme programming are covered. Prereq: ISMG 3500 or equivalent, transfer credit VALIDATION (may need ISMG 2075 - 1 credit). Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 3939 - Internship

Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: Senior standing and 3.5 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ISMG 4200 - Building Business Applications

Examines how business technologies are designed and implemented. Usability, logic, and platform selection issues are highlighted through the development of simple business systems. Includes Windows interface design; storing, retrieving, and manipulating information; real time decision making; task automation through iteration; platform selection (mobile, desktop or web); and web programming. Prereq: ISMG 2800. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 4300 - Information Security and Compliance

This course covers information security threats and various mechanisms available to organizations to defend against information compromise. It offers thorough analysis of state, national, and international information security regulations with which businesses must comply, including the Sarbanes-Oxley, Gramm-Leach-Bliley and Hippa Acts. The regulatory compliance analysis will include measures the organizations must and should perform to be in compliance. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 4400 - Web Application Development

Course covers rapid website development using Ruby on Rails. This is an object-oriented platform based on the Ruby programming language which enables website developers to rapidly develop sophisticated websites with high levels of functionality using Ruby language. Prereq: ISMG 4200. Max Hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 4500 - Database Management and Applications

The success of today's business often hinges on the ability to turn mountains of data into critical information and to utilize the critical information to make the right decisions quickly and efficiently. This course introduces students to the basic principles of data management and utilization. Topics include data modeling, normalization and database design, query formulation using SQL and QBE and interface design. Actual database management systems products (e.g. Oracle and Access) are utilized to demonstrate the design of database applications in management, marketing, finance, accounting and other business areas. Each student will also design a working database system as a project. Prereq: ISMG 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 4600 - Systems Analysis and Design

Provides an understanding of the system development and maintenance process. It enables students to evaluate and choose a system development methodology. Topics include: systems development life cycle phases, structured analysis and design, object-oriented analysis and design; prototyping, joint application development (JAD) and structured walk-through; communication, interviewing, interpersonal and presentation skills; risk and feasibility analysis, project management, systems operations and support. Prereq: ISMG 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 4700 - Business Data Communications and Networking

Provides an in-depth knowledge of data communications and networking requirements including: networking and telecommunications technologies, hardware, and software. Emphasis is upon the analysis and design of networking applications in organizations. Management of telecommunications networks, cost-benefit analysis, and evaluation of connectivity options are also covered. Students learn to evaluate, select, and implement different communication options within an organization. Topics include: network hardware and software; network configuration; network applications; distributed versus centralized systems; network architectures, topologies and protocols; network performance analysis; privacy, security, reliability; management of telecommunications, and communications standards. Prereq: Jr. Standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 4750 - Business Intelligence and Financial Modeling

In this course, the student learns to analyze and solve financial problems with spreadsheet models, apply Oracle Financial and Business Intelligence software that is widely used in corporate financial operations and model risk and uncertainty with Monte Carlo software. Prereq: ISMG 2050, FNCE 3000 and ISMG 3000 (or ACCT 4054) with a grade of 'C' or better. Cross-listed with FNCE 4750. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 4760 - Customer Relationship Management

This marketing-theory driven course examines customer relationship management (CRM) as a key strategic process for organizations. Composed of people, technology and processes, effective CRM optimizes the selection or identification, acquisition, growth and retention of desired customers to maximize profit. Besides presenting an overview of the CRM process, its strategic role in the organization and its place in marketing, students have an opportunity to create simulated CRM database using popular software package that help to illustrate what CRM can do, its advantages and limitations. Prereq: MKTG 3000 and ISMG 3000. Cross-listed with MKTG 4760. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 4780 - Accounting and Information Systems Processes and Controls

The course is designed to develop knowledge and skills used to understand and evaluate corporate accounting processes and systems. It focuses on financial and information system internal controls and the flow of corporate information through accounting system. A financial system objective and risk assessment approach is used to present concepts and techniques for evaluating the adequacy of system processes and controls. Prereq: Completion of ACCT 2200 and 2220 with a grade of 'C' or better. Strictly enforced. Cross-listed with ACCT 4780, 6510 and ISMG 6510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 4800 - eBusiness Systems Development

Students analyze business problems and develop data-driven eBusiness applications to solve them. Development skills include presenting and receiving information through a web site, validating entered information and storing entered information in text files or databases. Students develop an understanding of the principles of web page and web site design; standard object models, Hypertext Markup Language, client scripting and server programs for database and file access; testing, software quality assurance; and the process of publishing Web pages. Prereq: ISMG 2200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 4840 - Independent Study

Max hours: 8 Credits. **Semester Hours:** 1 to 8

ISMG 4900 - Project Management and Practice

Covers the factors necessary for successful management of enhancement projects. Both technical and behavioral aspects of project management are discussed. The focus is on management of development for enterprise-level systems. Topics include: managing the system lifecycle; requirements determination, logical design, physical design, testing, implementation; metrics for project management; managing expectations: superiors, users, team members and others related to the project; determining skill requirement and staffing the project; cost-effectiveness analysis; reporting and presentation techniques; effective management of both behavioral and technical aspects of the project; change management. Note: Successful completion of this course meets the educational requirements to sit for both the PMP and CAPM exams. Prereq: ISMG 3500. Cross-listed with CSCI 4900 and MGMT 4900. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 4950 - Special Topics

Seldom offered. This course varies from offering to offering. Typically, it is a research-oriented course exploring new developments in information systems. Prerequisites vary according to topic. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ISMG 5939 - Internship

Supervised experiences involving the application of concepts and skills in an employment situation. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ISMG 6020 - .Net Programming Fundamentals

This course is designed to provide a thorough introduction to the .Net programming environment. C# is studied as the target object-oriented programming language. Principles of object-oriented programming are demonstrated using programming constructs taken from the business domain. Students are required to apply this knowledge through a series of C# programming exercises, which includes developing Windows Forms applications for the desktop and mobile platforms. Prereq: Basic knowledge of a programming language such as JAVA, C, or Basic. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6040 - Business Process Management

Designing effective information systems for business requires an awareness of the organization(s) business processes and how to manage and streamline them. The objectives of the course are for students to understand the importance of business processes; the main types of business processes; and the evolution of business process management; business process outsourcing; business process re-engineering; business process redesign; technology enabled business processes; and automated workflow. An important activity is graphically mapping business processes, which are transformed into an application or set of applications. The organization needs to manage the electronic workflow to monitor that the work gets done and allow changes to the workflow. Case studies of organizations are studied for most topics to enhance understanding. The group projects let students apply their knowledge of the course to a specific organization. By the end of this course students should have an appreciation of the important process-centric issues in business systems design. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6060 - Analysis, Modeling and Design

Provides an understanding and application of systems analysis and design processes. Students are exposed to system development life cycle (SDLC), structured systems analysis and design methods, object-oriented analysis and design methods, prototyping and commercial off-the-shelf package software approaches, and joint and rapid application development. Emphasizes the skills required for system analysts such as analytical, interpersonal, technical, fact-finding, and project management skills. Topics include data, process and object modeling, input-output and user interface design, and systems implementation and support. To provide an opportunity to develop these skills, an information system project is completed by a group of students. Students use a Case tool for their group project. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6071 - Introduction to Health Information Technology

Examines what needs transforming in healthcare to improve value, safety and appropriateness of care, and what the role of IT is in that transformation. It also examines the challenges of cultural change and IT strategy in succeeding with clinical information projects. Differences between installation, implementation, transition and actual transformation are suggested and methods for managing subcultures in healthcare (IT, clinical, administrative) are reviewed. Cross-listed with HLTH 6071. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6072 - Fundamentals of Health Information Technology Management

Provides an introduction to the management of information technology in healthcare. A description of information processing, the origin, content, evolution of healthcare information systems and the methodologies deployed to acquire and manage information requirements are discussed. Cross-listed with HLTH 6072. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6080 - Database Management Systems

The success of today's business often hinges on the ability to utilize critical information to make the right decisions quickly and efficiently. Transforming mountains of data into critical information to improve decision making is a skill every business decision maker must possess. This focus course covers the database design topics with a focus on enabling business decision making. Detailed topics include collecting, capturing, querying and manipulating data (using SQL and QBE) for simple to medium complex business applications. Commercial database products (e.g. ORACLE and ACCESS) are utilized to demonstrate the design of database applications in management, marketing, finance, accounting, and other business areas. Students will be able to design and implement simple to medium complex database applications after successful completion of this course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6120 - Internet and Mobile Technologies

Communication, knowledge sharing, and information acquisition within and between businesses are critical for long term strategic business success. Technological advancements are radically changing the way business communication and knowledge sharing is performed. This course will briefly examine traditional concepts of wired local area networks for reference purposes, but then will focus on how newer mobile technologies are changing the way business communication and knowledge transfer are conducted. Mobile technologies that will be examined in this course include: WiFi wide area networks, wireless local area networks, cellular telephones, smart phones, and other portable computing devices. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6180 - Information Systems Management and Strategy

The effective use of information technology requires the alignment of competitive strategies, business processes, and IT applications. In this course, we take a top management perspective to the development of policies and plans that maximize the contribution of IT to organizational goals. We begin by examining the systems that support the operational, administrative, and strategic needs of organizations. We then investigate the approaches used to manage the IT function, taking into account legacy and emerging technologies. The vital role of the CIO and project champions are explored. Note: Students cannot receive credit for both ISMG 6180 and BUSN 6610. Cross-listed with BUSN 6610. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6200 - Global Information Systems

Will focus on managing information technology globally and the new organizational and information technology designs that firms are establishing to meet the ever-growing global requirements. The course will cover such issues as how information is used and how information technology is deployed by multinationals in different countries, the state of information technology and telecommunication industries in countries around the world, how global firms gain strategic benefits from information technology, and how firms manage and use global virtual teams. Prereq: ISMG 6040 or 6120 or BUSN 6610. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6220 - Business Intelligence Systems

This course covers technical and managerial issues associated with the development and use of decision support systems, expert systems, executive information systems, and advanced intelligent systems. The DSS component covers decision theory, model management, and business intelligence with an emphasis on how decision-making can be supported using data warehouses, OLAP, and data mining and visualization tools. The ES component focuses on knowledge acquisition, representation, reasoning, and using advanced intelligent systems, over the web. In addition, collaboration, communication, enterprise decision support system integration, impacts, and the future of MSS are discussed. The use of DSS and online analytical processing (OLAP) and the selection of decision support applications and tools are important learning objectives for this course. Critical to the success of DSS is the use of data warehouses. The basics of data warehousing are covered through a variety of companies' experiences. The course also covers Business Performance Management (BPM) and the use of digital dashboards and balanced scorecards as evolution of EIS. Hands-on experience is provided through the use of leading-edge technologies including MicroStrategy business intelligence tool. Prereq: ISMG 6080. Cross-listed with BUSN 6812. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6240 - Website Development Practice and Technologies

Presents a broad coverage of design principles and techniques to develop effective web sites. The course emphasizes: (1) understanding the principles of web page and web site design and the process of publishing web pages, (2) developing client-side scripts for use in web sites, (3) using server-side programs or scripts to develop dynamic web sites using databases, and (4) understanding technologies for managing large web sites including XML schemas, content management systems and web services. Prereq: ISMG 6020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6280 - Service Oriented Architecture

Explores "Service Oriented Architecture" (SOA), which refers to a design pattern made up of components and interconnections that stress interoperability and location transparency. Covers the latest heterogeneous models for carrying out large scale distributed computing using Web services. The fundamentals of defining, designing, building, testing and rolling-out a SOA system are explored using tools from major Web service vendors. Also, looks at the impact of SOA on software quality, efficiency, performance and flexibility. Prereq: ISMG 6020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6320 - Innovative Health Information Technologies

Learn how innovative health info technologies shape and redefine healthcare by enhancing medical care through scope and scale effects, providing tech efficiencies in delivery of care, utilizing advance tools for patient Ed and self-care, network-integrated decision support, e-business models & opportunities for e-health. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6420 - Global Enterprise Systems

Examines the evolution of global enterprise systems - from internally focused enterprise resource planning (ERP) client or server systems to externally focused eBusiness. Studies the types of issues managers need to consider in implementing cross-functional integrated enterprise systems. Examines the general nature of global enterprise computing, re-engineering principles and the technical foundations of client or server systems and enterprise information architectures. Students learn about the global enterprise systems marketplace. Topics include the tools and methodology, modules, processes and industry initiatives. Finally, the course looks into the future and predicts enterprise system trends. The objective of the course is to make students aware of the potential and limitations of global enterprise systems. The objective will be reached through case studies, lectures, guest speakers and a group project. Prereq: ISMG 6180 or BUSN 6610 (6810). Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6430 - Information Systems Security and Privacy

Designed to develop knowledge and skills for security of information and information systems within organizations. Focuses on concepts and methods associated with planning, designing, implementing, managing, and auditing security at all levels and on all systems platforms, including enterprise systems. This course presents techniques for assessing risk associated with accidental and intentional breaches of security as well as disaster recovery planning. Coreq: ISMG 6180 or BUSN 6610 (6810). Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6450 - IT Project Management

Focuses on how firms successfully manage the adoption of It. Projects and program management principles are the primary focus of this course. Topics covered include approaches to prioritizing projects, estimating cost and time-to-market, build vs. buy decision, planning, monitoring and controlling implementation, measurement, total cost of ownership, effective management of both behavioral and technical aspects of the project and change management. Prereq: ISMG 6180 or BUSN 6610 (6810). Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6460 - Emerging Technologies

Provides an introduction to the expansive array of information technologies that form the infrastructure of a modern business enterprise. Emphasis is placed on learning conceptual technological foundations and understanding the business value of the various technologies. The purpose of the course is to develop the student's ability to discuss recent technological advancements with other It professionals and management. Technology assessment is emphasized. Prereq: ISMG 6180 or BUSN 6610 (6810). Cross-listed with BUSN 6800. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6480 - Data Warehouse and Administration

Management of large, complex data warehouses and operational databases involves technical skills and background needed by information systems professionals as well as tactical and strategic issues faced by information technology managers. This course provides conceptual knowledge, practical skills, and policy background for prospective information systems professionals and information technology managers. The course covers business aspects, conceptual background, and product material about management of data warehouses and operational databases. Assignments and projects involve Oracle skills for database administration and tactical or strategic issues faced by information technology management. Prereq: ISMG 6080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6510 - Accounting and Information Systems Processes and Controls

Designed to develop knowledge and skills used to understand and evaluate corporate accounting processes and systems. Focuses on financial and information system internal controls and the flow of corporate information through an accounting system. A financial system objective and risk assessment approach issued to present concepts and techniques for evaluating the adequacy of system processes and controls. Cross-listed with ACCT 6510, 4780 and ISMG 4780. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6800 - Special Topics

A variety of advanced topics are offered in this course. Past topics include the human-computer interface, software engineering, artificial intelligence, graphical user interface, project management and electronic commerce. Consult the current 'Schedule Planner' for semester offerings. Note: Seldom offered. Max hours: 15 Credits. **Semester Hours:** 3 to 3

ISMG 6810 - Business Intelligence in Healthcare

Provides students with an overview of how business intelligence is used in the healthcare industry. Students study the evolution of It in healthcare including enterprise systems and systems integration. Next the course looks at the evolution of business intelligence in general. Using case studies and hands on exercises, students learn about different aspects of business intelligence in various subsets of the healthcare industry. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6820 - Business Intelligence and Financial Modeling

This course will introduce students to the application of business intelligence in a corporate finance setting. Financial data intelligence is essential for effective decision making throughout the firm, in finance directly and in other functions supported by the finance department. Strategy setting, budgeting, and new product development are just a few decision areas where finance personnel play an active role. In this course, we learn how to apply Oracle e-Business Suite, a finance and business intelligence software tool that provides modules for financial reporting, analysis, budgeting, and planning. These tools enable finance personnel to access and analyze corporate data in support of critical decision making across the enterprise. Students will also analyze data through the use of financial models built in Microsoft Excel. The development of complex financial models will provide students with valuable hands-on experience with a software tool used widely incorporate finance departments. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6830 - IT Governance and Service Management

Deals with interrelated decisions on clarifying the business role of IT, defining integration and standardization requirements for the IT architecture, shared and enabling services for the IT infrastructure and business need for SaaS, and governance of cloud computing, IT outsourcing, and other IT services. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6840 - Independent Study: ISMG

Instructor approval required. Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study. Max hours: 8 Credits. **Semester Hours:** 1 to 8

ISMG 6950 - Master's Thesis

Max hours: 8 Credits. **Semester Hours:** 1 to 8

ISMG 7001 - AI-Based Decision Making

Introduces decision making concepts. It covers a range of approaches, techniques and tools for decision aiding and describes how they can be used to support decision processes. The topics include human decision making, decision support systems, knowledge-based systems, and AI methods that support decision making, like machine learning, Bayesian networks and association rules. Prereq: MS in C.S.E. or I.S. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 7002 - Computer Security

A broad overview of computer security, roughly divided into three unequal components: a) the history of codes and ciphers; b) basic cryptographic techniques, for example, symmetric cryptography, authentication techniques, and asymmetric cryptosystems, and: c) applications to current and future computer-related technologies, for example, network security, wireless communication, quantum cryptography, and more. Prereq: CSCI 5451. Cross-listed with CSCI 7002. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 7200 - Advances In Management Information Systems

Provides an introduction to research methodologies engaged in Management Information System Research, including measurement, sampling, survey research, experiments, quasi-experiments and some qualitative research methods. Prereq: admission into the CSIS Ph.D. program and knowledge of basic statistics. Cross-listed with CSCI 7200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 7210 - Topics In Analytical Research In Management Information Systems

Provides a detailed coverage of selected analytical research in information systems. Prereq: Admission to the CSIS Ph.D. program. Cross-listed with CSCI 7210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 7211 - Topics In Behavioral and Organizational Research In Management Information Systems

Provides a detailed coverage of selected behavioral and organizational research in information systems. Prereq: admission to the CSIS Ph.D. program. Cross-listed with CSCI 7211. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 7220 - Research methods: Design and Analysis

Research methods: Design and Analysis. Topics include: research design, approaches to gathering data; sampling methods; linear multivariate analysis methods emphasizing structural equations models; and a brief survey of other methods such as cluster analysis, multidimensional scaling, methods such as neural nets, CART and/or genetic algorithms. While much of the material is of general interest, the course emphasizes methods and situations to prepare students in the CS/IS Ph.D. program for research in their field(s). The course includes student projects involving the analysis of data using appropriate software, whose results are presented to the class. Prereq: BUSN 6530 (or equivalent) and either Ph.D. student status or permission of instructor. Cross-listed with DSCI 6220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 7551 - Parallel and Distributed Systems

Examines a range of topics involving parallel and distributed systems to improve computational performance. Topics include parallel and distributed programming languages, architectures, networks, algorithms and applications. Prereqs: Graduate Standing. Cross-listed with CSCI 7551. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 7552 - Advanced Topics in Parallel Processing

Examines the advances of sequential computers for gaining speed and application of these techniques to high-speed supercomputers of today. Programming methodologies of distributed and shared memory multiprocessors, vector processors and systolic arrays are compared. Performance analysis methods for architectures and programs are described. Cross-listed with CSCI 7552. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 7574 - Advanced Topics in Operating Systems

Covers the advanced topics in operating systems by examining functionality and performance issues in CPU Scheduling, communications, distributed file systems, distributed operating systems, shared-memory multiprocessors and real-time operating systems. In addition to studying papers, reviews, and presentations, students carry out a semester long team project within the scope of one of the above topics. Prereqs: CSCI 3453 or CSCI 5573. Cross-listed with CSCI 7574. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 7582 - Artificial Intelligence

Approaches to design of systems for solving problems usually solved by humans, especially those related to intelligent decision making. Emphasis on various types of knowledge representation. Cross-listed with CSCI 7582. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 7654 - Algorithms For Communication Networks

Algorithmic and mathematical underpinnings of communication networks. A taxonomy of data-packet networks depending on modes of communication: Fixed-Interconnection networks, radio networks and multiple-access channel. Algorithms to implement packet routing, broadcasting and conflict resolution. Prereq: CSCI 5451. Cross-listed with CSCI 7654. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 7765 - Computer Networks

An in-depth study of active research topics in computer networks. Topics include: Internet protocols, TCP/UDP, congestion and flow control, IP routings, mobile IP, P2P overlay networks, network security, performance, and other current research topics. Prereq: Graduate Standing. Cross-listed with CSCI 7765. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 7799 - Topics in Network Computing

Studies the active research topics in network based computing such as Cluster, Grid computing, P2P Computing, Pervasive Computing. Workflow system and Cloud Computing. Students will study key papers in the literature, and submit a research term project. Prereq: Graduate Standing. Cross-listed with CSCI 7799. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 7800 - Special Topics

A variety of advanced topics are offered at the Ph.D. level in this course. Consult the current 'Schedule Planner' for semester offering. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 7840 - Independent Study: Pre-Dissertation Research

Conduct pre-dissertation research under the supervision of a faculty member. Prereq: BUSN 6530. Max hours: 18 Credits. **Semester Hours:** 1 to 6

ISMG 8990 - Dissertation Development

Supports development of a dissertation in conjunction with a student's advisor. Prereq: Completion of first year and second year papers (ISMG 7840). Max hours: 15 Credits. **Semester Hours:** 1 to 15

Initial/Professional Teachr Ed

IPTE 4002 - Math Instruction and Assessment

Designed to prepare elementary teachers to teach mathematics in elementary schools while applying the six principles of the National Council of Teachers of Mathematics (NCTM) (equity, curriculum, teaching, learning, assessment and technology) to the four areas of mathematical learning (number sense, statistics and probability, geometry and measurement, and mathematical functions). Teachers explore ways to help all elementary students become flexible and resourceful problem solvers in mathematics. Prereq: MATH 3040. Concurrent enrollment in an internship or permission of an instructor is required. Admission into the IPTE Program. Cross-listed with IPTE 5002. Max hours: 2 Credits. **Semester Hours:** 2 to 2

IPTE 4005 - Social Studies in the Elementary Curriculum

Designed to prepare elementary teachers to support students' learning related to the Colorado social studies standards. The course includes attention to social studies curriculum and teaching resources, approaches and strategies for effective teaching and assessment of social studies content, and to the teaching of literacy and math within social studies content. The course also helps teachers understand how to model democratic ideals in a classroom. Cross-listed with IPTE 5005. Max hours: 2 Credits. **Semester Hours:** 2 to 2

IPTE 4006 - Integrated Science and Social Studies in the Elementary Curriculum

Designed to support elementary teachers in developing an understanding and appreciation of active science and social studies explorations in elementary classrooms, learning various methods of teaching and assessing science and social studies that prepare students to meet content standards, developing authentic applications and integrating with other elementary content areas, including literacy and math, to support more holistic learning. Cross-listed with IPTE 5006. Max hours: 4 Credits. **Semester Hours:** 4 to 4

IPTE 4026 - Content Literacy Assessment and Instruction Teaching Lab

The secondary literacy teaching lab is designed to support novice and experienced teachers from all content areas in examining students' reading and writing performance data and using the data to plan instruction that assist secondary students in meeting reading and writing standards through work in content area classes. Conducted by teacher experts who possess knowledge of literacy strategies useful in content area teaching, labs utilize the data from the students that the lab participants are teaching. Prereq: IPTE 4025 and IPTE 4910 or teaching experience. Concurrent enrollment in an internship or permission of instructor required. Admission into the IPTE Program. Cross-listed with IPTE 5026. Max hours: 1 Credit. **Semester Hours:** 1 to 1

IPTE 4050 - Planning for the First Year of Teaching

Designed to assist those who are about to enter into their first year of teaching in planning for the first year, with a focus on: 1) creating community; 2) professional learning; and 3) curriculum and instruction. Cross-listed with IPTE 5050. Max hours: 1 Credit. **Semester Hours:** 1 to 1

IPTE 4120 - Negotiating the Classroom Culture with Children

A central purpose of classroom management is to establish and maintain a learning environment that fosters both effective and efficient instruction in the context of a positive social culture that models democratic ideals for students. This course focuses on the dimensions of classroom life as they are directly influenced by the social and cultural background of elementary students. Prereq: Concurrent enrollment in an internship. Admission into the IPTE Program. Cross-listed with IPTE 5120. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IPTE 4121 - Negotiating the Classroom Culture with Adolescents

A central purpose of classroom management is to establish and maintain a learning environment that fosters both effective and efficient instruction in the context of a positive social culture that models democratic ideals for students. This course focuses on the dimensions of classroom life as they are directly influenced by the social and cultural background of middle and high school students. Prereq: Concurrent enrollment in an internship is required. Admission into the IPTE Program. Cross-listed with IPTE 5121. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IPTE 4130 - Democratic Schooling: Issues of Laws and Ethics

Designed to provide an understanding of the legal, social, ethical, and democratic context of schools, the teacher's legal and ethical role in schools, and to examine the related issues that currently face teachers, parents, students, legislators and administrators. The aim is to facilitate the clarification of a personal value system through readings and discussions of the foundations of schooling in America. Cross-listed with IPTE 5130. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IPTE 4351 - Inquiry Science Methods

Designed to provide an in-depth study of inquiry science methods and how inquiry science supports standards-based education. The course provides a review of research on the pedagogy that supports student understanding, problem solving and creativity through the use of inquiry science. Participants learn a variety of methods, techniques and resources for teaching inquiry science, understand the processes of "doing" science, and develop lessons that actively engage students in science in their own classrooms. Prereq: Concurrent enrollment in an internship or permission of instructor is required. Admission into the IPTE Program. Cross-listed with IPTE 5351. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IPTE 4460 - Thoughtful Inquiry in Teaching Social Studies: Culture, People and Change

Focuses on the themes of culture, people, and change, this course equips secondary teachers with the skills and knowledge needed to plan and implement secondary social studies curriculum using integrated methodology. Additionally, this course increases teachers' understanding regarding the role of social studies education in the school curriculum and familiarizes teachers with problems, issues, and trends associated with social studies curricula. Prereq: Concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 5460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IPTE 4465 - Thoughtful Inquiry in Teaching Social Studies: Power, Technology and Society

Focuses on the themes of power, technology, and society, this course equips secondary teachers with the knowledge and skills needed to plan and implement secondary social studies curriculum using integrated methodology. Additionally, this course increases teachers' understanding regarding the role of social studies education in the school curriculum and familiarizes teachers with problems, issues, and trends associated with social studies curricula. Prereq: Concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 5465. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IPTE 4800 - Special Topics: Initial and Professional Teacher Ed

Workshop in Initial and Professional Teacher Education. Specific content will vary. Cross-listed with IPTE 5800. Max hours: 9 Credits. **Semester Hours:** 3 to 3

IPTE 4911 - Internship and Site Seminar II

Teacher candidates engage in systematic observation of, participation in, design of, and reflection on curricular, instructional, and management practices across the full range of educational programs within a school (e.g., general and special education, bilingual education, Title I services, etc.). Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the School Internship Handbook. In partner schools, the partner school site coordinator and the site professor are responsible for coaching and supervising teacher candidates and for supporting the clinical teachers in their work with teacher candidates. Site coordinators and professor conduct site seminars focused on providing teacher candidates with information about the partner school context and support for success within that context. In int Max hours: 2 Credits. **Semester Hours:** 2 to 2

IPTE 4912 - Internship and Site Seminar III

Teacher candidates engage in systematic observation of, participation in, design of, and reflection on curricular, instructional, and management practices across the full range of educational programs within a school (e.g., general and special education, bilingual education, Title I services, etc.). Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the School Internship Handbook. In partner schools, the partner school site coordinator and the site professor are responsible for coaching and supervising teacher candidates and for supporting the clinical teachers in their work with teacher candidates. Site coordinators and professor conduct site seminars focused on providing teacher candidates with information about the partner school context and support for success within that context. In internships outside of partner school settings, cooperating teachers, district coordinators, and/or university professors work with teacher candidates in the classroom and in seminars. Prereq: IPTE 4911 with a B or better. Admission into the IPTE Program. Cross-listed with IPTE 5912. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IPTE 4913 - Internship and Site Seminar IV

Teacher candidates engage in systematic observation of, participation in, design of, and reflection on curricular, instructional, and management practices across the full range of educational programs within a school (e.g., general and special education, bilingual education, Title I services, etc.). Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the School Internship Handbook. In partner schools, the partner school site coordinator and the site professor are responsible for coaching and supervising teacher candidates and for supporting the clinical teachers in their work with teacher candidates. Site coordinators and professor conduct site seminars focused on providing teacher candidates with information about the partner school context and support for success within that context. In internships outside of partner school settings, cooperating teachers, district coordinators, and/or university professors work with teacher candidates in the classroom and in seminars. Prereq: IPTE 4912, with a B or better, passing score on the Place/Praxis content exam and satisfactory progress in the program. Cross-listed with IPTE 5913. Max hours: 6 Credits. **Semester Hours:** 6 to 6

IPTE 4915 - Internship and Seminar I

Teachers working in their own classrooms while earning an initial teaching license engage in assessment, instruction, management, and collaborate with their colleagues across the full range of educational programs in their school (e.g., general and special education, bilingual education, Title I services, etc.). They also participate in the activities of a school community (the school and the community in which the school exist). Supervision and coaching of the teacher is negotiated by the employing district and the university but is likely to be a joint responsibility of district or school and university personnel. Teachers attend monthly seminars focused on current challenges and/or performance-based assessments. Prereq: Continuing contract as a teacher, satisfactory completion of the preceding internship, and concurrent enrollment in scheduled IPTE coursework. Max hours: 4 Credits. **Semester Hours:** 4 to 4

IPTE 4916 - Internship and Seminar II

Teachers working in their own classrooms while earning an initial teaching license engage in assessment, instruction and management and collaborate with their colleagues across the full range of educational programs in their school (e.g., general and special education, bilingual education, Title I services, etc.). They also participate in the activities of a school community (the school and the community in which the school exist). Supervision and coaching of the teacher is negotiated by the employing district and the university but is likely to be a joint responsibility of district or school and university personnel. Teachers attend monthly seminars focused on current challenges and/or on performance-based assessments. Prereq: IPTE 4915 and continuing contract as a teacher. Max hours: 4 Credits. **Semester Hours:** 4 to 4

IPTE 4917 - Internship and Seminar III

Teachers working in their own classrooms while earning an initial teaching license engage in assessment, instruction and management and collaborate with their colleagues across the full range of educational programs in their school (e.g., general and special education, bilingual education, Title I services, etc.). They also participate in the activities of a school community (the school and the community in which the school exist). Supervision and coaching of the teacher is negotiated by the employing district and the university but is likely to be a joint responsibility of district or school and university personnel. Teachers attend monthly seminars focused on current challenges and/or on performance-based assessments. Prereq: Continuing contract as a teacher, satisfactory completion of the preceding internship, and concurrent enrollment in scheduled IPTE coursework. Max hours: 4 Credits. **Semester Hours:** 4 to 4

IPTE 4918 - Internship and Seminar IV

Teachers working in their own classrooms while earning in initial teaching license engage in assessment, instruction and management and collaborate with their colleagues across the full range of educational programs in their school (i.e., general and special education, bilingual education, Title I services, etc.). They also participate in the activities of a school community (the school and the community in which the school exist). Supervision and coaching of the teacher is negotiated by the employing district and the university but is likely to be a joint responsibility of district or school and university personnel. Teachers attend monthly seminars focused on current challenges and/or on performance-base assessments. Prereq: A continuing teaching contract; satisfactory completion of the preceding internships and coursework and concurrent enrollment in scheduled coursework or permission of instructor. Max hours: 4 Credits. **Semester Hours:** 4 to 4

IPTE 5002 - Math Instruction and Assessment

Designed to prepare elementary teachers to teach mathematics in elementary school while applying the six principles of the National Council of Teachers of Mathematics (NCTM) (equity, curriculum, teaching, learning, assessment and technology) to the four areas of mathematical learning (number sense, statistics and probability, geometry and measurement, and mathematical functions). Teachers explore ways to help all elementary students become flexible and resourceful problem solvers in mathematics. Prereq: MATH 3040. Concurrent enrollment in an internship or permission of an instructor is required. Cross-listed with IPTE 4002. Max hours: 2 Credits. **Semester Hours:** 2 to 2

IPTE 5005 - Social Studies in the Elementary Curriculum

Designed to prepare elementary teachers to support students' learning related to the Colorado social studies standards. The course includes attention to social studies curriculum and teaching resources, approaches and strategies for effective teaching and assessment of social studies content, and to the teaching of literacy and math within social studies content. The course also helps teachers understand how to model democratic ideals in a classroom. Cross-listed with IPTE 4005. Max hours: 2 Credits. **Semester Hours:** 2 to 2

IPTE 5006 - Integrated Science and Social Studies in the Elementary Curriculum

Designed to support elementary teachers in developing an understanding and appreciation of active science and social studies explorations in elementary classrooms, learning various methods of teaching and assessing science and social studies that prepare students to meet content standards, developing authentic applications and integrating with other elementary content areas, including literacy and math, to support more holistic learning. Cross-listed with IPTE 4006. Max hours: 4 Credits. **Semester Hours:** 1 to 4

IPTE 5026 - Content Literacy Assessment and Instruction Teaching Lab

The secondary literacy teaching lab is designed to support novice and experienced teachers from all content areas in examining students' reading and writing performance data and using the data to plan instruction that assist secondary students in meeting reading and writing standards through work in content area classes. Conducted by teacher experts who possess knowledge of literacy strategies useful in content area teaching, labs utilize the data from the students that the lab participants are teaching. Prereq: IPTE 5025 and 5910 or teaching experience. Concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 4026. Max hours: 1 Credit. **Semester Hours:** 1 to 1

IPTE 5050 - Planning for the First Year of Teaching

Designed to assist those who are about to enter into their first year of teaching in planning for the first year, with a focus on: 1) creating community; 2) professional learning; and 3) curriculum and instruction. Prereq: IPTE 5913 with a grade of "B" or better. Cross-listed with IPTE 4050. Max hours: 1 Credit. **Semester Hours:** 1 to 1

IPTE 5070 - Teacher Inquiry I

The teachers develop a greater understanding of strategies and methods for conducting classroom and beyond-the-classroom inquiry that help them explore important questions about teaching and learning. Prereq: IPTE 5913 with a grade of "B" or better. Max hours: 2 Credits. **Semester Hours:** 2 to 2

IPTE 5071 - Teacher Inquiry II

Part II: Teachers conduct school and/or community-based inquiries in collaboration with each other and/or with their mentor teachers. Teachers share their clinical findings with their new school colleagues. Prereq: IPTE 5070. Max hours: 1 Credit. **Semester Hours:** 1 to 1

IPTE 5080 - Principles and Practice of Change

Teachers read widely from the literature on the societal, institutional, managerial, and political contexts of change in schooling. They examine their roles as instructional leaders, reflective practitioners and change agents as they use scholarly treatment of these topics in their daily work. Prereq: IPTE 5912 with a grade of "B" or better. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IPTE 5120 - Negotiating the Classroom Culture with Children

A central purpose of classroom management is to establish and maintain a learning environment that fosters both effective and efficient instruction in the context of a positive social culture that models democratic ideals for students. This course focuses on the dimensions of classroom life as they are directly influenced by the social and cultural background of elementary students. Prereq: Concurrent enrollment in an internship. Cross-listed with IPTE 4120. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IPTE 5121 - Negotiating the Classroom Culture with Adolescents

A central purpose of classroom management is to establish and maintain a learning environment that fosters both effective and efficient instruction in the context of a positive social culture that models democratic ideals for students. This course focuses on the dimensions of classroom life as they are directly influenced by the social and cultural background of middle and high school students. Prereq: Concurrent enrollment in an internship. Cross-listed with IPTE 4121. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IPTE 5130 - Democratic Schooling: Issues of Laws and Ethics

Designed to provide an understanding of the legal, social, ethical, and democratic context of schools, the teacher's legal and ethical role in schools, and to examine the related issues that currently face teachers, parents, students, legislators and administrators. The aim is to facilitate the clarification of a personal value system through readings and discussions of the foundations of schooling in America. Cross-listed with IPTE 4130. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IPTE 5351 - Inquiry Science Methods

Designed to provide an in-depth study of inquiry science methods and how inquiry science supports standards-based education. The course provides a review of research on the pedagogy that supports student understanding, problem solving and creativity through the use of inquiry science. Participants learn a variety of methods, techniques and resources for teaching inquiry science, understand the processes of "doing" science, and develop lessons that actively engage students in science in their own classrooms. Prereq: Concurrent enrollment in an internship or permission of instructor is required. Cross-listed with IPTE 4351. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IPTE 5460 - Thoughtful Inquiry in Teaching Social Studies: Culture, People and Change
Focuses on the themes of culture, people, and change, this course equips secondary teachers with the skills and knowledge needed to plan and implement secondary social studies curriculum using integrated methodology. Additionally, this course increases teachers' understanding regarding the role of social studies education in the school curriculum and familiarizes teachers with problems, issues, and trends associated with social studies curricula. Prereq: Concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 4460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IPTE 5465 - Thoughtful Inquiry in Teaching Social Studies: Power, Technology and Society

Focuses on the themes of power, technology, and society, this course equips secondary teachers with the knowledge and skills needed to plan and implement secondary social studies curriculum using integrated methodology. Additionally, this course increases teachers' understanding regarding the role of social studies education in the school curriculum and familiarizes teachers with problems, issues, and trends associated with social studies curricula. Prereq: Concurrent enrollment in an internship or permission of instructor required. Cross-listed with IPTE 4465. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IPTE 5690 - Curriculum and Methods in Foreign Language

Methodology to teaching French, German, and Spanish in an urban setting. Prereq: Concurrent enrollment in an internship required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IPTE 5691 - Curriculum and Methods in Foreign Language II

Methodology to teaching French, German, and Spanish in an urban setting. Prereq: Concurrent enrollment in an internship required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IPTE 5800 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 3 to 3

IPTE 5840 - Independent Study: IPTE

Max hours: 6 Credits. **Semester Hours:** 1 to 4

IPTE 5910 - Internship and Site Seminar I

Teacher candidates engage in systematic observation of, participation in, design of, and reflection on curricular, instructional, and management practices across the full range of educational programs within a school (e.g., general and special education, bilingual education, Title I services, etc.). Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the School Internship Handbook. In partner schools, the partner school site coordinator and the side professor are responsible for coaching and supervising teacher candidates, and for supporting the clinical teachers in their work with teacher candidates. Site coordinators and professor conduct site seminars focused on providing teacher candidates with information about the partner school context and support for success within that context. In internships outside of partner school settings, cooperating teachers, district coordinators, and/or university professors work with teacher candidates in the classroom and in seminars. Cross-listed with IPTE 4910. Max hours: 2 Credits. **Semester Hours:** 2 to 2

IPTE 5911 - Internship and Site Seminar II

Teacher candidates engage in systematic observation of, participation in, design of, and reflection on curricular, instructional, and management practices across the full range of educational programs within a school (e.g., general and special education, bilingual education, Title I services, etc.). Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the School Internship Handbook. In partner schools, the partner school site coordinator and the site professor are responsible for coaching and supervising teacher candidates and for supporting the clinical teachers in their work with teacher candidates. Site coordinators and professor conduct site seminars focused on providing teacher candidates with information about the partner school context and support for success within that context. In internships outside of partner school settings, cooperating teachers, district coordinators, and/or university professors work with teacher candidates in the classroom and in seminars. Prereq: IPTE 5910 with a B or better. Cross-listed with IPTE 4911. Max hours: 2 Credits. **Semester Hours:** 2 to 2

IPTE 5912 - Internship and Site Seminar III

Teacher candidates engage in systematic observation of, participation in, design of, and reflection on curricular, instructional, and management practices across the full range of educational programs within a school (e.g., general and special education, bilingual education, Title I services, etc.). Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the School Internship Handbook. In partner schools, the partner school site coordinator and the site professor are responsible for coaching and supervising teacher candidates and for supporting the clinical teachers in their work with teacher candidates. Site coordinators and professor conduct site seminars focused on providing teacher candidates with information about the partner school context and support for success within that context. In internships outside of partner school settings, cooperating teachers, district coordinators, and/or university professors work with

teacher candidates in the classroom and in seminars. Prereq: IPTE 5911 with a B or better. Cross-listed with IPTE 4912. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IPTE 5913 - Internship and Site Seminar IV

Teacher candidates engage in systematic observation of, participation in, design of, and reflection on curricular, instructional, and management practices across the full range of educational programs within a school (e.g., general and special education, bilingual education, Title I services, etc.). Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the School Internship Handbook. In partner schools, the partner school site coordinator and the site professor are responsible for coaching and supervising teacher candidates and for supporting the clinical teachers in their work with teacher candidates. Site coordinators and professor conduct site seminars focused on providing teacher candidates with information about the partner school context and support for success within that context. In internships outside of partner school settings, cooperating teachers, district coordinators, and/or university professors work with teacher candidates in the classroom and in seminars. Prereq: IPTE 5912, with a B or better, passing score on the Place/Praxis content exam and satisfactory progress in the program. Cross-listed with IPTE 4913. Max hours: 6 Credits. **Semester Hours:** 6 to 6

IPTE 5915 - Internship and Seminar I

Teachers working in their own classrooms while earning an initial teaching license engage in assessment, instruction, management, and collaborate with their colleagues across the full range of educational programs in their school (e.g., general and special education, bilingual education, Title I services, etc.). They also participate in the activities of a school community (the school and the community in which the school exist). Supervision and coaching of the teacher is negotiated by the employing district and the university but is likely to be a joint responsibility of district or school and university personnel. Teachers attend monthly seminars focused on current challenges and/or performance-based assessments. Prereq: Continuing contract as a teacher, satisfactory completion of the preceding internship, and concurrent enrollment in scheduled IPTE coursework. Max hours: 4 Credits. **Semester Hours:** 4 to 4

IPTE 5916 - Internship and Seminar II

Teachers working in their own classrooms while earning an initial teaching license engage in assessment, instruction and management and collaborate with their colleagues across the full range of educational programs in their school (e.g., general and special education, bilingual education, Title I services, etc.). They also participate in the activities of a school community (the school and the community in which the school exist). Supervision and coaching of the teacher is negotiated by the employing district and the university but is likely to be a joint responsibility of district or school and university personnel. Teachers attend monthly seminars focused on current challenges and/or on performance-based assessments. Prereq: IPTE 5915 and continuing contract as a teacher. Max hours: 4 Credits. **Semester Hours:** 4 to 4

IPTE 5917 - Internship and Seminar III

Teachers working in their own classrooms while earning an initial teaching license engage in assessment, instruction and management and collaborate with their colleagues across the full range of educational programs in their school (e.g., general and special education, bilingual education, Title I services, etc.). They also participate in the activities of a school community (the school and the community in which the school exist). Supervision and coaching of the teacher is negotiated by the employing district and the university but is likely to be a joint responsibility of district or school and university personnel. Teachers attend monthly seminars focused on current challenges and/or on performance-based assessments. Prereq: Continuing contract as a teacher, satisfactory completion of the preceding internship, and concurrent enrollment in scheduled IPTE coursework. Max hours: 4 Credits. **Semester Hours:** 4 to 4

IPTE 5918 - Internship and Seminar IV

Teachers working in their own classrooms while earning in initial teaching license engage in assessment, instruction and management and collaborate with their colleagues across the full range of educational programs in their school (i.e., general and special education, bilingual education, Title I services, etc.). They also participate in the activities of a school community (the school and the community in which the school exist). Supervision and coaching of the teacher is negotiated by the employing district and the university but is likely to be a joint responsibility of district or school and university personnel. Teachers attend monthly seminars focused on current challenges and/or on performance-base assessments. Prereq: A continuing teaching contract; satisfactory completion of the preceding internships and coursework and concurrent enrollment in scheduled coursework or permission of instructor. Max hours: 4 Credits. **Semester Hours:** 4 to 4

IPTE 5919 - Second Endorsement Internship or Guest Student Teaching

A specially arranged internship for those seeking a second endorsement in an area in which they are already teaching or wish to teach and/or for those from another state who wish to do their student teaching in Colorado and transfer credits back to their home institution. The number of credits and possible fee is arranged according to circumstances. Prereq: Letter from employing district certifying employment in teaching field for which licensure is sought or a letter from home institution certifying readiness to student teach. Max hours: 12 Credits. **Semester Hours:** 4 to 12

Initial Teacher Education

ITED 4700 - Instructional Teamwork Academy

The academy consists of four modules of varying length for a total of 15 clock hours of instructional time. The course consists of introductory material regarding teamwork, delineation of roles and responsibilities, classroom instruction, and behavior management. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ITED 4710 - Student Supervision Academy

The focus of the 15 clock hour academy is the effective management of large groups of students on playgrounds, in lunchrooms, halls, locker rooms, parking lots where buses are loading, on buses and in other instructional settings. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ITED 4720 - Interpersonal Skills Academy

The focus of this 15 hour academy is on developing effective interpersonal skills that are necessary for working as part of a team. Throughout this academy importance of issues of diversity based on culture, experience and gender in communication and conflict resolution processes is highlighted. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ITED 4730 - Personal Growth and Development Academy

This 15 contact hour academy covers self-appraisals, participation in the evaluation process and plan for continued professional growth and development, stress-management strategies and using creativity in dealing with problematic situations. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ITED 4740 - Behavior Management

This academy gives the paraeducator knowledge and skill in instructional methods that support students who have challenging behaviors in inclusive classrooms, resource rooms, self-contained classrooms, domestic settings, and in the community. These modules focus on the interactions that paraeducators have with students whose behaviors are challenging and on the role they play in assisting the professional members of their team with behavior challenges. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ITED 4750 - Instructional Strategies Academy

This academy gives the paraeducator knowledge and skills in analyzing the teaching environment and individual student needs for the particular level of support, degree of adaptation or accommodation or modification and instructional method that would best facilitate learning. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ITED 4760 - Instructional Technology Academy

This 15 contact hour academy is intended to provide paraeducators with skills in operating typical school-wide technologies. The focus is on examining the types of technology used daily, as well as those types that they may not currently have skills in using but which can broaden their repertoire of available skills. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ITED 4770 - Vocabulary and Comprehension

Paraeducators are provided with the skills needed to assist classroom teachers in meeting literacy needs of students in the areas of vocabulary and comprehension. Skills applicable to assisting diverse populations such as special education, Title 1, ELA, and General Education. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ITED 4780 - Assisting with Phonemic Awareness and Phonics in the Classroom

This academy provides the paraeducator with skills and techniques needed to assist literacy needs of diverse populations of students with phonemic awareness and phonics as it relates to the early, emergent and fluent reader. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ITED 4790 - Assisting with Reading Fluency in the Classroom

This academy provides the paraeducator with skills needed to assist literacy needs of diverse populations of students in the area of reading fluency. It covers important fluency concepts and terms and the use of a variety of research-based instructional techniques that improve fluency at the word, phrase, sentence and connected text levels. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ITED 4800 - Grades K-4 Mathematics

This academy is designed to provide paraeducators with the skills and knowledge needed to assist students, grades K through four, with mathematics skills taught in the classroom. The course content is designed and adapted from standards recommended by the National Council of Teachers of Mathematics. It includes the specific skill building area of number sense, computational techniques, algebraic thinking, geometry, measurement, data and probability as they apply to grades K-4 learners. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ITED 4810 - Number Theory and Rational Numbers

This academy provides paraeducators with the skills and knowledge needed to assist students with specific mathematics skills typically taught in grades five through eight. This academy solidifies the concepts learned in assisting with K-4 math and provides a base for assisting with high school mathematics. It includes the specific skill building areas of number sense; computational techniques for fractions, decimals and percents and their related applications as they apply to intermediate and middle school learners. The course content is designed and adapted from the standards recommended by the National Council of Teachers of Mathematics. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ITED 4820 - Algebraic Concepts and Spatial Reasoning

This academy provides paraeducators with the skills and knowledge needed to assist students, grades 5-8, with the mathematics skills taught in the classroom. The course content is designed and adapted from standards recommended by the National Council of Teachers of Mathematics. It includes the specific skill building areas of real number building properties; graphical representations; algebraic concepts and problem solving; data and probability; and spatial reasoning skills as they apply to intermediate and middle school learners. Max hours: 1 Credit. **Semester Hours:** 1 to 1

ITED 5022 - Learning and Classroom Management Strategies for Secondary Schools

Provides knowledge to create and manage classrooms conducive to the well-being and learning of a diverse student population. Included are instructional strategies for addressing content standards, managing curriculum, instruction, assessments, classrooms, and individual behaviors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ITED 5023 - Literacy Strategies for Secondary Schools

Provides knowledge and practice using specific literacy methods and assessment, to enhance content learning, and meet reading and writing standards. Instructional strategies for special needs and language-minority students are also emphasized. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ITED 5025 - Reading Instruction and Assessment K-5

Using and expanding upon background knowledge from prerequisites, participants learn about specific reading instruction and assessment routines and techniques. Through guided in-school placements, student's link course readings, discussion and practice, focus on improving their instruction, and the assessment or instruction cycle. Prereq: ITED 5000, 5010 and 5020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ITED 5800 - Special Topics in Education

Addresses a specific topic that is current and relevant to the needs of a specific group of educators and/or an educational context. Max hours: 12 Credits. **Semester Hours:** 1 to 4

ITED 5801 - Special Topics in Education

Max hours: 4 Credits. **Semester Hours:** 1 to 4

ITED 5840 - Independent Study

Max hours: 4 Credits. **Semester Hours:** 1 to 4

Instructional Technology

INTE 5110 - Instructional Development and Production

Systematic analysis, design, development, production, and evaluation of instructional units and materials. Apply systems design model and instructional theories to the development of learning resources. Topics include needs assessment; learner, content, goal and environment analyses; instructional strategies; and formative evaluation. Max hours: 4 Credits. **Semester Hours:** 2 to 4

INTE 5120 - Instructional Models, Strategies and Tactics

Instructional development principles and procedures for developing instructional sequences for facts, concepts, procedures and principles. Application of different instructional and development models. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5140 - Performance Technology

Analysis to determine whether human performance problems are problems that can be solved by instruction or by other means, such as organizational redesign, incentives, or performance support systems. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5160 - Managing Information and Learning Technology Programs

Problems in the organization and administration of information learning and technology programs and projects. Topics include project management, personnel administration, budget development, resource planning, and team collaboration. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5200 - Designing Online and Blended Teaching Units

This course helps educators transition to teaching online. Create online experiences, activities, assessments, and resources. Explore blended learning environments, synchronous and asynchronous instruction, the use of emerging technologies and trends along with accessibility concerns, and effective evaluation of online course design. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5250 - Facilitating Online and Blended Learning

This course provides a foundation for effective online teaching strategies in course management, communication, motivation, social presence and facilitation. Explores several online teaching strategies and approaches for creating engaging learning experiences for students in asynchronous and synchronous learning communities. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5310 - Producing Educational Materials

Design and production of materials such as videos, multimedia, presentations and websites to support learning goals. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5330 - Digital Storytelling

Introduction to methods and strategies for design and production of digital stories. Topics include principles of design, procedures of the development process, use of stories for education and personal development and introduction to multimedia tools for storytelling. Review of historical significance and future significance of digital storytelling within a variety of professional contexts. Max hours: 2 Credits. **Semester Hours:** 2 to 2

INTE 5340 - Digital Storytelling in the Curriculum

Integration of digital stories in the curriculum. Review of settings and purposes for educational uses of digital stories. Methods re-using and presenting stories for instruction; facilitating student creation of stories; developing instructional units; preparing an implementation plan for adoption of digital storytelling in a school or organization. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5345 - Exploring Culture Through Digital Storytelling

Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5350 - Leadership for Digital Storytelling

Train the trainer workshop for digital storytelling. Includes practice and training in facilitation methods in narrative/group workshop methods as well as technical software instruction. Additional activities include review of storytelling principles and values; additional practice in digital story design and production; presentation and sharing of digital stories; and review of uses in different settings. Max hours: 2 Credits. **Semester Hours:** 2 to 2

INTE 5370 - Digital Video For Interactivity

Digital video design and production for online and multimedia instruction. Topics include needs assessment and media selection; scripting and design; shooting; lighting; sound; editing; formats and conversion; and multimedia integration. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5410 - Designing Text and Graphics for Instruction

Instructional, structural, and typographic principles and techniques for designing text and illustration-based instructional materials, including programmed instruction, job aids, diagrams, documents, user manuals and online text. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5510 - Integrating Technology in the Curriculum

Principles and practices of technology integration in K12 classrooms and schools. Topics include: support for standards-based curriculum; evaluation and selection of resources; roles of technology in support of learning; teacher and learner roles; adapting to constraints; communications and information sharing; and social, ethical, legal and human issues such as equity, access, gender and culture. Max hours: 3 Credits. **Semester Hours:** 2 to 3

INTE 5520 - Technologies for Learning and Productivity

Using a wide variety of technological tools, including word processing, database, spreadsheet, graphics, presentation, and communications software, facilitate learning and manage the instructional process. Max hours: 4 Credits. **Semester Hours:** 1 to 4

INTE 5600 - Multimedia Authoring

Teaches the use of multimedia authoring tools to develop multimedia instruction or World Wide Web resources. Skills include: producing programs to meet educational needs; integrating digital content into office applications and multimedia resources. Prereq: Basic computer experience with word processing, database or spreadsheet programs. Max hours: 9 Credits. **Semester Hours:** 3 to 3

INTE 5610 - Principles for Designing Multimedia

Theory and practice of designing effective instruction for World Wide Web and multimedia delivery. Prereq: INTE 5600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5640 - Technology of Student-Centered Learning Environments

Theory and principles behind complex learning environments aimed at developing student responsibility, collaborative learning, and higher order thinking methods for technology support are examined. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5650 - Policies and Planning for eLearning Programs

Methods and strategies for planning, implementing and evaluating e-learning and distance-learning programs. Review of trends and issues currently affecting learning programs and delivery of online and hybrid forms of education. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5660 - Self-Paced eLearning Modules

In this hands-on course, students use a variety of tools and strategies to design and teach in eLearning environments. The course covers critical aspects of designing and teaching an online course, such as planning a successful online learning experience (both group-paced and self-paced instruction); designing eLearning materials and resources; being an effective online teacher, including leading, managing and assessing online discussions (both asynchronous and synchronous); getting the most out of a course management system; and assessing course effectiveness. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5665 - Social Media & Digital Cultures

The focus of this course is on how educators leverage networked social tools, technologies, and environments to address educational needs, opportunities, and problems of practice; and establish and nurture their own professional learning through participation in digital cultures. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5670 - Webinars and Synchronous Learning Events

In this course, students will learn how to provide synchronous learning events to complement asynchronous learning activities and resources. In working teams, students will plan and deliver a professional webinar using state-of-the-art synchronous tools and proven practices of design. Prereq: INTE 5660 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5680 - Integrating Media in eLearning Environments

Students develop and integrate media resources into eLearning environments, applying principles of media selection and multimedia learning. You will survey and sample a variety of tools for production of audio, video, and multimedia content and examine ways to enhance eLearning courses through multimedia presentation and engagement resources. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5690 - Enhancing Web-based Learning Environments with JavaScript and PHP Programming

Using JavaScript and PHP, this course teaches the technologies behind Web design that turn static HTML pages into interactive Web applications. Issues to consider with each technology are explored so intelligent decisions can be made when adopting a particular technology for use in a Web site. Prereq: INTE 5660, 5670 and 5680 or permission of instructor. Max hours: 4 Credits. **Semester Hours:** 4 to 4

INTE 5710 - Telecommunications and Networking in Education

Overview of computer-mediated communications (CMC) and networking and applications to education. Topics include: operating systems; hardware/software troubleshooting; networking in education and classroom and lab management. Prereq: Basic computer experience with word processing, database or spreadsheet programs. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5830 - Information and Learning Technologies Workshop

Specific titles vary depending upon the specific skill areas within information and learning technologies. Max hours: 12 Credits. **Semester Hours:** 0.5 to 4

INTE 5840 - Independent Study: INTE

Max hours: 9 Credits. **Semester Hours:** 1 to 4

INTE 5990 - Special Topics in Instructional Technology

Max hours: 30 Credits. **Semester Hours:** 1 to 6

INTE 5998 - Professional Development Activities

Provides guidance for professional development through participation in appropriate state, regional, and national conferences for meeting leaders and colleagues while upgrading professional knowledge and skills in the field. Prereq: Enrollment in a graduate INTE program or a professional in a field related to the conference. Max hours: 4 Credits. **Semester Hours:** 1 to 2

INTE 6110 - Managing Instructional Development

Organization, supervision and budgeting of instructional development projects in training and education. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 6120 - Design Studio For Project Management and Collaboration

Collaborative management of instructional-design projects meeting demonstrated needs in real-life settings. Skills include: management of time, personnel and resources; meeting client needs and expectations; communication with team and client; information design; interaction design and project problem solving. Prereq: INTE 5110 and 5120 or permission of instructor. Max hours: 10 Credits. **Semester Hours:** 2 to 6

INTE 6130 - Implementing and Evaluating Instruction

Methods for implementing instructional materials in field settings; evaluating materials for learning impact and program revision. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 6515 - Leadership for Learning Technologies Integration

Leadership for integrating technology into a standards-based curriculum. Through mentoring, service, or training, model and assist teachers and administrators in adopting technologies and information resources to support learning and assessment activities. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 6530 - Development Projects in Information and Learning Technologies

The creation and application of instructional systems combining unique instructional advantages of technologies to emphasize high levels of interactivity. Advanced projects must meet specific objectives to cover program design and development, hardware and software configurations, delivery systems and learners. Project topics vary. Prereq: INTE 5110 and 5600. Max hours: 6 Credits. **Semester Hours:** 3 to 3

INTE 6710 - Creative Designs for Instructional Materials

This course is a project-based exploration of instructional-materials design theories, principles, and best practices used to communicate complex information to a diverse audience for the purpose of teaching and learning. You will apply unique design approaches and formats to the creation of print- and presentation-based instructional materials. Max hours: 9 Credits. **Semester Hours:** 3 to 3

INTE 6720 - Research in Information and Learning Technologies

Analysis, evaluation, and production of research in instructional technology. Methods for observing instruction, assessing learning, and collecting participants reports to improve instruction. Development of recommendations for action based on research findings. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 6730 - Comparative Models of Instructional Design

Advanced seminar in analyzing the theoretical foundations and the instructional implications of different models and theories of instructional design. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 6740 - Learning Processes Applied to Instructional Technology

Principles of learning and instruction for technology-mediated learning. Topics include case-based and project-based teaching and other inquiry-learning strategies; tutorial and direct-instruction; and self-directed learning. Max hours: 3 Credits. **Semester Hours:** 2 to 3

INTE 6750 - E-Learning Trends & Issues

This course examines definitions, history, core concepts, and current trends and issues related to the practice of instructional technology. Topics include instructional systems design, theories of learning and instruction, change management, performance improvement, emerging technologies, equity and access, and mobile learning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 6760 - Advanced Seminar in Instructional Design and Development

Topical seminars to investigate issues, new models, or techniques in the field of instructional design and development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 6840 - Independent Study: INTE

Max hours: 9 Credits. **Semester Hours:** 1 to 4

INTE 6930 - Internship in Information and Learning Technologies

Placement in a business, school or field setting where professional skills are applied to assess needs, design, develop and evaluate an instructional system, and provide leadership for change. Max hours: 12 Credits. **Semester Hours:** 1 to 4

INTE 6950 - Master's Thesis

A master's thesis is part of the degree track options for use in conjunction with, or in lieu of, comprehensive exams. Credit hours, topic, and workload are determined by the student's advisor. Prereq: Completion of all other course requirements and permission of advisor. Max hours: 4 Credits. **Semester Hours:** 4 to 4

INTE 6960 - Master's Project

Credit hours, topic, and work load are determined by the student's advisor. Prereq: Completion of all other course requirements and permission of advisor. Max hours: 9 Credits. **Semester Hours:** 1 to 4

INTE 6999 - Leadership for Technology Innovation in Schools

Reflective examination of the adoption and use of information and learning technologies in applied settings. Topics include change strategies, system analysis, planning and evaluating technology use, and roles of technology specialists. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 7100 - Professional Learning and Technology

Examines research surrounding the design and delivery of professional development (PD) programs in K20 and workplace settings. Projects and activities address: adult learning; PD models; design and; performance support and evaluation; career development and digital presence; and online tools. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 7110 - Mentoring and Coaching for Professional Development

In-depth consideration of trends, issues, strategies and methods for facilitating the adult and professional learning of individuals and small groups. Particular focus is placed on developing and refining skills as a mentor, coach, and leader of professional study groups. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 7120 - Creating Digital Spaces for Professional Learning

Explore frameworks for designing and delivering professional learning opportunities with support from technology. You will apply alternative approaches and strategies for developing a career as an educational leader and change agent, and engaging adults in lifelong professional learning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 7130 - Workplace Performance Interventions

Development and evaluation of large-scale professional development and workplace learning initiatives. Topics include: frameworks for evaluating job performance based on professional learning standards; planning, delivering, and evaluating professional learning initiatives; research models; and performance improvement tools and resources. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 7930 - Internship for Professional Learning and Technology

Working under the direction of field and academic supervisors in field settings, contribute to projects intended to help educators and other workers improve their job performance. Apply your knowledge to complex problems of practice, thus preparing for ongoing leadership opportunities. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Interdisciplinary Arts

ARTS 1000 - Arts In Our Time

Multidisciplinary course designed to introduce students to the ways in which arts work and how the arts shape our perception of the world around us. Each student selects three four-week modules designed to examine each of the disciplines of fine arts, music and theatre, in the context of the creative process, audience perception and historical perspective. Every five weeks, students from each of the modules join forces in a week of "Inter-arts" sessions -- lectures and discussions about the relationship of the arts to each other and to our contemporary culture. Topics which are addressed in the modules include such things as American musical theatre, perception of jazz, public sculpture, light as art, sonic explorations, photography, history of production design, women in American music and censorship. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARTS 1111 - Freshman Seminar

The course explores the nature of creative inspiration, its potential and implementation. Through individual and collaborative projects, students investigate the interdisciplinary composition and development of the literary, visual and performing arts and their aesthetic, social and political impact. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARTS 1150 - Topics in Cross-Disciplinary Arts I

Designed to explore the ways in which the arts are a part of daily life. Research and observation of the variety of ways in which the arts are utilized. Prepares students to participate in special projects. Specific topics and projects change each semester. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ARTS 1400 - The Horror Film

This course is an analysis of the horror film genre and its significance as a reflection on society. It will look at both the history and development of this genre and the impact these films have had. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARTS 2150 - Topics in Cross-Disciplinary Arts II

Provides opportunities for students to apply artists' methods and media in a non-presentation setting. Experiential research is centered around a specific topic each semester, but enable students to discover a broader understanding of the arts. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ARTS 3150 - Topics in Cross-Disciplinary Arts III

Focuses on the ways in which the arts are engaged in communities as expressions of identity as well as agents of change. Historical research and applied projects provide a foundation for participation in designated team projects. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ARTS 3400 - World Cinema

This course will examine representative examples of films from around the world to understand the current interests and concerns of world cinema, as well as to learn what concerns various countries around the world, and how those concerns are expressed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARTS 3939 - Internship

Students build professional skills and increase their understanding of creative industries through experiential learning and course work designed to expand internship experiences into powerful learning. Assigned readings, group discussions, weekly summaries, and final paper/presentation support and reflect internship activities and build interpersonal, organizational, and industry specific skills while increasing knowledge of business practices and professionalism. Max hours: 3 Credits. **Semester Hours:** 1 to 3

ARTS 4150 - Topics in Cross-Disciplinary Arts IV

Investigates the historical and critical perspectives of the arts in a variety of contexts. Specific topics provide a focus for students to discover the ways in which the arts inform each other and are shaped by the events of the world. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ARTS 5000 - Topics

Max hours: 9 Credits. **Semester Hours:** 3 to 3

ARTS 5150 - Topics In Cross-Disciplinary Arts

Investigates the historical and critical perspectives of the arts in a variety of contexts. Specific topics provide a focus for students to discover the ways in which the arts inform each other and are shaped by the events of the world. Max hours: 9 Credits. **Semester Hours:** 1 to 3

International Business

INTB 2939 - Internshp

Max hours: 9 Credits. **Semester Hours:** 1 to 3

INTB 3000 - Global Perspectives

Globalization brings both opportunities and anxieties that need to be fully explored, discussed and understood both by the business and non-business student. This interdisciplinary course is designed to stimulate thought, perspective, discussion and debate for business and non-business students on issues ranging from globalization; political economy and geopolitics; the environment; cultures; finances; economic integration; trade; global regions; emerging markets; human rights; terrorism and conflict; leadership, ethics and values; entrepreneurship, to future trends in global issues. The Global Perspective course is designed (1) to increase and promote both business and non-business students' capacity for international understanding and international enterprise through the study and discussion of global business environment-related issues from multiple points of views in a neutral forum. (2) It is to provide students with the awareness that global issues cannot be viewed in isolation, Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 3901 - The Construction of the European Union

An overview of past and future development in Europe, including economic, political, and social aspects from the point of view of EU members, bordering countries, and world powers. The single market and its repercussions for businesses and the impact of the creation of a single market are studied. Offered through the ACI Semester in Paris program. Prereq: Acceptance to the ACI program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 3902 - Intercultural Management: European Values and Behavior

An in-depth study of European cultural differences and what unites the European nations. Histories and cultures of European countries are used to understand differences in communication, management, and organizational development. Case studies provide a synthesis of European and U.S. management practices. Offered through the ACI Semester in Paris program. Prereq: Acceptance to the ACI program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 3903 - International Business Law

Provides a legal framework necessary for international business transactions and judicial risks. Combining theory and case studies, the course covers contract law, dispute settlement, and international business specific operations: international sales, distribution and exclusive concession contracts, franchise contracts, commercial agency contracts, and technology transfer contracts. Offered through the ACI Semester in Paris program. Prereq: BLAW 3000 and acceptance to the ACI program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 3904 - International Negotiation

Studies the position of the company in the international marketing process; general knowledge of negotiators' external environments; preparation of a negotiation and the negotiating process; and expression of each party within the context of a contract. Offered through the ACI Semester in Paris program. Prereq: Acceptance to the ACI program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 3905 - International Marketing and Distribution

A practical view of the development of foreign markets, emphasizing strategic decisions of international development and analysis of company expertise regarding preferences and entrance into the marketplace. Problems pertaining to implementation of international sales policies and evolution of product distribution are also studied. Offered through the ACI Semester in Paris program. Prereq: MKTG 3000 and acceptance to the ACI program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 3906 - International Communication and Consumer Behavior

Examines the influence of culture on purchasing and consuming as well as the importance of cultural values in consumer behavior. Provides the necessary framework to understand the current global market situation (product development, global market structures, global marketing strategies). An analysis of communication and advertising in an international context. Prereq: MKTG 3000 and acceptance to the ACI program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 3907 - European Marketing and Management of a Product Line

Trains students to analyze the main characteristics and trends of the European marketing environment and business development. With extensive use of case studies, it examines such issues as European product launches. Prereq: MKTG 3000 and acceptance to the ACI program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 3908 - Organizations and Culture

Introduces a range of ideas about organizations and how they work. Issues of internationalization in the context of organizational structure and culture, covering such topics as the global-local dilemma, the "transnational" approach and structural criteria. Modern organizational challenges assessed: innovation and technology. Prereq: MGMT 3000 and acceptance to ACI program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 3909 - Single Market, European Law and Euroland

Overview of past and future steps in the development of Europe, economics, political and social aspects from the point of view of EU members, bordering countries (Central Europe) and world powers (United States, Japan and Asia). The single market and its repercussions for business (free access to the market, common rules, single currency) and the impact of the single market on their strategies. Prereq: Acceptance to the ACI program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 3910 - International Corporate Finance

The objective of this seminar is to provide an overview of international corporate finance, understand the main differences in accounting standards, interpret and critically analyze the financial reports issued by international firms, and have a working knowledge of cost accounting principles. Prereq: FNCE 3100 and acceptance to the ACI program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 3911 - The United States Of Europe

The objectives of this seminar are to allow students to obtain a practical knowledge of and develop a thorough understanding of the integrative process taking place among several European countries, and to give them a unique chance to become familiar with the various political, economical, legal, cultural, and human aspects of the European community being developed and institutionalized, on a brand new, historical, and transnational level. Prereq: Acceptance to the ACI program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 3912 - Global Marketing-Communication

Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 3939 - Internship

Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: Senior standing and a 3.5 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

INTB 4028 - Travel Study Topics

Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 4400 - Environments of International Business

An overview of the environmental complexities that arise when business activities and firms cross national borders. Key international business environmental complexities associated with country differences, cross-border trade and investment, and global monetary system are examined. Prereq: MGMT 3000 and junior standing. Cross-listed with MGMT 4400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 4410 - Operations of International Business

Focuses on the impact of environmental factors on international business operations and the identification and analysis of complex strategic and operational issues facing business firms in global markets. The strategies and structures of international businesses, alternative foreign market entry modes, and the unique roles of various business functions at international business firms are explained and assessed. Prereq: INTB 4400 or MGMT 4400. Cross-listed with MGMT 4410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 4950 - Special Topics in International Business

Current topics in international business are occasionally offered. Consult the 'Schedule Planner' for specific course offerings or contact an advisor for information. Prereq: Topics vary depending on the topic and the instructor requirements. Max hours: 9 Credits. **Semester Hours:** 3 to 3

INTB 5800 - Special Topics in International Business

Current topics in international business are occasionally offered. Consult 'Schedule Planner' for specific course offerings or contact an advisor for information. Prereq: Topics vary depending on the topic and the instructor requirements. Max hours: 9 Credits. **Semester Hours:** 3 to 3

INTB 5939 - Internship

Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: 21 semester hours and a 3.5 grade-point average. Max hours: 9 Credits. **Semester Hours:** 1 to 3

INTB 6000 - Introduction to International Business

An overview of the international business environment, the impact of environmental factors on international business operations, and the identification of current and complex managerial issues facing organizations engaged in international business. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6020 - Cross-Cultural Management

Focuses on the management of diverse socio-cultural and political norms and values in the global marketplace. The goal of this course is to develop skills in managing impacts of such values and norms on the effectiveness of international business operations and managerial activities. Prereq: INTB 6000 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6022 - International Business Negotiations

Examines the international dimensions of business negotiations. It addresses the impact of the cultural, legal, political environments in the negotiation process, and examines similarities and differences in negotiation styles and approaches across borders. (This course qualifies as an international elective for the MS in International Business program.) Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6024 - International Trade Finance and Management

Provides an overview of international trade finance and trade management. It examines the roles played by various parties involved in international trade, addresses key methods of international payment and related financing, and provides practical experiences on how to manage the import and export trade management process. (This course qualifies as an international elective for the MS in International Business program.) Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6026 - International Marketing

Explores problems, practices, and strategies involved in marketing goods and services internationally. Emphasizes analysis of uncontrollable environments, legal systems, and economic conditions, as they affect international marketing planning. (This course qualifies as an international elective for the MS in International Business program.) Prereq: BUSN 6560. Note: Students cannot receive credit for both MKTG 6020 and INTB 6026. Cross-listed with MKTG 6020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6028 - Travel Study Topics

Max hours: 9 Credits. **Semester Hours:** 3 to 3

INTB 6030 - 11-Month MBA International Business Study Abroad

The 11-Month MBA International Business Study Abroad is an experiential learning course conducted abroad. Available for 11-Month MBA students only. **Semester Hours:** 3 to 3

INTB 6040 - Managing Global Talent

This course has two objectives: (1) to understand the impact of cultural differences in the management of people in multinational firms; and (2) to compare and contrast critical human resource issues in the contexts of domestic and international operations. Topics include recruitment, staffing, training, performance appraisal, compensation, and labor and management relations in markets around the world. (This course qualifies as an international elective for the MS in International Business program.) Prereq: MGMT 6380 or BUSN 6520 (or equivalent). Cross-listed with MGMT 6040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6060 - The Legal Aspects of International Business

Analyzes the legal aspects of international business transactions and considers risk-reducing mechanisms such as letters of credit and arbitration. The course examines NAFTA, the European union, and other international trading structures and rules, giving the background for export or import activities. (This course qualifies as an international elective for the MS in International Business program.) Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6080 - Global Competition

Focuses on the dynamics of the interface between international business operations and their market environments. It addresses the changing structure of international competitive environments and its implications for companies engaged in international business. It examines various approaches to and issues in structuring international business deals in dynamic global competitive environments. (This course qualifies as an international elective for the MS in International Business program.) Prereq: INTB 6000 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6082 - Marketing in Emerging Markets

Explores problems, practices, and strategies involved in marketing goods and services in emerging markets. Emphasizes analysis of uncontrollable environmental forces, including cultures, governments, legal systems, and economic conditions, as they affect the marketing plan. (This course qualifies as an international elective for the MS in International Business program.) Prereq: BUSN 6560. Note: Students cannot receive credit for both MKTG 6080 and INTB 6082. Cross-listed with MKTG 6080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6094 - Marketing Issues in the Chinese Environment

This course assesses numerous marketing and marketing related topics in the Chinese environment with the objective of helping the graduate student develop managerial and marketing expertise. In specific, the course pinpoints key developments in the Chinese business environment, develops expertise in conducting market opportunity analysis, assesses market entry conditions and strategies and applies marketing mix strategies in the context of the Chinese environment. Note: It is recommended for students to take BUSN 6560 or INTB 6000 prior to this course. Cross-listed with MKTG 6094. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6200 - International Business Policy

The objective of this course is to develop competence relevant to strategy formulation and implementation in a multi-national enterprise, and in an international context. Provides theoretical knowledge, skills, and sensitivities that help deal effectively with the strategic and managerial problems of managing in a global environment. Prereq: INTB 6000 and 18 graduate credit hours. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6370 - International Accounting

Designed to expose students to the international aspects of accounting and financial management. Includes discussion of some of the different financial accounting practices across countries; financial statement analysis in a global context. IFRS's are reviewed and compared with the requirements of US GAAP. Note: Students cannot receive credit for both ACCT 6370 and INTB 6370. Prereq: BUSN 6550 or equivalent. Cross-listed with ACCT 6370 and ACCT 4370. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6372 - International Financial Management

Addresses financial management in an international context that considers international capital movements and foreign exchange problems, and international operations as they affect financial functions. It reviews foreign and international institutions and the foreign exchange process and considers financial requirements, problems, sources, and policies of firms doing business internationally. Meets concurrently with FNCE 6370. Prereq: BUSN 6640. Cross-listed with FNCE 6370. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6411 - International Corporate Governance

Discusses the structure and goals of the modern corporation, the primary governance mechanisms used to help companies achieve these goals, how and why these roles, goals, and mechanisms vary across nations. The topics to be covered in the course include how share ownership, particularly by institutional shareholders, managerial compensation and board of director activities are being used to improve corporate governance systems. The class compares the Codes of Best Governance Practices from several countries as well as recent innovations in individual company governance rating systems. (This course qualifies as an international elective for the MS in International Business program.) Prereq: BUSN 6640. Note: Students cannot receive credit for both FNCE 6411 and INTB 6411. Cross-listed with FNCE 6411. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6460 - Emerging Market Finance

This course aims to explore key emerging market finance issues from the perspectives of corporations, investors and markets. Emerging economies are deemed to be the engine of growth opportunities in the world economy. However, compared with developed markets, they typically have some unique features in their economic systems and financial markets, and thus different risk and return characteristics, leading to special considerations of capital budgeting, financing and investing in these economies. This course is to help develop a better understanding of financial markets, corporate finance and investments in emerging economies, with case studies on some major emerging markets (e.g., China, India). Prereq: BUSN 6620 and 6640. Cross-listed with FNCE 6460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6750 - Research Methods in International Business

Focuses on three major issues: (1) research design from an international management perspective (e.g., qualitative, quantitative and ethnographic); (2) topical issues (e.g., culture, international negotiations, mergers and alliances); (3) trends in international business research (e.g., cross-national project teams, emerging theoretical perspectives). This course qualifies as an international elective for the MS in International Business program. Prereq: INTB 6000 and BUSN 6530 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6800 - Special Topics in International Business

Current topics in international business are occasionally offered. This includes international field study courses. Consult the 'Schedule Planner' for specific course offerings or contact an advisor for information. (This course qualifies as an international elective for the MS in International Business program.) Prereq: Topics vary depending on topic and instructor requirements. Max hours: 12 Credits. **Semester Hours:** 3 to 3

INTB 6840 - Independent Study

Instructor approval required. Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study. (This course qualifies as an international elective for the MS in International Business program.) Max hours: 9 Credits. **Semester Hours:** 1 to 8

INTB 6870 - Global Climate Change

Global climate change may be one of the most important challenges facing business in the 21st century. This course will introduce the potential impacts of climate, then discuss possible regulatory responses to and business risks and opportunities that may emerge if climate change occurs. Cross-listed with BUSN 6870. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6950 - Master's Thesis

Prereq: INTB 6750. Max hours: 8 Credits. **Semester Hours:** 1 to 8

International Studies

INTS 3939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

INTS 4840 - Independent Study

Directed study based on a specific subfield of international studies. Max hours: 6 Credits. **Semester Hours:** 1 to 3

Landscape Architecture

LDAR 5500 - Introductory Landscape Architecture Design Studio

Introduction to basic strategies, methods and techniques of landscape architectural design and representational techniques. Explores fundamental issues of spatial form and landscape experience and meaning. Coreq: LDAR 5510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 5501 - Landscape Architecture Design Studio 1

Introduction to basic strategies, methods and techniques of landscape architectural design and representational techniques. Explores fundamental issues of spatial form and landscape experience and meaning. Max hours: 6 Credits. **Semester Hours:** 6 to 6

LDAR 5502 - Landscape Architecture Design Studio 2

Problem-based studio course covers strategies, methods and techniques of landscape architectural design with emphasis in more complex social and urban issues, design processes and development and the application of theory and research. Prereq: LDAR 5501 or permission of department chair. Max hours: 6 Credits. **Semester Hours:** 6 to 6

LDAR 5503 - Landscape Architecture Design Studio 3

Problem-based studio covering the approaches, techniques and means for planning and designing sites to accommodate development program on a particular site within an identifiable context. Covers issues definition, site analysis, programming, development of design strategies, evaluation site planning, and communication. Prereq: LDAR 5501 and LDAR 5502 or permission of department chair. Max hours: 6 Credits. **Semester Hours:** 6 to 6

LDAR 5510 - Graphic Media in Landscape Architecture

Introduces basic principles and methods associated with analog and digital drawing-plan, sections, perspectives, color, shading, composition and projection. Max hours: 3 Credits.

Semester Hours: 3 to 3

LDAR 5521 - History of Landscape Architecture

Intro survey course fosters workable understanding of landscape architecture design history and theory and offers a base for understanding trends and ideas influencing contemporary practice. Emphasizes Western Europe and the United States from Egyptian antiquity to early twentieth century. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 5532 - Landform Manipulation

Focuses on the fundamental technical aspects of landscape architectural design and site engineering of related topography, grading, drainage design, landform manipulation, earthwork calculations, and road alignment. Prereq: LDAR 6641. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 5540 - Introduction to GIS

An introduction to GIS as a set of strategies, methods and techniques used to facilitate the inventory and analysis of complex systems. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 5572 - Landscape Ecology

Course emphasizes continuity and change in an ecology of the natural and man-made landscape. Focuses on biological, geophysical, cultural, and perceptual factors involved in landscape, spatial organization, and urban and regional structure. Introduces field ecology for landscape architecture. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 5573 - Advanced Landscape Ecology

Critically investigates the performance of complex landscape systems on multiple spatial and temporal scales, with emphasis on the interaction of human and non-human systems. May address issues of sustainability, disaster recovery, mitigation, etc. Prereq: LDAR 5572 or URPL 6500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6520 - Landscape Architecture in Other Cultures

Study abroad. Various studies of landscape architecture, architecture, urbanism, and design in foreign countries. Max hours: 9 Credits. **Semester Hours:** 1 to 9

LDAR 6604 - Landscape Architecture Design Studio 4

Intermediate landscape design studios engage design projects and topics that cover diverse design approaches, contexts, and landscape processes at various scales and complexities. Design projects will vary. Students are expected to expand their graphic, oral communication, and design skills.. Prereq: LDAR 5501, 5502, 5503 or permission of department chair. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6605 - Landscape Architecture Design Studio 5

Intermediate landscape design studios engage design projects and topics that cover diverse design approaches, contexts, and landscape processes at various scales and complexities. Design projects will vary. Students are expected to expand their graphic, oral communication, and design skills. Prereq: LDAR 5501, 5502, 5503, 6604 or permission of department chair. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6606 - Landscape Architecture Design Studio 6

Advanced landscape architecture design studio covering situations of urbanization and change at various scales and complexities. Prereq: LDAR 5501, 5502, 5503, 6604, 6605 or permission of department chair. Max hours: 6 Credits. **Semester Hours:** 6 to 6

LDAR 6607 - Landscape Architecture Design Studio 7

Advanced landscape design studios engage design projects and topics that cover diverse design approaches, contexts, and landscape processes at various scales and complexities. Design projects will vary. Students are expected to demonstrate mastery of graphic, oral communication, and design skills. Prereq: LDAR 5501, 5502, 5503, 6604, 6605, 6606 or permission of department chair. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6608 - Landscape Architecture Design Studio 8

Advanced landscape design studios engage design projects and topics that cover diverse design approaches, contexts, and landscape processes at various scales and complexities. Design projects will vary. Students are expected to demonstrate mastery of graphic, oral communication, and design skills. Prereq: LDAR 5501, 5502, 5503, 6604, 6605, 6606, 6607 or permission of department chair. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6620 - Landscape Architecture Theory and Criticism

Explores and assesses theory in landscape architecture and the concepts, ideas and discourses underlying contemporary design approaches. Emphasizes developing critical understanding of the roles and agency of theoretical inquires in landscape architecture in relation to aligned disciplines. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6624 - The Built Environment in Other Cultures I: Research Design

Intends to broaden students' perspectives by asking them to examine design within another culture. Students prepare a proposal of study including a statement of the problem to be addressed, the type of field research to be undertaken, and the nature of the report to be produced. Cross-listed with ARCH 6624. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6625 - Landscape Architecture Field Studies

Critical field evaluation of built works of landscape architecture using methodological approaches like field measurement, mapping, sketches, photography, written evaluations and applied research. It may also assess the performative aspects of designed landscapes. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6630 - Site, Society and Environment

Sites are defined by relationships within environmental and social settings. Therefore site design should be primarily ethical and secondarily technical. This course examines the implications of this idea through site methodologies, conceptual construction of site, site analysis and site typologies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6631 - Landscape Construction Materials and Methods

Develops understanding of detailed design processes, construction materials and selection of construction methods and documents. Typically taken with LDAR 6605 and 6606 (LDAR Design Studios 5 and 6). Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6632 - Site Planning

Focuses on site planning processes, criteria and decision-making. Includes research, site analysis, and data synthesis as they relate to site context and design concepts. Also addresses site work (grading and drainage, utilities), cost computation, and creating site and building program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6641 - Computer Applications in Landscape Architecture

Introduces digital technologies and methods commonly used in landscape architecture including primarily CADD, visualization, graphic design, and other emerging applications. Includes hands-on exercises. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6642 - Landscape Architecture Digital Design Workshop

Provides hands-on experiences in the principles, software, and theories for emergent 3-D and 4-D design in landscape architectural practice and research. Prereq: LDAR 6641. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6670 - Plants in Design

Explores the challenges, opportunities and responsibilities of designing with living, growing, and ever-changing organisms. Students learn to identify plants that are commonly used in the Colorado region and the principles, theories, methods, and techniques for planting design. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6671 - Plant Material Identification

Students learn the names, characteristics and site requirements of plants including trees, shrubs, ground covers and perennials commonly used in built works in the Colorado region. Methods are transferable to other regions. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6686 - Special Topics: Landscape Architecture

Various topical concerns are offered in landscape architecture history, theory, elements, concepts, methods, implementation strategies, and other related areas. Max hours: 21 Credits. **Semester Hours:** 3 to 3

LDAR 6710 - Landscape Representation

Focuses on developing critical understanding of various advanced manual and digital representation and visualization techniques in landscape analysis and design. Provides frameworks to identify the most appropriate techniques depending on content, context and audience. Prereq: LDAR 5510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6711 - Advanced Graphics Landscape Architectural

Focuses on developing practical and applied expertise in various manual and digital visualization and representation techniques and media used for enhanced effectiveness in visual communication. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6712 - Green Roofs/Living Systems

The primary objective for this seminar is to give students a general understanding of green roof systems, vegetated roofs above underground architecture and vertical vegetated systems. The seminar will engage in critiques and discussions using international, national and local case studies, covering history, typologies, function, design, master planning and costs. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6720 - Finding Common Ground

Focuses on principles and societal variables that influence the structure of urban neighborhood space through research application. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6722 - Contested Terrains

Explores the different processes, factors and forces that determine and influence occupation, land use and built form through the phenomena of conflict and contestation. Design is inherently located within the disputes and discourses involving landscape as location and resource. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6723 - Cinema and the Landscape

Explores the relationships between landscape and film through theoretical and practical investigations. Explores film's roles in understanding and investigating landscapes, their dynamic qualities and processes, and issues related to film's capacity to construct spatial meaning. Max hours: 6 Credits. **Semester Hours:** 3 to 3

LDAR 6724 - American Landscapes

Historical, theoretical and critical evaluation of the development of American landscapes. May cover the economic, philosophical and social trends behind changes in the landscape as well as the intellectual and contextual changes to the theory and practice of landscape architecture. Prereq: LDAR 5521 Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6725 - Design Communications

In this seminar students will learn research and writing skills to produce articles in clear, readable, and substantial prose, from academic criticism to general interest reviews; writing forms and styles, including essays, reports, award applications and writing for oral presentation; and editing basics. Prereq: History and/or theory of landscape architecture or architecture. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6730 - International Studies Preparation

The course will prepare students to go to China, for 10-day International Summer School, 5-week China Summer Urban Design Joint Studio, 9-month Gensler Internship, and 1-year LA Dual Degree program. Topics include historic, geographic and cultural issues, and language lessons. Cross-listed with ARCH 6730, URBN 6730, and URPL 6730. Max hours: 3 Credits. **Semester Hours:** 1 to 3

LDAR 6735 - The Landscape of Food

An examination of the reciprocal relationships between landscapes and patterns of food production, distribution, and consumption. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6750 - Professional Practice

Explores the essential elements of professional practice and equips students with the fundamental knowledge and skills requisite to understand and participate in this practice. Covers office organization, project management, contracts, professional ethics and non-traditional careers. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6840 - Independent Study

Studies initiated by students or faculty and sponsored by a faculty member to investigate a special topic or problem related to landscape architecture or urban design. Prereq: Permission of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 3

LDAR 6910 - Teaching Assistantship

Work with a faculty member in a course to assist with course preparation and delivery and learn teaching practices. Max hours: 9 Credits. **Semester Hours:** 3 to 3

LDAR 6930 - Landscape Architecture Internship

Designed to provide professional practice experience. The student is placed in a landscape architectural and/or design office by the College and receives credit for specific work goals. Prerequisite: must complete the first-year level before taking this course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6949 - Research Tools & Methods

Introduces students to research in landscape architecture and related fields and disciplines. Provides students with research practices, methods, and methodologies and a critical framework to identify suitable approaches based on diverse projects and contexts. Supports studio, independent study and thesis. Cross-listed with ARCH 6473. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6950 - Thesis Research

Student works closely with a landscape architecture faculty advisor and thesis committee to develop the thesis through focused research. Research might entail both written and graphic inquiry leading to specific products with conclusive ideas setting the stage for final thesis. Prereq: LDAR 6949 and permission of department chair. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6951 - Landscape Architecture Thesis

The Landscape Architecture thesis is expected to advance the field of landscape architecture by offering new insights into aspects of design, technology, history or professional principles. In this course, the student continues to work independently, but closely with a landscape architecture faculty advisor and thesis committee to complete the thesis. The thesis might take on different final forms (written volume, drawings, maps, digital images), depending on the subject inquiry. For further information on the Landscape Architecture Thesis Track consult the Landscape Architecture Thesis Guidelines. Prereq: LDAR 6949 and 6950. Max hours: 6 Credits. **Semester Hours:** 6 to 6

Lang Literacy & Culture

LALC 5010 - ELA Foundations

The course is an introduction to the historical and legal foundations of bilingual and English as a second language education at the federal, state, and district levels. Course participants will examine the ways in which language education history at these levels has influenced policy and practice in the district and their schools and they will explore ways of using this information to advocate for English language learners. Max hours: 1 Credit. **Semester Hours:** 1 to 1

LALC 5055 - Linking Assessment and Instruction in Language and Literacy, Part I

This is the first of a two-part sequence on linking assessment to curriculum and instruction. Focus is on both monolingual speakers of English and second language learners. Assessments include both oral and written language (reading and writing) as well as attitudinal measures and classroom arrangements. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LALC 5060 - Linking Assessment and Instruction in Language and Literacy, Part II

This is the second of a two-part sequence on linking assessment to curriculum development and instruction. The focus is on both monolingual speakers of English and second language learners. Prereq: LALC 5030, 5055 and 5140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LALC 5100 - Theories and Methods of Second Language Teaching

Provides an overview of approaches to second language teaching. Emphasis is on development of a personal philosophy of second language teaching. Topics covered include first and second language acquisition, contributions of psychology and linguistics, and current practices and trends in language teaching. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LALC 5724 - Colorado Writing Project I

Teachers will experience participating in writers' workshop, writing several pieces, taking them through revision and workshop groups. Teachers will also read, discuss, and respond to texts about teaching writing and preparing students to take state writing tests. Max hours: 4 Credits. **Semester Hours:** 4 to 4

LALC 5726 - Colorado Writing Project II

Teachers will experience participating in writers' workshop, writing several pieces, taking them through revision and workshop groups. Teachers will also read, discuss, and respond to texts about teaching writing and preparing students to take state writing tests. Max hours: 4 Credits.

Semester Hours: 4 to 4

LALC 5728 - Colorado Writing Project III

Teachers will experience participating in writers' workshop, writing several pieces, taking them through revision and workshop groups. Teachers will also read, discuss, and respond to texts about teaching writing and preparing students to take state writing tests. Max hours: 4 Credits.

Semester Hours: 4 to 4

Latin

LATN 1010 - Elementary Latin I

Introduces grammar, syntax, and vocabulary of Classical Latin, with an emphasis on preparing students to read Latin while improving English grammar and vocabulary skills. Two semesters of Latin may be used to fulfill the CLAS language competency requirement. Max hours: 5 Credits.

Semester Hours: 5 to 5

LATN 1020 - Beginning Latin II

Completes the presentation of basic Latin grammar, syntax and vocabulary. Introduces students to Latin literature through readings in select authors adapted to meet the needs of beginning students. Prereq: LATN 1010 or equivalent. Max hours: 5 Credits. **Semester Hours:** 5 to 5

LATN 1050 - Vocabulary for Professionals

Studies English words derived from Latin and Greek by analyzing their component parts (prefixes, stems, and suffixes). Cross-listed with ENGL 1050. Max hours: 3 Credits. **Semester**

Hours: 3 to 3

LATN 1100 - Building Vocabulary From Greek and Latin Words

Students learn to decipher unfamiliar words by breaking them down to their Latin or Greek roots.

Max hours: 3 Credits. **Semester Hours:** 3 to 3

LATN 2010 - Intermediate Latin I

Introduces advanced Latin grammar, vocabulary, syntax, and stylistics of Latin prose via readings in Caesar, Cicero and Livy. Includes review of basic Latin grammar, plus introduction to Latin prose composition and Latin rhetoric. Emphasis on historical, cultural, social context of authors and works. Prereq: LATN 1020 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3

to 3

LATN 2020 - Intermediate Latin II

(Continuation of LATN 2010.) Completes the presentation of advanced Latin grammar, vocabulary, syntax, and stylistics of Latin prose. Continues the study of Latin prose composition and Latin rhetoric with emphasis on historical, cultural, and social context of authors and works. Prereq: LATN 2010 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LATN 2840 - Independent Study

Prereq: Permission of instructor. Max hours: 3 Credits. **Semester Hours:** 1 to 3

LATN 3000 - Medical Terminology

The course enables students to understand medical terms by learning the Greek and Latin word elements that form these terms. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LATN 3840 - Independent Study

Prereq: Permission of instructor. Max hours: 12 Credits. **Semester Hours:** 1 to 3

LATN 4840 - Independent Study

Prereq: Permission of instructor. Max hours: 12 Credits. **Semester Hours:** 1 to 3

Lit, Lang, & Cult Resp Teach

LCRT 1111 - Introduction to College Literacy for Migrant Populations

An introductory course designed to provide a college-level reading/writing and artistic experience for high school aged migrant student populations. Students are apprenticed in philosophic, social scientific and legal modes of reasoning and writing in concert with the fundamentals of drawing and painting. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 3710 - Primary Literacy: Pre-Third Grade

This course provides teachers with a basic understanding of reading and writing development in preschool and early primary grades, while considering specific strategies for using and teaching reading and writing in early primary grades (pre-K-2). This course is cross-listed with LCRT 5710. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 4720 - Writing Development and Instruction

This course will introduce students to how writing develops in children from ECE through 6th grade. Students will learn how to analyze student writing for strengths and needs in order to design effective writing instruction. A structure for instructional organization will be modeled and discussed in class. In order to take this course students must have taken, or be concurrently enrolled in, one of the UEDU Internship courses: UEDU 4931, UEDU 4932 or UEDU4933. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5010 - Foundations of Language

Designed for veteran and novice teachers to gain an understanding of the broad fields of literacy and language education. Participants examine key educational philosophies based on the writings of important scholars in the field, on topics such as the politics of literacy, the nature of literacy and literacy/cultural identity. The course examines current thought concerning literacy and language learning and teaching from a variety of perspectives and contexts, including classroom, school and community. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5020 - Workshop in Literacy and Language Teaching

This course involves critical examination of reading process and instruction. Teachers develop an understanding of the principles of sociopsycholinguistic theory in learning and teaching. Organization options for reading instruction for native and non-native speakers of English at all ages and ability levels will be examined. Teachers become familiar with materials and methods used for reading and reading instruction in schools, including multicultural materials, students' interaction with and response to materials; and techniques to assess and evaluate students reading. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5028 - Adolescent Literacy, Part I

Focuses on supporting adolescents' developing literacy understandings across content areas in the upper elementary grades through high school. Importance is placed on putting new teaching practices in place. Attention is given to both reading and writing with emphasis on before and during strategies and supports. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5029 - Adolescent Literacy, Part II

The second in a sequence of courses focusing on adolescents' developing literacy understandings across content areas in upper elementary grades through high school. Attention is given to comprehension and critical thinking including revision and editing strategies, assessment, unit planning, the research cycle, using technology, and putting new teaching practices in place. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5050 - Linguistic and Cultural Issues in Linking Assessment and Instruction

This course provides general orientation to the assessment of linguistically and culturally diverse students. Focus is on using assessment to guide and instruction and includes examination of assessment of oral and written language, attitude and classroom arrangements. Includes analysis of assessment tools used to assess gifted and talented students and those used with students during the special education testing procedure. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5055 - Linking Assessment and Instruction in Language and Literacy

Focus is on both monolingual speakers of English and second language learners. Assessments include both oral and written language (reading and writing) as well as attitudinal measures and classroom arrangements. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5080 - Teachers as Readers and Writers

Teachers engage in experiences designed to expand and improve their own literacy interests, abilities, and attitudes. Literacy experiences include readers' workshop, writers' workshop, literature studies, and authors' circles. In addition, teachers reflect on their own and classmates' experiences as a basis for planning literacy experiences in school classrooms. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5140 - Multicultural Education

Develops an understanding of the pluralistic nature of U.S. society and the role of the school within this social context. Examines the legal and cultural history of language education in Colorado and the U.S. as well as the impact of changing demographics on schools. Participants study themselves and their students as cultural beings and develop an understanding of how their own cultural identity affects their teaching. This course fulfills the culture requirement for SEHD "core courses". It also fulfills the culture requirement for the Colorado LDE Endorsement and the LDE Master's concentration. It may also serve as an elective in the LDE Master's concentration. Note: LCRT 5140, LCRT 5150, LCRT 5160 - Each of these three courses satisfies the requirements for the Colorado Endorsement in Linguistically Diverse Education and the BESL Master's concentration. The content of the courses are related, but the focus of each course is sufficiently different that students in the Master Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5150 - Culture of the Classroom

Provides a classroom-focused examination on linguistic and cultural diversity. The legal history of language and literacy education in the U.S., Colorado, and local school districts is studied with a focus on implications for instructional practice. Participants become familiar with research and theory on the roles of cultures in the classroom and gain skills that support differentiated instruction for diverse students. This course fulfills the culture requirement for the Colorado LDE Endorsement and the BESL Master's concentration. It may also serve as an elective in the BESL Master's concentration. Note: LCRT 5140, LCRT 5150, LCRT 5160 - Each of these three courses satisfies the requirements for the Colorado Endorsement in Linguistically Diverse Education and the BESL Master's concentration. The content of the courses are related, but the focus of each course is sufficiently different that students in the Master's program may use a second or third course in the sequence as an Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5200 - Theory and Methods of English Education

Focuses on teaching/learning theories and practical classroom strategies for teaching English Language Arts to adolescent learners in middle school, junior high school, and high school classes. Cross-listed with UEDU 4200 and 5200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5201 - Adolescent Literature

Reading and evaluating fiction and non-fiction appropriate for students in middle and senior high school. Emphasis is on modern literature written for students from a variety of ethnic backgrounds. This course is also appropriate for teachers working with adults learning English. Cross-listed with UEDU 4201 and 5201. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5210 - Literacy Development Pre K-3rd Grade

Focuses on children's developing literacy understandings and proficiencies beginning in the preschool years. Attention is given to language development, assessment, and instruction in pre-kindergarten through third grade, partnerships with community literacy institutions provide information on their use for literacy development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5220 - Literacy Routines and Assessment, Pre K-3rd Grade

This course will focus on the routines and practices which allow for student specific instruction and assessment in the Early Literacy classroom. Participants will examine and critique current literacy routines and assessments needed to best meet the needs of culturally and linguistically diverse children. Prereq: LALC 5210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5230 - Early Literacy Instruction

Participants will examine Pre K-3rd grade literacy instruction to understand how to meet the needs of young students. The course will analyze instructional practices for young gifted, special needs and English language learning students to best meet the needs of all learners. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5700 - Language and Literacy Portfolios: Development, Reflection and Empowerment

In this course, teachers learn: (1) to compile and assess student portfolios to inform instruction and communicate progress, and (2) to experience developing personal portfolios with particular focus on self-reflection and empowerment over the course of the master's degree program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5710 - Primary Literacy: Pre-3rd Grade

Provides teachers with a basic understanding of reading and writing development in preschool and early primary grades. Specific strategies are considered for using and teaching reading and writing in early primary grades. Cross-listed with LCRT 3710. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5720 - Writing: Process, Development, and Teaching Grades 3-12

This course presents current theories of writing development as they relate to classroom practices. Participants in the course will use these theories to help analyze the writings of students in real classrooms. Understanding of the theories will also be increased through direct participation in personal writing, conferencing with other course members, revision of pieces, and the sharing of final products. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5730 - Language and Literacy Across the Curriculum

Explores the value and use of reading and writing as tools for learning across the curriculum on a K-12 basis. Specific needs and strategies for assisting at-risk and second language learners are also discussed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5750 - Children's Literature in Spanish

Taught in Spanish, this course presents children's literature from Spanish speaking countries and Spanish speaking authors, along with teaching methodologies and avenues of further research in the field. Prereq: senior-level proficiency in Spanish. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5770 - Effective Literacy Instruction for Second Language Learners

Students explore and critique various methods and strategies for teaching reading and writing to non-native English speakers. Students acquire a foundation in written language acquisition for both first and second language learners. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5780 - Connecting Cultures Through Literature

This course looks at the issue of multicultural literacy for K-8th grade and how children's and young adult literature can be used to create a high quality multicultural curriculum which enhances literacy development and covers all the content areas. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5790 - Children's Literature Through the Ages

A basic children's literature course which looks at the historical development of children's literature. This course also looks at various genre in children's literature, how to critique and choose literature for instruction and children's literature awards. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5795 - Current Children's Literature

The focus of this course is on children's literature from the past 10 years, including established and newer authors and illustrators. Various genres will be covered, as participants learn to critique children's literature and how to choose books for instruction. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5800 - Sociolinguistics: Language Variation and its Implications for Teaching

Provides an introduction to the field of educational sociolinguistics and research of classroom discourse. Students are introduced to the collection and analysis of oral and written language in educational contexts. Basic concepts and key issues regarding the form-function relationships of language use in instructional settings are discussed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5810 - Wksp: Lang Acq & Development

Provides students with an opportunity to examine current research on language acquisition and development, and to apply their knowledge to the learners in their teaching situation. The course focuses on language development and use in educational settings and addresses learners with English as their first language, second-language learners of English, bi-dialectal speakers and bilingual speakers. Students collect and analyze language samples, evaluate teaching materials and examine teaching techniques in light of the material covered in the course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5830 - Wrkshp-Multicultural EDU

Provides students with the experiences in multicultural methodology training. How to utilize community members, para-professionals, and peers to facilitate learning in a multicultural environment. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5831 - Reading Recovery: Observation Survey

A workshop class which introduces the participants to an understanding of literacy acquisition and prepares them to implement the Reading Recovery Program within their school or district. Prereq: reading and language arts methods. A minimum of three years primary teaching or reading teaching experience. Max hours: 2 Credits. **Semester Hours:** 2 to 2

LCRT 5835 - Special Topics: Literacy and Language

Specific topics vary but will include the exploration of literacy development and instruction in particular populations or with specific focuses. Max hours: 9 Credits. **Semester Hours:** 0.5 to 3

LCRT 5840 - Independent Study: LCRT

Max hours: 9 Credits. **Semester Hours:** 1 to 4

LCRT 5911 - Reading Recovery Practicum: Early Intervention (Theory, Procedures and Practice)

A field experience which extends the participants' understanding of literacy acquisition and prepares them to implement the Reading Recovery Program within their school or district. Prereq: LALC 5831. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5920 - Readings in Multicultural

Provides students with an opportunity to examine the current literature as it relates to trends in contemporary issues in the area of multicultural education. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5925 - Selected Readings: Advanced Study in Literacy and Language

Prereq: written permission of instructor. Max hours: 3 Credits. **Semester Hours:** 1 to 3

LCRT 6090 - Research Seminar

An advanced course which focuses on specific issues in language, language acquisition and language teaching. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 6713 - Intro To Language Policy

This course examines the legal, ideological, and historic foundations of language policies. The course also review connections with related topics such as language rights, language and power, and issues from the sociology of language such as language loyalty. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 6840 - Independent Study: LCRT

Max hours: 9 Credits. **Semester Hours:** 1 to 4

LCRT 6910 - Seminar and Practicum in Literacy and Language, K-6

Provides opportunities for advanced students in the M.A. program to apply concepts acquired in course work and other educational experiences to specific situations. Students will work in schools, classrooms, administrative offices, or community centers (according to their experiences, interests and current teaching positions; sites to be identified before course begins) to study the potential for change in schools and society and to reflect upon their roles as change agents in the field. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 6911 - Seminar and Practicum in Literacy and Language, 7-12+

Provides opportunities for advanced students in the M.A. program to apply concepts acquired in course work and other educational experiences to specific situations. Students will work in schools, classrooms, administrative offices, or community centers (according to their experience, interests and current teaching positions; sites to be identified before course begins) to study the potential for change in schools and society and reflect upon their own roles as change agents in the field. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 6913 - Reading Recovery: Practicum

A practicum which refines the participants' understanding of literacy acquisition and finalizes preparation to implement the Reading Recovery Program within their school/district. Prereq: LALC 5831 and 5911. Reading and language arts methods. A minimum of three years primary teaching or reading teaching experience. Max hours: 4 Credits. **Semester Hours:** 4 to 4

LCRT 6915 - Seminar and Practicum in Literacy Professional Development

This final practicum is designed for teachers to enhance their education as reading professionals in two ways. First, by continuing to reflect on and analyze their own teaching, participants will deepen their understanding of how to assess and design instruction based on the needs of their students. Second, through structured coaching activities and observation of expert coaches/teachers, participants will improve their skills in the role of Literacy coach, an important aspect of a reading professional's career. This course is standards based using the Reading Teacher, Reading Professional and Literacy Coach standards from the Colorado Department of Education and the International Reading Association. Prereq: LALC 5055, 6910 and 6911. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 6950 - Master's Thesis

Max hours: 4 Credits. **Semester Hours:** 4 to 4

Management

MGMT 1000 - Introduction to Business

This course will introduce students to the nature and role of business in our society. Problems confronting business are surveyed from a management, financial, economic and marketing viewpoint. Career opportunities in business are also considered. Students are advised to take this course during their freshman year and may not take it in the junior or senior years. Prereq: Open to freshman and sophomores, non-degree students and music majors at all levels. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 1111 - Business Freshman Seminar

This course introduces students to the nature and role of business in our society. Career opportunities in business are also considered. This course is designed to assist first year students transition to life on campus. The course content is integrated with various activities designed to familiarize 1st year students with school resources, develop critical thinking and writing skills and build relationships critical to ongoing academic success. Students are advised to take this course during the first semester of their freshman year. Note: Credit will not be given for both MGMT 1111 and MGMT 1000. Prereq: Open only to new Freshman. Max hours: 3 Credits.

Semester Hours: 3 to 3

MGMT 2939 - Internship

Max hours: 3 Credits. **Semester Hours:** 1 to 3

MGMT 3000 - Managing Individuals and Teams

Focuses on helping students understand how to manage individuals and groups effectively. Students are encouraged to know themselves better and how their behavior affects how they deal with organizational situations; they also learn how individuals differ and how to design, manage and work in a team. This is a business core course therefore a grade of a 'c' or better must be earned to satisfy graduation requirements. Prereq: Junior standing. Max hours: 3 Credits.

Semester Hours: 3 to 3

MGMT 3010 - Managing People for a Competitive Advantage

Provides an overview of the management of human resources in organizations. Areas of study include recruitment, selection, training, career development, performance appraisal, compensation and employee or labor relations. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 3111 - Business Transfer Student Seminar

This course is designed to assist first year transfer students transition to UC Denver. The course includes various activities designed to familiarize students with University and Business School resources, develop critical thinking, writing, time management and study skills, and build relationships critical to ongoing academic success. Students are advised to take this course during their first or second semester at UC Denver. Concurrent registration in MGMT 3000 is required. Prereq: Junior standing. Cross-listed with MGMT 3000. Max hours: 1 Credits.

Semester Hours: 1 to 1

MGMT 3830 - Business and Sustainability

Business activity can have significant environmental and societal impacts. This course examines some of the ways that companies and consumers are reducing their impact on communities and the environment. Sustainability issues will be considered from a management, finance, marketing, and consumer perspective. Climate change and renewable energy will be featured topics in the class. Prereq: MKTG 3000. Cross-listed with MGMT 4830, BUSN 6830. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 3939 - Internship

Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: senior standing and 3.5 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MGMT 4100 - Leveraging Diversity and Inclusion in Business

Practical and policy issues that arise from living and working in a multicultural world in order to promote informed, effective management. Particular emphasis is given to the development of innovative approaches to managing the challenges posed by a work force that differs in characteristics, such as race, gender, ethnicity, age, lifestyle and disability. Prereq: junior standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4230 - Sports Management

This course is designed as a speaker series of sports and entertainment industry elite focusing on: industry trends, strategic planning, managing revenue streams, managing media, managing for effectiveness, managing post-merger integration, leadership and leading change. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4330 - Mastering Management

Designed to give students hands on practice developing critical management skills, such as communication, conflict handling, negotiation, giving feedback, public speaking, meeting management and self management. Prereq: MGMT 3000 with a grade of 'C' or better. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4350 - Leading Organizational Change

Focuses on the tasks and skills of a leader in leading organizational changes. Topics include: diagnosing problems, creating urgency, building the change team, creating a vision, implementing change strategies, sustaining the momentum and making change stick. These tasks and skills are studied in various organizational change contexts. Prereq: MGMT 3000 with a grade of 'c' or better. Coreq: MGMT 4370. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4370 - Organization Design

Examines how to structure organizations to perform effectively. Addresses the effects of computer-based information technologies (e.g. intranets, extranets, and the internet) on firm structure, strategy, and culture. Emphasis is placed on the role of the task, technology, and the environment as constraints on organizational design. Prereq: MGMT 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4400 - Environments of International Business

An overview of the environmental complexities that arise when business activities and firms cross national borders. Key international business environmental complexities associated with country differences, cross-border trade and investment, and global monetary system are examined. Prereq: MGMT 3000 and junior standing. Cross-listed with INTB 4400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4410 - Operations of International Business

Focuses on the impact of environmental factors on international business operations and the identification and analysis of complex strategic and operational issues facing business firms in global markets. The strategies and structures of international businesses, alternative foreign market entry modes, and the unique roles of various business functions at international business firms are explained and assessed. Prereq: INTB 4400 or MGMT 4400. Cross-listed with INTB 4410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4420 - Human Resources Management: Staffing

Methods, theories, research findings, and issues in staffing. Topics include performance-based framework for selecting employees, establishing performance expectations, planning the recruitment process and finding valid and useful tools to select the best candidate. Prereq: MGMT 3010 (may be taken concurrently). Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4430 - Human Resources Management: Training

Methods, theories, research findings, and issues in training. Topics include how to design, deliver, and evaluate training programs. Coreq: MGMT 3010. Cross-listed with MGMT 6720. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4440 - Human Resource Management: Performance Management

Focuses on the design and implementation of human resource management systems to assess and enhance employee performance. Areas of study include performance definition and measurement, goal setting, feedback, employee development, rater training, and pay for performance. Coreq: MGMT 3010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4450 - Human Resources Management: Compensation

Develop and administer pay systems considering economic and social pressures, traditional approaches and strategic choices in managing compensation. Current theory research and practice. Students design a compensation strategy and a system that translates that strategy into reality. Prereq: DSCI 2010 and MGMT 3010 (may be taken concurrently). Cross-listed with MGMT 6740. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4500 - Business Policy and Strategic Management

Emphasis is on integrating the economic, market, social or political, technological, and components of the external environment with the internal characteristics of the firm; and deriving through analysis the appropriate interaction between the firm and its environment to facilitate accomplishment of the firm's objectives. Open only to business students in their graduation semester. This is a business core course therefore a grade of 'c' or better must be earned to satisfy Business graduation requirements. Prereq: Graduation term, senior standing and completion of all business core courses with a grade of a 'C' or better. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4770 - Human Resource Information Systems

Focuses on the management of human resource information systems. It addresses how modern information systems tools can provide better human resource intelligence to users in today's enterprises, allowing them to make better decisions. It examines how information about workforce and human resource management processes can be collected and used to set targets to meet strategic objectives, monitor performance, receive notifications when performance is below expectations and respond immediately by taking corrective actions. Prereq: MGMT 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4780 - Preparing A Business Plan

Turn a new business idea into a viable new business by developing a comprehensive business plan including: analysis of the potential demand for the product or service and potential customers; identify competitive advantages and marketing strategies; generate pro forma financial projections; and, design the management team needed. Prereq: ENTP 3000 and BLAW 3050. For non-business majors only. Can be applied to For non-business majors only. Can be applied to Entrepreneurship Certificate. Business majors enroll in either MGMT 4780 or MKTG 4780. Come to first class meeting with a carefully considered business idea. Cross-listed with MKTG 4780 and ENTP 3780. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4830 - Business and Sustainability

Business activity can have significant environmental and societal impacts. This course examines some of the ways that companies and consumers are reducing their impact on communities and the environment. Sustainability issues will be considered from a management, finance, marketing, and consumer perspective. Climate change and renewable energy will be featured topics in the class. Prereq: MKTG 3000. Cross-listed with MGMT 3830, BUSN 6830. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4832 - Law & Negotiation in the Sports and Entertainment Industry

This course provides an overview of major legal issues in the sports and entertainment industries. Students develop the skills required to negotiate contracts in these industries. Topics include contracts, copyright, trademark, employment and tort law principles relevant in the sports and entertainment fields. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4834 - Global Sports & Entertainment Management

Through 2 weeks of visiting organizations with industry elite in London a broader perspective on the sports and entertainment industry is gained. Students will be asked to do advance reading, participate in discussions, keep a journal and write a reflection paper at the end of the experience. Site visits(to be confirmed) include: Arsenal Football Club, Premier League, the O2 Arena, NHL and NBA regular season games in London, 2012 Olympics Committee, Formula One, Hollywood Studio-International Finance Office, Theatre, Lord's Cricket Ground, All England Lawn Tennis Club/Wimbledon and the Office of the Minister of Sport. Prereq: MGMT 3000. Cross-listed with MGMT 6834. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4840 - Independent Study

Max hours: 8 Credits. **Semester Hours:** 1 to 8

MGMT 4900 - Project Management and Practice

Covers the factors necessary for successful management of system development or enhancement projects. Both technical and behavioral aspects of project management are discussed. The focus is on management of development for enterprise-level systems. Topics include: managing the system life cycle; requirements determination, logical design, physical design, testing, implementation; system and database integration issues; network and client-server management; metrics for project management and system performance evaluation; managing expectations: superiors, users, team members and others related to the project; determining skill requirements and staffing the project; cost-effectiveness analysis; reporting and presentation techniques; effective management of both behavioral and technical aspects of the project; change management. Note: Successful completion of this course meets the educational requirements to sit for both the PMP and CAPM exams. Prereq: ISMG 3000. Cross-listed with ISM Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4950 - Special Topics in Management

A number of different topics in management are offered under this course number. Consult the 'Schedule Planner' for current course offerings. Prerequisites vary depending on the topic and instructor requirements. Cross-listed with MGMT 5800. Max hours: 9 Credits. **Semester Hours:** 3 to 3

MGMT 5800 - Special Topics in Management

A number of different topics in management are offered under this course number. Consult the Schedule Planner for current course offerings. Prerequisites vary depending on the topic and instructor requirements. Cross-listed with MGMT 4950. Max hours: 9 Credits. **Semester Hours:** 3 to 3

MGMT 5939 - Internship

Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: 21 semester hours and 3.5 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MGMT 6020 - Leadership in Difficult Times

The test of a leader often is their ability to lead their organizations through difficult times and crises. Such situations could be downsizing, product defects, ethical violations, a terrorist attack or a natural disaster. Successful management of these situations can strengthen and renew the organization. Inability to manage these situations can tarnish the organization's reputation and threaten its survival. This course examines leadership under stress and provides frameworks for categorizing and analyzing these difficult situations. The course also addresses strategies that leaders can use to enable their organizations to manage, recover and learn from these difficult experiences. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6040 - Managing Global Talent

This course has two objectives: (1) to understand the impact of cultural differences in the management of people in multinational firms; and (2) to compare and contrast critical human resource issues in the contexts of domestic and international operations. Topics include recruitment, staffing, training, performance appraisal, compensation, and labor and management relations in markets around the world. (This course qualifies as an international elective for the MS in International Business program). Prereq: MGMT 6380 or BUSN 6520 (or equivalent). Cross-listed with INTB 6040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6320 - Leading Organizational Change

Instruction in the analysis, diagnosis, and resolution of problems in organizing people at work. Models of organizational change are examined. Group experiences, analysis of cases and readings are stressed. Coreq: BUSN 6520. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6360 - Designing Effective Organizations

Examines how to design organizations within the context of environmental, technological, and task constraints. The emphasis is on learning how to recognize and correct structural problems through the analysis of existing organizations in which the students are involved. Coreq: BUSN 6520. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6380 - Managing People for Competitive Advantage

Focuses on the management of human resources in organizations. Oriented toward the practical application of human resources management principles in areas such as: equal employment opportunity, affirmative action, human resources planning, recruitment, staffing, benefits and compensation, labor relations, training, career management, performance management, and occupational health and safety. Coreq: BUSN 6520. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6710 - Human Resources Management: Staffing

Focuses on the design and implementation of human resources management systems to recruit and select employees. Areas of study include planning, job analysis, external and internal recruitment and selection, and decision making. Prereq: MGMT 6380. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6720 - Human Resources Management: Training

Methods, theories, research findings, and issues in training. Topics include how to design, deliver, and evaluate training programs. Prereq: MGMT 6380. Cross-listed with MGMT 4430. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6730 - Human Resources Management: Performance Management

Focuses on the design and implementation of human resources management systems to assess and enhance employee performance. Areas of study include performance measurement, rater training, goal setting and feedback. Prereq: MGMT 6380. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6740 - Human Resources Management: Compensation

Develop and administer pay systems considering economic and social pressures, traditional approaches and strategic choices in managing compensation. Current theory research and practice. Students design a compensation strategy and a system that translates that strategy into reality. Prereq: MGMT 6380 and BUSN 6530. Cross-listed with MGMT 4450. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6750 - HRM: Investing in People: HR Analytics

Managing talent-organization and deployment-and connections between talent and strategy in organizations. Rooted in a systematic, logical approach that challenges traditional ideas. Stresses the logical connections between progressive HR practices and firm performance and the use of data to demonstrate financial impact of the connections. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6780 - Small Business Management

The primary objective of this course is to teach future small business owners the practical aspects of small business management and to develop the skills necessary to improve the odds of success. The course will consider strategies to leverage limited resources for maximum effect in managing the small business enterprise. Also, this course covers small organization and group behavior, performance, leadership and motivation in small business settings and focuses on the owner/manager as the principal success factor in the context of a small organization. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6800 - Special Topics in Management

Current topics in management will be occasionally offered. Consult the 'Schedule Planner' for specific offerings or contact an advisor for information. Max hours: 6 Credits. **Semester Hours:** 3 to 3

MGMT 6801 - Career Strategies

The downsizing, restructuring, and re-engineering so prevalent in U.S. industries and companies have strongly affected the job and career market. Every individual must sharpen his/her competencies and skills in order to compete effectively in the changing job market. This course is designed to assist students in understanding and operating in this difficult job market. Using many of the concepts that organizations use in their strategy formulation process, and coupled with individual techniques and skills proven effective in job searches and career planning, this course prepares students to deal with the issues involved in finding a job and pursuing a career. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6803 - Visionary Leadership

Examines the challenges faced by visionary leaders and the approaches used by these individuals (creation, articulation, and implementation of vision) to transform organizations. Participants utilize these approaches employed by effective leaders to develop plans for their own organizational success. Group experiences, applied readings, and videos are used to clarify the opportunities available. Coreq: BUSN 6520 or 6521. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6804 - Bargaining and Negotiation

Designed as a seminar in bargaining, negotiation and interpersonal conflict management. Through simulations, role plays and personal experience, students practice and develop their negotiation skills and see how negotiations differ depending on the type of situation encountered. Specific topics covered include: the nature of negotiation, the role of the negotiation context, interdependence and power, strategies and tactics of distributive and integrative bargaining, negotiation ethics and interpersonal conflicting resolution. Coreq: BUSN 6520. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6806 - Corporate Entrepreneurship

Competitive performance in a global economy requires continuous innovation and new business growth. The creation and development of new ventures is a primary strategy for internally-generated growth. Managing innovation and new ventures requires attitudes, knowledge, and practices different from those usually required for the management of mature business units. This course provides the perspective, knowledge, and specific skills required for successful entrepreneurial management. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6808 - Leadership Development

Instruction in the design and practice of leadership development. Case studies of effective organizations will be examined and a variety of assessment and development activities will be completed as part of the course. Students will learn how to develop others while experiencing the development techniques first hand. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6820 - Management Field Studies

The objective of this course is to provide an opportunity for the in-depth examination of an actual management problem in a local organization. Much like an independent study conducted under faculty guidance, each student will execute a unique project suited to his or her interests. Priority is given to MGMT students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6821 - Managing for Sustainability

This course will consider how companies are using social responsibility as a competitive advantage. The so-called green revolution is calling for organizations to take on increasing responsibility for environmental conservation, employee well being, and community development. This course considers how organizations can work with various stockholders (employees, customers, communities, society-at-large) to develop and promote mutually beneficial products and solutions to key social needs and concerns. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6822 - Business Ethics and Corporate Social Responsibility

Covers business ethics and corporate social responsibility in the global contexts of employment, marketing, product liability, the environment and other areas. Students compare ethical theories, including utilitarianism, Kantian, Rawlsian, stockholder, stakeholder and social contract and apply some or all of these theories to actual and hypothetical case studies. The doctrine of corporate social responsibility is defined and explored and diverging views of corporate social responsibility are discussed. Examples of how corporate social responsibility can increase a company's goodwill and net income are analyzed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6823 - The Sustainable Business Opportunity

This course examines the negative impact of a rapidly growing global economy on the natural and human environment. It shows that the need to create a more sustainable global economy represents a huge opportunity for business and how sustainability-based strategies drive innovation, competitive advantage and improved financial performance. It will examine both environmental aspects of sustainability like green supply chains, lifecycle analysis, energy and water efficiency, as well as initiatives that nurture and enhance the value of our human resources such as community development, employee and customer relations, employee wellness, telecommuting, and other stakeholder engagement in sustainability. Max hours: 3 Credits.

Semester Hours: 3 to 3

MGMT 6824 - Sustainable Business/CSR Field Study

Gain practical, hands-on experience with aspects of sustainable business and/or corporate social responsibility. Work with a local company/non-profit/or government organization under the direction of an executive to conduct a sustainability-focused project which is important to the organization's sustainability initiative. Prereq: Completion of one or more sustainability focused courses or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6830 - Sports and Entertainment Management

This course is designed as a speaker series of sports and entertainment industry elite focusing on: industry trends, strategic planning, managing revenue streams, managing media, managing for effectiveness, managing post-merger integration, leadership and leading change. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6832 - Law and Negotiation in the Sports/ Entertainment Industries

Provides an overview of major legal issues in the sports and entertainment industries. Students develop the skills required to negotiate contracts in these industries. Topics include contracts with athletes (agency, player and sponsorship), stadium financing and sports franchises, labor law and collective bargaining agreements, entertainment contracts in the music, film and live theater fields and copyright, trademark and tort law principles in the sports and entertainment industries. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6834 - London Calling: Global Sports and Entertainment Management

Through 2 weeks of visiting organizations and talking with industry elite in London a broader perspective on the Sports and Entertainment Industry is gained. Students will be asked to do advanced reading, participate in discussions, keep a journal and write a reflection paper at the end of the experience. Site visits (to be confirmed) include: Arsenal Football Club, Premier League, the O2 Arena, NHL and NBA regular season games in London, 2012 Olympics Committee, Formula One, Hollywood Studio-International Finance Office, Theatre, Lord's Cricket Ground, All England Lawn Tennis Club/Wimbledon and the office of the Minister of Sport. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6840 - Independent Study

Instructor approval required. Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study. Max hours: 8 Credits. **Semester**

Hours: 1 to 8

MGMT 6950 - Master's Thesis

Max hours: 8 Credits. **Semester Hours:** 1 to 8

Marketing

MKTG 1000 - Introduction to Marketing

Provides an introduction and overview of marketing. Discusses market and buyer analysis. Includes product planning, pricing, promotion and distribution of goods and services. For non-business majors only. Does not satisfy the MKTG 3000 business requirement. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 2939 - Internship

Introductory supervised experiences involving the applications, concepts and skills in an employment situation. Prereq: sophomore standing Max hours: 1 Credit. **Semester Hours:** 1 to 1

MKTG 3000 - Principles of Marketing

Focuses on the basic marketing concepts of Buyer Behavior, Marketing Research, Marketing Planning and Implementation and the marketing process of product, price, distribution and promotion. This is a business core course therefore a grade of a 'C' or better must be earned to satisfy graduation requirements. Prereq: Junior standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 3100 - Marketing Research

Provides practical experience in research methodologies, planning an investigation, designing a questionnaire, selecting a sample, interpreting results and making a report. Techniques focus on attitude surveys, behavioral experiments, and qualitative research. Prereq: MKTG 3000 and DSCI 2010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 3200 - Buyer Behavior

Focuses on improving the student's understanding of consumer and organizational buying behavior as a basis for better formulation and implementation of marketing strategy. Blends concepts from the behavioral sciences with empirical evidence and introduces buyer research techniques. Prereq: MKTG 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 3300 - Social Media in Business

Social media has become a central component of many business activities including marketing, HR, product management and the supply chain. In this course, we examine the organizational use of social media technologies such as blogs and social networks, as well as the use of social media analytics to drive business strategy. Cross-listed with ISMG 3300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 3939 - Internship

Supervised experiences involving the application of concepts and skills in an employment situation. Prereq: senior standing and 3.5 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MKTG 4000 - Advertising

Analyzes principles and practices in advertising from a managerial viewpoint. Considers the reasons to advertise, product and market analysis as the planning phase of the advertising program, media selection, creation and production of advertisements, copy testing, and development of advertising budgets. Prereq: MKTG 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 4050 - Applied Marketing Management

The course is designed to enhance the student's ability to formulate and implement a marketing plan and to better understand the relationship of marketing to other business functions. Emphasized application of marketing concepts through the use of cases, simulations or projects. Prereq: MKTG 3000 and DSCI 2010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 4051 - Honors Applied Marketing Management

Offered as the second course in a sequence following the principles of marketing course (MKTG 3000) it is therefore designed to enhance the student's ability to formulate and implement a marketing plan and to better understand the relationship of marketing to other business functions. It will emphasize application of marketing concepts through the use of cases, simulations or projects. This Honors course is modeled after understanding of the concepts covered. Note: MKTG 4051 is open only to marketing majors who have a cumulative GPA of 3.2 or higher. Students taking MKTG 4051 cannot receive credit for MKTG 3050 or MKTG 4050. Prereq: MKTG 3000, cumulative GPA of 3.2 or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 4200 - International Marketing

Studies managerial marketing policies and practices of firms marketing their products in foreign countries. Analytical survey of institutions, functions, policies, and practices in international marketing. Relates marketing activities to market structure and environment. Prereq: MKTG 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 4220 - Asian Business Development and Marketing

This course investigates methods of Business Development and Marketing in the Asian Business Environment. It seeks to examine and explain methods of determining market potential and techniques tapping this market potential in this dynamic and rapidly growing business environment the course uses a combination of experienced guest speakers, Asian business cases and projects to develop the marketing skills in students to successfully compete in Asia. Prereq: MKTG 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 4250 - Sports Marketing

This course is designed to understand and evaluate the role and functions of marketing in sports organizations. The course seeks to evaluate the marketing function in sports as well as understand the behavior of fans as consumers, celebrity product endorsements, sponsorship of sporting events for all sport providers, sports intermediaries and channels and advertising and promotion in the sports world. The course is taught using lectures, guest speakers, cases and examinations. Prereq: MKTG 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 4580 - International Transportation

Analysis of international transportation (primarily sea and air) in world economy. Detailed study of cargo documentation and freight rate patterns. Included are liability patterns, logistics, economics, and national policies of transportation. Prereq: MKTG 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 4700 - Personal Selling and Sales Management

Introduces the student to principles of personal selling and issues in managing the field sales force. Focuses on models of personal selling, recruiting, selection, training, compensation, supervision, and motivation, as well as organizing the field sales force, sales analysis, forecasting and budgeting. Prereq: MKTG 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 4720 - Internet Marketing

Distinctly influences the way marketers conduct marketing activities. The Internet media promises to establish marketing theories, identifies obsolete situations, explores how marketing functions have irreversibly changed as a result of the internet, and outlines basic marketing strategies for successful online marketing. Prereq: MKTG 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 4760 - Customer Relationship Management

This marketing-theory driven course examines customer relationship management (CRM) as a key strategic process for organizations. Composed of people, technology and processes, effective CRM optimizes the selection or identification, acquisition, growth and retention of desired customers to maximize profit. Besides presenting an overview of the CRM process, its strategic role in the organization and its place in marketing, students have an opportunity to create simulated CRM database using popular software package that help to illustrate what CRM can do, its advantages and limitations. Prereq: MKTG 3000. Cross-listed with ISMG 4760. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 4780 - Preparing Business Plan

Turn a new business idea into a viable new business by developing a comprehensive business plan including: analysis of the potential demand for the product or service and potential customers; identify competitive advantages and marketing strategies; generate pro forma financial projections; and, design the management team needed. Prereq: ENTP 3000 AND either ENTP 3500 or BLAW 4120 or ENTP 3120. For non-business majors only. Can be applied to Entrepreneurship Certificate. Business majors enroll in either MGMT 4780 or MKTG 4780. Come to first class meeting with a carefully considered business idea. Cross-listed with MGMT 4780 and ENTP 3780. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 4800 - Marketing Seminar

Offered to provide consideration of a wide variety of topical issues in marketing, such as, services marketing, pricing, product development or creative marketing strategies. Prereq: MKTG 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 4840 - Independent Study

Max hours: 8 Credits. **Semester Hours:** 1 to 8

MKTG 4950 - Special Topics

Courses offered on an irregular basis for the purpose of presenting new subject matter in marketing. Prerequisites vary depending upon the particular topic and instructor requirements.

Max hours: 9 Credits. **Semester Hours:** 3 to 3

MKTG 5939 - Internship

Supervised experiences involving the applications of concepts and skills in an employment situation. Prereq: 21 semester hours and 3.5 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MKTG 6010 - Marketing Strategy, Evaluation and Development

Focuses on marketing strategy and marketing planning. Addresses the formulation and implementation of marketing plans within the context of the overall strategies and objectives of both profit and not-for-profit organizations. There is heavy emphasis on group projects and presentations. Note: This course is intended to be taken near the end of your program. Prereq: BUSN 6560 completed with a C or better. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 6020 - International Marketing

Explores problems, practices, and strategies involved in marketing goods and services internationally. Emphasized analysis of uncontrollable environmental forces, including cultures, governments, legal systems, and economic conditions, as they affect international marketing planning. Coreq: BUSN 6560. Note: students cannot receive credit for both MKTG 6020 and INTB 6026. Cross-listed with INTB 6026. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 6030 - Sales and Sales Force Management

Focuses on issues in personal selling and managing the field sales force. Deals with organization sales analysis, forecasting, budgeting and operating, with particular emphasis on the selling task, recruiting, selection, training, compensation, supervision and motivation. Coreq: BUSN 6560.

Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 6040 - Services Marketing

Service industries such as health care, finance, information, entertainment, retailing, government, and professional services comprise 80% of the total employment and GDP of the US.

Manufacturing firms increasingly look to value-added services to improve their bottom lines; yet customer satisfaction with services has been consistently lower than with goods. This course teaches students how to design and deliver high quality services, improve customer satisfaction, and thereby increase revenues and profitability. It also addresses how small, medium, and large firms can develop marketing plans and strategies in the new service environment. A variety of teaching methods may be used to demonstrate these concepts, such as cases, projects, field experiences, and/or guest speakers. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 6050 - Marketing Research

The objectives relate to effective marketing information management and include: (1) developing an understanding of the techniques and procedures that can be used to generate timely and relevant marketing information; (2) gaining experience in developing and analyzing information that is decision oriented; and (3) being able to make recommendations and decisions based on relevant and timely information. Computer analysis and projects are employed. Coreq: BUSN 6560. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 6060 - Buyer Behavior

Why do consumers buy? How can marketing activities influence buyer behavior? Answers to these questions are key to marketing success & business fortune. In this course, we explore how to understand the heart & soul of consumers & examine the strategic implications of consumer psychology. Course participants conduct a market segmentation project that identifies & dissects various buyer groups within a chosen market. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 6070 - Integrated Marketing Communications and Brand Identity

A brand's identity has a substantial influence on an organization's financial wealth. But brand identity is not simply the result of a great product or a creative ad. Utilizing many real examples, historic approaches, and current trends, this course explores how integrated marketing communications help build a brand identity that reverberates with consumers. Participants create an integrated marketing communications campaign. Coreq: BUSN 6560. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 6080 - Marketing in Emerging Markets

Explores problems, practices and strategies involved in marketing goods and services in emerging markets. Emphasizes analysis of uncontrollable environmental forces, including cultures, government, legal, systems and economic conditions as they affect marketing planning. Coreq: BUSN 6560. Note: students cannot receive credit for both MKTG 6080 and INTB 6082. Cross-listed with INTB 6082. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 6090 - Customer Relationship Management

Involves the management of customer relationships to maximize customer service and its associated benefits at minimal cost. Includes services marketing concepts and techniques, IT applications, and software. Designed to acquaint students with practices and issues in state-of-the-art customer relationship management systems in an array of different types of organizations. The course initially focuses on the nature of customer relationship management (CRM) the interaction between strategic management planning, corporate culture and CRM. Other topics examined include successful models of CRM, managing the employee or CRM interface, marketing research, and CRM, and customer trust, loyalty, CRM customer service levels, customer service levels, customer profitability or metrics, selecting and integrating CRM software, CRM integration and timing of CRM roll-out. Coreq: BUSN 6560. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 6091 - Strategic Product Marketing

Familiarizes students with key theories and practices regarding products. Successful development of a new product, or extending the life cycle of an existing product. Outlines and necessitates the understanding of product development, key concepts related to successful product management over the course of its life cycle including the way the product function adds synergy to other marketing activities and, in turn, benefits from them. Max hours: 3 Credits.

Semester Hours: 3 to 3

MKTG 6092 - Internet Marketing

Explores how the marketing function has irreversibly changed as a result of the internet and to lay out basic marketing strategies for successful online marketing. Coreq: BUSN 6560. Max

hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 6094 - Marketing Issues in the Chinese Environment

This course assesses numerous marketing and marketing related topics in the Chinese environment with the objective of helping the graduate student develop managerial and marketing expertise. In specific, the course pinpoints key developments in the Chinese business environment, develops expertise in conducting market opportunity analysis, assesses market entry conditions and strategies and applies marketing mix strategies in the context of the Chinese environment. Note: It is recommended for students to take BUSN 6560 or INTB 6000 prior to this course. Cross-listed with INTB 6094. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 6200 - Marketing Dashboard Metrics

Dashboards help us monitor the functioning of various systems by displaying real-time process or outcome metrics. In the past, such indicators were often not available until the end of a period, which made them more "post-mortems" than management tools. Operating from a solid theoretical foundation, this class attempts to serve the needs of two groups, namely, marketing professionals with a review of the types of metrics that could be included on their dashboards, as well as professionals from other functional disciplines with insights into what various marketing metrics mean and illustrating the types of marketing decisions they inform. This is a quantitative class that focuses on developing and understanding marketing performance measures; however, it does not require you to build a dashboard nor does it require you to have advanced math skills. Coreq: BUSN 6560. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 6700 - Marketing Travel Study

This is a 2-week travel course, designed to focus on the marketing of the specific country we visit. In the past the travel course has been to Spain and Costa Rica, but the country of destination may be different every time (usually offered every other year). While in the country, students will visit companies (such as advertising agencies, marketing research firms, local grocery stores, marketing departments of multinational corporations, etc.), have lectures/discussions on marketing in that country and work on a marketing plan for a local company or not-for-profit organization. Prereq: BUSN 6560 with a C or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 6800 - Topics in Marketing

Courses offered irregularly for the purpose of presenting new subject matter in marketing. Consult the current 'Schedule Planner' for semester offerings. Prereq: BUSN 6560. Max hours: 9 Credits. **Semester Hours:** 3 to 3

MKTG 6820 - Sports & Entertainment Marketing

This course focuses on techniques for formulating marketing plans for various types of sports organizations. The course deals with marketing issues particularly germane to sports organizations such as: fans as consumers, fan loyalty, sports pricing, servicescapes, player development and sports sponsorships. This course includes lectures, guest speakers, cases, examinations and student group projects. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 6830 - Marketing & Global Sustainability

Marketing & Global Sustainability focuses on the role of marketing in sustainable for-profit and not-for-profit companies from a global perspective. The course examines sustainable business practices and trends; green brands, green labels, and greenwashing; socially-conscious and "green" customer segments; innovating for sustainable new products and services; sustainable retailing and supply chains; and sustainability as a competitive advantage. The course will employ a variety of pedagogical techniques including lectures, discussion, guest speakers, case studies, and projects. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 6840 - Independent Study

Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study. Prereq: Permission of instructor. Max hours: 8 Credits. **Semester Hours:** 1 to 8

Master of Integrated Sciences

MINS 5000 - Topics

With prior approval by a candidate's advisor, an MIS candidate may enroll in an upper division course in science, computer science, mathematics, and complete additional work for graduate credit. Prereq: MIS candidate with 12 hours of upper division work completed. Max hours: 8 Credits. **Semester Hours:** 3 to 4

MINS 5840 - Independent Study

Max hours: 3 Credits. **Semester Hours:** 1 to 3

MINS 5939 - Internship

Max hours: 3 Credits. **Semester Hours:** 1 to 3

MINS 5950 - Master's Thesis

Prereq: advisor approval. Max hours: 6 Credits. **Semester Hours:** 1 to 6

MINS 5960 - Master's Project

Prereq: advisor approval. Max hours: 8 Credits. **Semester Hours:** 1 to 4

Math Content Knowledge for Ed

MCKE 3041 - Number and Operation

First of three courses designed for prospective elementary teachers. Emphasis placed on the real number system and arithmetic operations. Explorations focus on place value, additive and multiplicative reasoning, the division algorithm and rational numbers. Content presented using problem solving and exploration. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MCKE 3042 - Algebra, Probability and Data Analysis

Second of three courses designed for prospective elementary teachers. Emphasis placed on algebra, probability, and data analysis. Explorations focus on representing, analyzing, generalizing, formalizing, and communicating patterns and probabilities. Content presented using problem solving and exploration. Prereq: MCKE 3041 with 'C' or better. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MCKE 3043 - Geometry and Measurement

Third of three courses designed for prospective elementary teachers. Emphasis placed on developing spatial reasoning skills in geometry and measurement. Explorations focus on two- and three-dimensional shapes, their properties, measurements, constructions, and transformations. Prereq: MCKE 3042 with 'C' or better. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MCKE 5000 - Algebraic Patterns and Functions I

Systematic study of the core elements of algebra: linear, quadratic, exponential, logarithmic functions and their graphs. Includes modeling using graphing calculators and real world applications. Concepts are linked to other scientific, mathematical, and pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: permission of project director. Max hours: 4 Credits. **Semester Hours:** 4 to 4

MCKE 5002 - Algebraic Patterns and Functions II

This course is a continuation of the material covered in MATH 5000. Topics that will be covered include logarithmic, exponential and trigonometric functions and applications, parametric equations, systems of equations and inequalities, matrices and linear programming. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: MATH 5000 or permission of instructor. Max hours: 4 Credits. **Semester Hours:** 4 to 4

MCKE 5004 - Statistics and Probability

Studies the collection, presentation, and analysis of data; and elements and applications of counting discrete probability. Includes real world applications and technology. Concepts are linked to other scientific, mathematical, and pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: permission of project director. Max hours: 4 Credits. **Semester Hours:** 4 to 4

MCKE 5005 - Geometry

Systematic study of advanced geometric concepts: history of geometry and measurement, patterns among shapes, 2- and 3-dimensional shapes, constructions, symmetry or transformational geometry. Includes applications and activity-oriented instruction. Concepts are linked to other scientific, mathematical, and pedagogical domains. This course is not applicable toward any degree in the College of Liberal and Sciences. Prereq: permission of project director. Max hours: 4 Credits. **Semester Hours:** 4 to 4

MCKE 5006 - Mathematics of Change

Systematic study of the application of calculus to the analysis of changing systems in real world applications. Emphasizes the connections that exist between calculus and aspects of middle school curricula. Concepts are linked to other scientific, mathematical, and pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: MATH 5000 (or equivalent) or permission of project director. Max hours: 4 Credits. **Semester Hours:** 4 to 4

MCKE 5007 - Discrete Math--Counting the Possibilities

Systematic study of basic techniques in discrete mathematics and their various applications: permutations and combinations, inclusion or exclusion, pigeonhole principle, graph theory, and recursive pattern solving. Applications to topics such as network analysis and voting theory are stressed. Concepts are linked to other scientific, mathematical, pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: MATH 5000 (or equivalent) or permission of project director. Max hours: 4 Credits. **Semester Hours:** 4 to 4

MCKE 5008 - Discovery and Use of the History of Math

Systematic study of the people, events, ideas and issues from the history of mathematics, focusing on historical topics that are central to the discipline and teaching of mathematics and emphasizing web research of historical topics of interest. Concepts are linked to other scientific, mathematical, and pedagogical domains. Note: This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: permission of the project director. Max hours: 4 Credits. **Semester Hours:** 4 to 4

MCKE 5009 - Math Modeling--Using and Applying Math

Systematic study of math modeling using algebra, geometry, discrete mathematics, rates of change, and statistics to solve real-world problems in areas such as finance, biology, economics, and physics. Concepts are linked to other scientific, mathematical, societal, and pedagogical domains. This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: MATH 5006 (or equivalent) or permission of instructor. Max hours: 4 Credits. **Semester Hours:** 4 to 4

MCKE 5011 - Mathematics and Science of Musical Instruments

A mathematical modeling course which investigates the mathematics and physics behind musical instruments while providing a deeper understanding of trigonometry and elementary calculus concepts. Note: This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: MATH 5000, 5002. Max hours: 4 Credits. **Semester Hours:** 4 to 4

MCKE 5018 - Topics in Mathematics Education for Teachers

Topics vary from semester to semester. Designed for professional mathematics teachers. This course will not count towards a degree in Applied Mathematics. Consent of the instructor required for enrollment. Max hours: 50 Credits. **Semester Hours:** 0.3 to 50

MCKE 5140 - Introduction to Modern Algebra

Studies the fundamental algebraic structures used in modern mathematics. Topics include groups, rings, fields, and polynomials. Note: This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: MATH 3000. Cross-listed with MATH 4140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MCKE 5210 - Higher Geometry I

Studies the foundations of modern geometry by examining axiomatic systems for various geometrics, with an emphasis on non-Euclidean hyperbolic geometry. Note: This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: MATH 3000. Cross-listed with MATH 3210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MCKE 5310 - Introduction to Real Analysis I

Calculus of one variable, the real number system, continuity, differentiation, integration theory, sequence and series. Note: This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: MATH 2421 and 3000. Cross-listed with MATH 4310. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MCKE 5408 - Applied Graph Theory

Introduces discrete structures and applications of graph theory to computer science, engineering, operations research, social science, and biology. Topics include connectivity, coloring, trees, Euler and Hamiltonian paths and circuits, matching and covering problems, shortest route and network flows. Note: This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: MATH 3000. Cross-listed with MATH 4408. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MCKE 5409 - Applied Combinatorics

Major emphasis is on applied combinatorics and combinatorial algorithms, with applications in computer science and operations. Topics include general counting methods, generating functions, recurrence relations, inclusion-exclusion, and block designs. Note: This course is not applicable toward any degree in the College of Liberal Arts and Sciences. Prereq: MATH 3000. Cross-listed with MATH 4409. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Math Education

MTED 5619 - Expanding Conceptions of Number

Teacher's learning will focus on quantities and operations in place value number systems, how students understand such systems, and how teaching may promote students' progress. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 5620 - Developing Fractional & Proportional Reasoning

Teachers' learning will focus on quantities and operations involved with ratio, fraction, and proportion; and on how students understand ratio, fraction and proportion; and how teaching may promote students' progress. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 5621 - A World Of (different) Numbers

Teachers' learning will focus on the four main number systems - Integers, Rational, Real, and Complex; on how students may progress from one to another, and on how teaching may promote students' progress. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 5622 - Expanding Concepts Of Algebra

Teachers' learning will focus on the key ideas of equivalence, variable, co-variation, and function; on how students may progress from one to another, and non how teaching may promote students' progress. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 5623 - Geometrical Ways Of Reasoning

Teachers' learning will focus on geometrical reasoning in two and three dimensions, within Euclidian and non-Euclidian axiomatic systems; on how students may progress from one to another, and on how teaching may promote students' progress. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 7030 - Theories Of Mathematics Learning

Students will become familiar with foundational theories and conceptual frameworks in mathematics education. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 7040 - Mathematics Teaching - Theory and Practice

This course is designed for educators interested in developing research-based understandings and practices of K-12 mathematics teaching and learning. Max hours: 9 Credits. **Semester Hours:** 3 to 3

MTED 7050 - Critique Of Mathematics Education Research

This course is designed to deepen students' understanding of various studies in the field and increase their competence, confidence and enthusiasm in reading and applying those studies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 7060 - Developmental Pathways In Students' Mathematical Thinking

The purpose of this course is for participants to develop research-based ways of determining (a) what to look for, (b) how to look for, (c) how to synthesize and report on, and (d) how to incorporate in pedagogy data-grounded inferences about children's mathematical thinking. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Mathematics

MATH 1009 - Computer-Based Algebraic Problem Solving

A laboratory-based problem solving course focused on personal computing applications. Topics include general problem solving techniques, deductive reasoning, elementary probability, computer algebraic software, optimization, graphical analysis, systems of equations, spreadsheets, functions, descriptive statistics, linear programming and elementary programming logic. Prereq: basic high school algebra and some familiarity with Microsoft Windows. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 1010 - Mathematics for the Liberal Arts

Designed to give liberal arts students the skills required to understand and interpret quantitative information that they encounter in the news and in their studies, and to make quantitatively-based decisions in their lives. Topics include a survey of logic and analysis of arguments, identifying fallacies in reasoning, working with numbers and units, linear and exponential relations and essentials of probability and statistics. The emphasis is on applications with case studies in economics, finance, environmental sciences, health, music and science. Prereq: three years of high school mathematics. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-MA1 **Semester Hours:** 3 to 3

MATH 1070 - Algebra for Social Sciences and Business

Topics in algebra designed for students who intend to take business calculus. Functions, graphs, scatter plots, curve-fitting, solving systems of equations, polynomial and rational functions, and selected other topics. Note: Graphics calculator required. No co-credit with MATH 1110 or MATH 1130. Prereq: intermediate algebra and satisfactory score on the placement exam. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-MA1. **Semester Hours:** 3 to 3

MATH 1080 - Polynomial Calculus

A one-semester course in single-variable calculus. Topics include limits, derivatives, differentiation rules, integration and integration rules. Emphasis is on applications to business and social sciences. Note: No knowledge of trigonometry is required. Those planning to take more than one semester of calculus should take MATH 1401 instead of MATH 1080. Prereq: MATH 1070 or 1110. No co-credit with MATH 1401. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-MA1. **Semester Hours:** 3 to 3

MATH 1110 - College Algebra

Topics in algebra designed for students who intend to take the calculus sequence. Functions, domains, ranges, graphs, data scatter plots and curve fitting, solving equations and systems of equations, polynomial functions, rational functions, and selected other topics. Graphic calculators and/or computer algebra systems are used extensively. Applications are emphasized. Note: No co-credit with either MATH 1070 or 1130. Prereq: intermediate algebra and satisfactory score on the placement exam. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-MA1. **Semester Hours:** 3 to 3

MATH 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

MATH 1120 - College Trigonometry

Topics in trigonometry, analytic geometry, and elementary functions designed for students who intend to take the calculus sequence. Angles and trigonometry functions of acute angles, analytic trigonometry, fundamental trigonometric functions and identities including hyperbolic trigonometry, parametric equations, and polar coordinate system. Graphic calculators and/or computer algebra systems are used extensively. Applications are emphasized. Prereq: MATH 1110 and placement test. No joint credit with MATH 1130. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-MA1. **Semester Hours:** 3 to 3

MATH 1130 - Precalculus Mathematics

Condensed treatment of the topics in MATH 1110 and 1120. Prereq: satisfactory score on the placement exam. No co-credit with MATH 1070, 1110 or 1120. Max hours: 4 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-MA1. **Semester Hours:** 4 to 4

MATH 1401 - Calculus I

First course of a three-semester sequence (MATH 1401, 2411, 2421) in calculus. Topics covered include limits, derivatives, applications of derivatives, and the definite integral. Note: No co-credit with MATH 1080. Prereq: MATH 1120 or 1130 and satisfactory score on the placement exam. Max hours: 4 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-MA1 **Semester Hours:** 4 to 4

MATH 1840 - Independent Study.

Max hours: 3 Credits. **Semester Hours:** 1 to 3

MATH 2411 - Calculus II

The second of a three-semester sequence (MATH 1401, 2411, 2421) in calculus. Topics covered include exponential, logarithmic, and trigonometric functions, techniques of integration, indeterminate forms, improper integrals and infinite series. Prereq: MATH 1401. Max hours: 4 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-MA1. **Semester Hours:** 4 to 4

MATH 2421 - Calculus III

The third of a three-semester sequence in Calculus (MATH 1401, 2411 and 2421). Topics include vectors, vector-valued functions, partial differentiation, differentiation, multiple integration, and vector calculus. Prereq: MATH 2411. Max hours: 4 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-MA1
Semester Hours: 4 to 4

MATH 2511 - Discrete Structures

Covers the fundamentals of discrete mathematics, including: logic, sets, functions, growth of functions, algorithms, matrices, mathematical reasoning, proofs, induction, relations, graphs, trees and combinatorics. There is an emphasis on how discrete mathematics applies to computer science in general, and algorithm analysis in particular. Prereq: CSCI 2421. Cross-listed with CSCI 2511. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 2810 - Topics

Topics in mathematics with various subtitles reflecting course content. Prereq: permission of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 3

MATH 2830 - Introductory Statistics

Basic statistical concepts, summarizing data, probability concepts, distributions, confidence intervals, hypothesis testing. Prereq: intermediate algebra. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-MA1.
Semester Hours: 3 to 3

MATH 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MATH 3000 - Introduction to Abstract Mathematics

Students learn to prove and critique proofs of theorems by studying elementary topics in abstract mathematics, including logic, sets, functions, equivalence relations and elementary combinatorics. Prereq: MATH 2411. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 3040 - Mathematics for Elementary Teachers

Topics include intuitive and logical development of geometric ideas relevant to K-6 curriculum; measurement of length, area, volume, mass, angle, temperature, time and the metric system. Further study of the rational number system, probability and statistics, applications and problem solving. Note: Carries credit only for elementary education majors. Prereq: 3 years of high school mathematics. Cross-listed with ELED 5400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 3191 - Applied Linear Algebra

Topics include systems of equations, Gaussian elimination with partial pivoting, LU--decomposition of matrices, matrix algebra, determinants, vector spaces, linear transformations, eigen values and applications. Note: No co-credit with MATH 3195. Prereq: MATH 2411. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 3195 - Linear Algebra and Differential Equations

Presents the essential ideas and methods of linear algebra and differential equations, emphasizing the connections between and the applications of both subjects. The course is designed for students in the sciences and engineering. Note: No co-credit with MATH 3200 and MATH 3191. Prereq: MATH 2411. Max hours: 4 Credits. **Semester Hours:** 4 to 4

MATH 3200 - Elementary Differential Equations

First and second order differential equations, Laplace transforms, systems of equations, with an emphasis on modeling and applications. Note: No co-credit with MATH 3195. Prereq: MATH 2411; coreq is MATH 3191. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 3210 - Higher Geometry I

Studies the foundations of modern geometry by examining axiomatic systems for various geometrics, with an emphasis on non-Euclidean hyperbolic geometry. Prereq: MATH 3000. Cross-listed with MCKE 5210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 3250 - Problem Solving Tools

Students learn and refine both problem solving techniques and computer programming skills. Examples, exercises, and projects are taken from a wide range of mathematical topics including algebra, calculus, linear algebra and probability. Note: This course will not count toward a graduate degree in applied mathematics. Prereq: MATH 2411. Coreq: either MATH 3191 or MATH 3195. Cross-listed with MATH 5250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 3301 - Introduction to Operations Research I - Deterministic Systems

A mathematical approach to decision making based on optimization. Topics include linear programming, network flows and production models. Prereq: MATH 3191 or 3195. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 3302 - Operations Research II

Elementary stochastic processes and standard nondeterministic operations research models: Markov chains, Poisson processes, renewal processes, queuing theory, inventory models, Markov decision processes, simulation. Prereq: MATH 3191 and 3800. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 3440 - Introduction to Symbolic Logic

Covers truth functional and quantificational logic through polyadic first order predicate calculus and theory of identity. Attention is given to such problems in metatheory as proofs of the completeness and consistency of systems of logic. Prereq: MATH 3000. Cross-listed with PHIL 3440. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 3511 - Mathematics of Chemistry

Multivariate functions, probability and statistics for chemistry, matrices and vectors, mathematics of reaction kinetics and symmetry point groups. Course covers mathematics needed for CHEM 4511 and 4521. Can also be an elective for the mathematics minor. Prereq: MATH 2411, CHEM 2031, CHEM 2061. Max hours: 4 Credits. **Semester Hours:** 4 to 4

MATH 3800 - Probability and Statistics for Engineers

Basic probability theory, discrete and continuous random variables, point and interval estimation, test of hypotheses, and simple linear regression. Note: no co-credit with MATH 4810. Prereq: MATH 2411; coreq: MATH 2421. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 3939 - Internship

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: junior standing and 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MATH 4010 - History of Mathematics

A history of the development of mathematical techniques and ideas from early civilization to the present, including the inter-relationships of mathematics and sciences. Prereq: MATH 2411 with a C- or higher. Coreq: MATH 3000 or 3191. Cross-listed with MATH 5010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4012 - An Advanced Perspective on Number and Operation

Advanced study of number and operation, including why the various procedures from arithmetic work and connections to algebraic reasoning. Focuses on using rigorous mathematical reasoning and multiple representations to explain concepts. Note: For undergraduate majors, this course only counts toward the mathematics education option. Prereq: MATH 3000 or permission of instructor. Cross-listed with MATH 5012. Max hours: 2 Credits. **Semester Hours:** 2 to 2

MATH 4013 - An Inquiry-Based Approach to Geometry

An inquiry-based approach to middle-level and Euclidean geometry. Topics include: polygons and the angle relationships, constructions, Pythagorean theorem and perimeter, area and volume, similarity and congruence, circles. Note: For undergraduate majors, this course only counts toward the mathematics education option. Prereq: MATH 3000 or permission of instructor. Cross-listed with MATH 5013. Max hours: 1 Credit. **Semester Hours:** 1 to 1

MATH 4014 - Statistical Knowledge for Teaching

A problem-based statistics seminar aimed at secondary teachers. Topics include: the central limit theorem, the law of large numbers, probability, measures of central tendency and variability, sampling distributions, regression, and hypothesis testing. Note: For undergraduate majors, this course only counts toward the mathematics education option. Prereq: MATH 3800 or permission of instructor. Cross-listed with MATH 5014. Max hours: 1 Credit. **Semester Hours:** 1 to 1

MATH 4015 - Capstone Course for Secondary Teachers

High school mathematics from an advanced perspective: analyses of alternative definitions, extensions and generalizations of familiar theorems; discussions of historical contexts in which concepts arose; applications of mathematics. Note: For undergraduate majors, this course only counts toward the mathematics education option. Prereq: MATH 3210, MATH 4310, MATH 3140 or permission of instructor. Cross-listed with MATH 5015. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4027 - Topics in Mathematics

Special topics in mathematics will be covered; consult 'Schedule Planner' for current topics and prerequisites. Max hours: 12 Credits. **Semester Hours:** 3 to 3

MATH 4110 - Theory of Numbers

Every other year. Topics include divisibility, prime numbers, congruencies, number theoretic functions, quadratic reciprocity, and special diophantine equations, with applications in engineering. Prereq: MATH 3000. Cross-listed with MATH 5110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4140 - Introduction to Modern Algebra

Studies the fundamental algebraic structures used in modern mathematics. Topics include groups, rings, fields and polynomials. Prereq: MATH 3000 and either MATH 3191 or MATH 3195. Cross-listed with MCKE 5140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4201 - Topology

Metric spaces and topological spaces, compactness, separation properties, and connectedness. Prereq: MATH 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4220 - Higher Geometry II

Studies affine and projective geometries. Coordinates are introduced in this framework. Planes and higher dimensional spaces are examined. Prereq: MATH 3191. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4310 - Introduction to Real Analysis I

Calculus of one variable, the real number system, continuity, differentiation, integration theory, sequence and series. Prereq: MATH 2421 and 3000. Cross-listed with MCKE 5310. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4320 - Introduction to Real Analysis II

Convergence, uniform convergence; Taylor's theorem; calculus of several variables including continuity, differentiation and integration; Picard's theorem in ordinary differential equations and Fourier series. Prereq: MATH 4310. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4387 - Applied Regression Analysis

Topics include simple and multiple linear regression, model diagnostics and remediation, and model selection. Emphasis is on practical aspects and applications of linear models to the analysis of data in business, engineering and behavioral, biological and physical sciences. Prereq: MATH 3191 and 3800 or 4820. No co-credit with MATH 4830/5830. Cross-listed with MATH 5387. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4390 - Game Theory

Begins with an introduction to the mathematical theory of games and the definition of a solution, including extensive and normal forms of representation. The fundamental minimax theorem is presented first as the foundation for two-person matrix games, then extended with fixed point theory to other games. Principles of dominance and solution methods are presented, plus applications to economics, political science, engineering, and other fields. An introduction to n-person game theory is included, with basic terms and concepts. Prereq: MATH 2421, 3191 and 3800/4810. Cross-listed with MATH 5390. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4394 - Experimental Designs

Designs covered will include: completely randomized, complete block, split plot, incomplete block, factorial and fractional factorial designs. Additionally, power and study design for non-experimental studies will be covered. Prereq: MATH 4387 or 5387. Cross-listed with MATH 5394. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4408 - Applied Graph Theory

Introduces discrete structures and applications of graph theory to computer science, engineering, operations research, social science, and biology. Topics include connectivity, coloring, trees, Euler and Hamiltonian paths and circuits, matching and covering problems, shortest route and network flows. Prereq: CSCI/MATH 2511 or MATH 3000. Cross-listed with CSCI 4408 and MCKE 5408. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4409 - Applied Combinatorics

Every other year. Major emphasis is on applied combinatorics and combinatorial algorithms, with applications in computer science and operations. Topics include general counting methods, generating functions, recurrence relations, inclusion-exclusion, and block designs. Prereq: MATH 3000. Cross-listed with MCKE 5409. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4450 - Complex Variables

Infrequent. Topics include complex algebra, Cauchy-Riemann equations, Laurent expansions, theory of residues, complex integration, and introduction to conformal mapping. Prereq: MATH 2421 and MATH 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4650 - Numerical Analysis I

Methods and analysis of techniques used to resolve continuous mathematical problems on the computer. Solution of linear and nonlinear equations, interpolation and integration. Prereq: MATH 2411, 3191 or 3195, and programming experience. Cross-listed with CSCI 4650, 5660, and MATH 5660. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4660 - Numerical Analysis II

Numerical differentiation and integration, numerical solution of ordinary differential equations, and numerical solutions of partial differential equations as time allows. Prereq: MATH 3195 or both 3191 and 3200; MATH or CSCI 4650 or 5660; or programming experience. Cross-listed with MATH 5661, CSCI 4660 and 5661. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4733 - Partial Differential Equations

Infrequent. Initial/Boundary value problems for first-order, wave, heat and Laplace Equations; maximum principles; Fourier Series and applications. Prereq: MATH 2421 and 3200. Cross-listed with MATH 5733. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4779 - Math Clinic

The clinic is intended to illustrate the applicability and utility of mathematical concepts. Research problems investigated originate from a variety of sources--industry, government agencies, educational institutions, or nonprofit organizations. Prereq: consult Schedule Planner or instructor. Cross-listed with MATH 5779. Max hours: 99 Credits. **Semester Hours:** 3 to 3

MATH 4788 - Bioinformatics

Provides a broad exposure to the basic concepts and methodologies of bioinformatics and their application to analyzing genomic and proteomic data. Topics may include dynamic programming algorithms, graph theoretic techniques, hidden Markov models, phylogenetic trees, RNA/protein structure prediction and microarray analysis. Prereq: CSCI 1410 and MATH 3191 or 3195. Cross-listed with CSCI 4788, PHYS 4788. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4791 - Continuous Modeling

Every other year. Surveys mathematical problems that arise in natural sciences and engineering. Topics may include population models, epidemic models, mechanics, heat transfer and diffusion, tomography, pharmaco-kinetics, traffic flow, fractal models, wave phenomena, and natural resource management. Most models discussed are based on differential and integral equations. Emphasis is formulation and validation of models as well as methods of solution. Prereq: MATH 3191 and 3200. Cross-listed with MATH 5791. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4792 - Probabilistic Modeling

Every other year. Markov chains; Poisson processes, continuous time Markov chains, elementary topics in queuing theory, and some mathematical aspects of Monte Carlo simulation, including random variate generation, variance reduction, and output analysis. Prereq: MATH 4810, 5310 and some programming experience. Cross-listed with MATH 5792. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4793 - Discrete Math Modeling

Every other year. Focuses on the use of graph theory and combinatorics to solve problems in a wide variety of disciplines. Applications are selected from computer science, communication networks, economics, operations research, and the social, biological and environmental sciences. Prereq: MATH 3191 and 4408. Cross-listed with MATH 5793. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4794 - Optimization Modeling

Every other year. Principles of model formulation and analysis are developed by presenting a wide variety of applications, both for natural phenomena and social systems. Examples of optimization models to represent natural phenomena include principles of least time and energy. Examples in social systems include resource allocation, environmental control and land management. Specific applications vary, but are chosen to cover a wide scope that considers dichotomies, such as discrete vs. continuous, static vs. dynamic, and deterministic vs. stochastic. Some computer modeling language (like GAMS) is taught. Prereq: MATH 2421 and 3191. Cross-listed with MATH 5794. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4810 - Probability

Examines elementary theory of probability, including independence, conditional probability, and Bayes' theorem; random variables, expectations and probability distributions; joint and conditional distributions; functions of random variables; limit theorems, including the central limit theorem. Note: No co-credit with MATH 3800. Prereq: MATH 3191; Coreq: MATH 2421. Cross-listed with MATH 5310. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4820 - Introduction to Mathematical Statistics

Sampling distributions, maximum likelihood and method of moments estimation, properties of estimators, classical methods for confidence intervals and hypothesis testing, simple linear regression. Prereq: MATH 3800 or MATH 4810 (preferred). Cross-listed with MATH 5320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4830 - Applied Statistics

Review of estimation, confidence intervals and hypothesis testing; Anova; categorical data analysis; non-parametric tests; linear and logistic regression. Prereq: an introductory course in statistics such as MATH 2830 or permission of instructor. No co-credit with MATH 4387 or 5387 and doesn't count for Math degrees. Cross-listed with MATH 5830. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4840 - Independent Study

Variable credit depending on the student's needs. Offered for the advanced student who desires to pursue a specific topic in considerable depth. Note: Supervision by a full-time faculty member is necessary, and the dean's office must concur. Students may register for this course more than once with departmental approval. Max hours: 12 Credits. **Semester Hours:** 1 to 3

MATH 5010 - History of Mathematics

A history of the development of mathematical techniques and ideas from early civilization to the present, including the inter-relationships of mathematics and sciences. Prereq: MATH 1401. Not open to students who have had MATH 4010. No credit for applied math graduate students. Cross-listed with MATH 4010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5012 - An Advanced Perspective on Number and Operation

Advanced study of number and operation, including why the various procedures from arithmetic work and connections to algebraic reasoning. Focuses on using rigorous mathematical reasoning and multiple representations to explain concepts. Note: Does not count toward graduate degrees in applied mathematics. Prereq: MATH 3000 or permission of instructor. Cross-listed with MATH 4012. Max hours: 2 Credits. **Semester Hours:** 2 to 2

MATH 5013 - An Inquiry-based Approach to Geometry

An inquiry-based approach to middle-level and Euclidean geometry. Topics include: polygons and the angle relationships, constructions, Pythagorean theorem and perimeter, area and volume, similarity and congruence, circles. Note: Does not count toward a graduate degree in applied mathematics. Prereq: MATH 3000 or permission of instructor. Cross-listed with MATH 4013. Max hours: 1 Credit. **Semester Hours:** 1 to 1

MATH 5014 - Statistical Knowledge for Teaching

A problem-based statistics seminar aimed at secondary teachers. Topics include: the central limit theorem, the law of large numbers, probability, measures of central tendency and variability, sampling distributions, regression, and hypothesis testing. Note: Does not count toward a graduate degree in applied mathematics. Prereq: MATH 3800 or permission of instructor. Cross-listed with MATH 4014. Max hours: 1 Credits. **Semester Hours:** 1 to 1

MATH 5015 - Capstone Course for Secondary Teachers

High school mathematics from an advanced perspective: analyses of alternative definitions, extensions and generalizations of familiar theorems; discussions of historical contexts in which concepts arose; applications of mathematics. Note: Does not count toward a graduate degree in applied mathematics. Prereq: MATH 3210, MATH 4310, MATH 3140 or permission of instructor. Cross-listed with MATH 4015. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5016 - RM-MSMSP Research Experience for Teachers - Math Cohort

The Research Experience for Teachers (RET) program is a five-week research exploration in which twelve RM-MSMSP teachers will raise their level of relevant mathematics understanding by engaging in a "hands on" workshop, transforming what they have learned into new curricular materials that will improve the mathematics abilities of their students and hopefully stimulate them to consider a STEM career. Note: Credit may not apply toward any CLAS degree. Max hours: 6 Credits. **Semester Hours:** 1 to 6

MATH 5017 - Topics in Mathematics for Teachers

Topics vary from semester to semester. Designed for professional mathematics teachers. Note: This course will not count toward a degree in applied mathematics. Prereq: permission of instructor. Max hours: 50 Credits. **Semester Hours:** 0.3 to 50

MATH 5027 - Topics in Applied Mathematics

Selected topics in mathematical problems arising from various applied fields such as mechanics, electromagnetic theory, economics and biological sciences. Prereq: permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5070 - Applied Analysis

Metric spaces, uniform convergence, elements of Banach spaces, elements of functions of complex variable. Problem solving and independent proof writing. Review of selected advanced topics in analysis for the PhD preliminary examination. Prereq: MATH 4320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5110 - Theory of Numbers

Every other year. Topics include divisibility, prime numbers, congruences, number theoretic functions, quadratic reciprocity, and special diophantine equations, with applications in engineering. Prereq: MATH 3000. Cross-listed with MATH 4110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5135 - Functions of a Complex Variable

Infrequent. The complex plane, infinite series and products, elementary special functions, Cauchy-Riemann equations, conformal mapping, complex integration, Cauchy integral theory, and residue theory. Prereq: MATH 4320; MATH 5070 recommended. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5198 - Mathematics for Bioscientists

Infrequent. Develops mathematical reasoning: introduces linear algebra, discrete structures, graph theory, probability, and differential equations, using applications to molecular biology. Note: No credit for mathematics or engineering students. Prereq: MATH 2411. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5250 - Problem Solving Tools

Students learn and refine both problem solving techniques and computer programming skills. Examples, exercises, and projects are taken from a wide range of mathematical topics including algebra, calculus, linear algebra and probability. Note: This course will not count toward a graduate degree in applied mathematics. Coreq: MATH 2421. Cross-listed with MATH 3250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5310 - Probability

Examines elementary theory of probability, including independence, conditional probability, and Bayes' theorem; random variables, expectations and probability distributions; joint and conditional distributions; functions of random variables; limit theorems, including the central limit theorem. Prereq: MATH 2421 and 3191. Cross-listed with MATH 4810. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5320 - Introduction to Mathematical Statistics

Sampling distributions, maximum likelihood and method of moments estimation, properties of estimators, classical methods for confidence intervals and hypothesis testing, simple linear regression. Prereq: MATH 3800. MATH 4810 highly recommended, but not required. Cross-listed with MATH 4820. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5350 - Mathematical Theory of Interest

Rates of interest, term structure of interest rates, force of interest, yield rate, principal, equation of value, annuity, perpetuity, stocks, bonds, other financial instruments. Prereq: MATH 4810/5310. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5351 - Actuarial Models

Severity models, frequency models, aggregate models, risk measures, ruin theory, construction and selection of empirical models, credibility, simulation. Prereq: Probability (MATH 4810/5310), Statistics (MATH 4820/5320). Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5387 - Applied Regression Analysis

Topics include simple and multiple linear regression, model diagnostics and remediation, and model selection. Emphasis is on practical aspects and applications of linear models to the analysis of data in business, engineering and behavioral, biological and physical sciences. No co-credit with MATH 4830/5830. Cross-listed with MATH 4387. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5390 - Game Theory

Infrequent. Begins with an introduction to the mathematical theory of games and the definition of a solution, including extensive and normal forms of representation. The fundamental minimax theorem is presented first, as the foundation for two-person matrix games, then extended with fixed point theory to other games. Principles of dominance and solution methods are presented, plus applications to economics, political science, engineering, and other fields. An introduction to n-person game theory is included, with basic terms and concepts. Prereq: MATH 2421, 3191 and 3800/4810. Cross-listed with MATH 4390. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5394 - Experimental Designs

Designs covered will include: completely randomized, complete block, split plot, incomplete block, factorial and fractional factorial designs. Additionally, power and study design for non-experimental studies will be covered. Prereq: MATH 4387 or 5387. Cross-listed with MATH 4394. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5410 - Modern Cryptology

Every other year. Deals with the mathematics that underlies modern cryptology. Topics include: classical cryptology, public and private key cryptosystems, secret sharing schemes, authentication schemes, linear feedback shift registers, discrete logarithm and elliptic curve-based schemes. Prereq: MATH 3191. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5432 - Computational Graph Theory

Infrequent. Algorithmic techniques in graph theory and other discrete mathematics areas. Typical topics include: branch-bound algorithms, matching, colorings, domination, min-plus algebra, simulated annealing and related heuristics, NP-completeness theory. Prereq: a course in graph theory and some programming experience. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5446 - Theory of Automata

Infrequent. Studies the relationships between classes of formal languages (regular, context-free, context-sensitive, phrase-structure) and classes of automata (finite-state, pushdown, Turing machines). Additional topics include decidability and computability issues. Prereq: MATH 3000 and 3140. Cross-listed with CSCI 5446. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5490 - Network Flows

Every other year. Begins with the classical min-cost flow problem, defined on an ordinary network. Other problems, such as shortest path, are also shown in this class. Both theory and algorithms are presented. Extensions include generalized networks, nonlinear costs, fixed charges, multi-commodity flows and additional applications, such as in communications networks. Prereq: Graduate standing in math or computer science. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5576 - Mathematical Foundations of Artificial Intelligence I

Infrequent. A fundamentals course that complements other approaches, such as in engineering, psychology, and business administration. Here the emphasis is on the mathematical foundations. Topics include logical inference, problem solving, heuristic search, neural nets, analogical reasoning and learning. Models and paradigms also consider different measures of uncertainty. Prereq: CSCI 2511, MATH 2511/3000 and 3191. Cross-listed with MATH 4576. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5593 - Linear Programming

A linear program is an optimization problem that seeks to minimize or maximize a linear function subject to a system of linear inequalities and equations. This course begins with examples of linear programs and variations in their representations. Basic theoretical foundations covered include polyhedra, convexity, linear inequalities and duality. Two classes of solution algorithms are given: simplex methods and interior point methods. The primary emphasis of this course is on mathematical foundations, and applications are used to illustrate the main results. Prereq: MATH 3191. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5610 - Computational Biology

Every other year. Basic introduction and mathematical foundations. Topics include comparative genomics; proteomics; phylogeny; dynamic programming and sequence alignment; gene expression arrays and clustering; Bayesian networks; structure prediction and hidden Markov models. Prereq: CSCI 1410 or equivalent programming experience, and MATH 3191 or 3195. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5660 - Numerical Analysis I

Methods and analysis of techniques used to resolve continuous mathematical problems on the computer. Solution of linear and nonlinear equations, interpolation and integration. Prereq: MATH 2411, 3191 or 3195, and programming experience. Cross-listed with CSCI 4650, 5660, and MATH 4650. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5661 - Numerical Analysis II

Numerical differentiation and integration, numerical solution of ordinary differential equations, and numerical solutions of partial differential equations as time allows. Prereq: MATH 3195 or both 3191 and 3200; MATH or CSCI 4650 or 5660; or programming experience. Cross-listed with MATH 4660, CSCI 4660 and 5661. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5674 - Parallel Computing and Architectures

Infrequent. Examines a range of topics involved in using parallel operations to improve computational performance. Parallel architectures, parallel algorithms, parallel programming languages, interconnection networks, and their relation to specific computer architectures. Prereq: MATH 4650. Cross-listed with MATH 4674. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5718 - Applied Linear Algebra

Topics include: Vector spaces, practical solution of systems of equations, projections, eigenvalues and eigenvectors, unitary transformations, Schur QR, singular value decompositions, similarity transformations, Jordan forms, and positive definite matrices. Prereq: MATH 3191. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5733 - Partial Differential Equations

Infrequent. Initial/Boundary value problems for first-order, wave, heat and Laplace Equations; maximum principles; Fourier Series and applications. Prereq: MATH 2421 and 3200; graduate standing. Cross-listed with MATH 4733. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5779 - Math Clinic

The clinic is intended to illustrate the applicability and utility of mathematical concepts. Research problems investigated originate from a variety of sources--industry, government agencies, educational institutions, or nonprofit organizations. Prereq: consult Schedule Planner or instructor. Cross-listed with MATH 4779. Max hours: 99 Credits. **Semester Hours:** 3 to 3

MATH 5791 - Continuous Modeling

Every other year. Surveys mathematical problems that arise in natural sciences and engineering. Topics may include population models, epidemic models, mechanics, heat transfer and diffusion, tomography, pharmaco-kinetics, traffic flow, fractal models, wave phenomena, and natural resource management. Most models discussed are based on differential and integral equations. Emphasis is formulation and validation of models as well as methods of solution. Prereq: MATH 3191 and 3200. Cross-listed with MATH 4791. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5792 - Probabilistic Modeling

Every other year. Markov chains; Poisson processes, continuous time Markov chains, elementary topics in queuing theory, and some mathematical aspects of Monte Carlo simulation, including random variate generation, variance reduction, and output analysis. Prereq: MATH 4810 or 5310 and some programming experience. Cross-listed with MATH 4792. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5793 - Discrete Math Modeling

Every other year. Focuses on the use of graph theory and combinatorics to solve problems in a wide variety of disciplines. Applications are selected from computer science, communication networks, economics, operations research, and the social, biological and environmental sciences. Prereq: MATH 3191 and 4408. Cross-listed with MATH 4793. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5794 - Optimization Modeling

Every other year. Principles of model formulation and analysis are developed by presenting a wide variety of applications, both for natural phenomena and social systems. Examples of optimization models to represent natural phenomena include principles of least time and energy. Examples in social systems include resource allocation, environmental control and land management. Specific applications vary, but are chosen to cover a wide scope that considers dichotomies, such as discrete vs. continuous, static vs. dynamic, and deterministic vs. stochastic. Some computer modeling language (like GAMS) is taught. Prereq: MATH 2421 and 3191. Cross-listed with MATH 4794. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5830 - Applied Statistics

Review of estimation, confidence intervals and hypothesis testing; ANOVA; categorical data analysis; non-parametric tests; linear and logistic regression. Prereq: an introductory course in statistics such as MATH 2830 or permission of instructor. No co-credit with MATH 4387 or 5387 and doesn't count for Math degrees. Cross-listed with MATH 4830. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5840 - Independent Study

Available only with approval of graduate advisor. Subjects arranged. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MATH 5939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 6

MATH 5950 - Master's Thesis

Max hours: 8 Credits. **Semester Hours:** 1 to 8

MATH 5960 - Master's Project

Note: Credit hours for this course will not count toward a graduate degree in Applied Mathematics. Max hours: 8 Credits. **Semester Hours:** 1 to 8

MATH 6023 - Topics in Discrete Math

Topics may include graph theory, combinatorics, matroid theory, combinatorial matrix theory, finite geometry, design theory, and discrete algorithms. Note: Since topic varies by semester, students may register for this course more than once. Prereq: permission of the instructor. Max hours: 99 Credits. **Semester Hours:** 3 to 3

MATH 6131 - Real Analysis

Every other year. Lebesgue measure and integration, general measure and integration theory, Radon-Nikodym Theorem, Fubini Theorem. Prereq: MATH 4320 or 5070. Max hours: 3 Credits.

Semester Hours: 3 to 3

MATH 6330 - Workshop in Statistical Consulting

Students participate as consultants in a drop-in consulting service operated by the department. Seminars provide students with supervised experience in short term statistical consulting. Note: Since problems vary each semester, students may register for this course more than once. Prereq: MATH 5387. Max hours: 99 Credits. **Semester Hours:** 3 to 3

MATH 6360 - Exploratory Data Analysis

Every other year. Philosophy and techniques associated with exploratory (vs. confirmatory) data analysis, both as originally presented (John Tukey) and current computer-based implementations. Graphical displays, robust-resistant methods (lines, two-way fits), diagnostic plots, standardization. Prereq: Previous statistics course or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 6376 - Statistical Computing

Computationally-intensive methods in statistics, including random number generation and Monte Carlo methods, data partitioning and re-sampling, numerical and graphical methods, nonparametric function estimation, statistical models and data mining methodology, analysis of large data sets. Prereq: MATH 4820/4830 and 4387. Cross-listed with MATH 7376. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 6380 - Stochastic Processes

Every other year. Markov processes in discrete and continuous time, renewal theory, martingales, Brownian motion, branching processes, and stationary processes. Applications include queuing theory, performance evaluation of computer and communication systems and finance. Prereq: MATH 3191, MATH 3200, and MATH 4810/5310. Max hours: 3 Credits.

Semester Hours: 3 to 3

MATH 6384 - Analysis of Dependent Data

Infrequent. Statistical methods for the analysis of data with temporal and/or spatial dependence. Longitudinal data, stationary and non-stationary time series models, geostatistical and lattice spatial models, point processes, hierarchical models. Prereq: MATH 4820 or 4830 and MATH 4387. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 6388 - Advanced Statistical Methods for Research

Infrequent. The second in a two-semester course in applied statistics. Topics include multifactor analysis of variance and covariance, categorical data, general linear models, bootstrapping, and other computationally intensive statistical methods. Prereq: MATH 5387. Max hours: 3 Credits.

Semester Hours: 3 to 3

MATH 6393 - Introduction to Bayesian Statistics

Prior and posterior distributions, conjugate models, single and multiparameter models, hierarchical models, mixture models, numerical methods for evaluating posteriors, Monte Carlo methods, and Markov chain Monte Carlo. Prereq: MATH 3800 or both MATH 4810 and MATH 4820 (or equivalent). Some computer programming experience. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 6395 - Multivariate Methods

Every other year. Multivariate distributions, hypothesis testing and estimation. Multivariate analysis of variance, discriminant analysis, multidimensional scaling, factor analysis, principal components. Prereq: MATH 5387. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 6398 - Calculus of Variations and Optimal Control

Infrequent. Standard variational problems (geodesic, time-of-transit, isoperimetric, surface, area), Euler-Lagrange equations, variational principles in mechanics, optimal control problems, necessary conditions for optimality, Pontryagin principle. Prereq: MATH4320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 6404 - Applied Graph Theory

Every other year. Emphasis on graph theory. Topics will include trees, digraphs and networks, intersection graphs, coloring, clique coverings, distance, paths and cycles. Topics are motivated by applications. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 6595 - Computational Methods in Nonlinear Programming

Every other year. Introduces fundamental algorithms and theory for nonlinear optimization problems. Topics include Newton, quasi-Newton and conjugate direction methods; line search and trust-region methods; active set, penalty and barrier methods for constrained optimization; convergence analysis and duality theory. Prereq: MATH 4320 and MATH 5718. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 6653 - Introduction to Finite Element Methods

Every other year. The Finite Element Method (FEM) is introduced as a generic tool for the approximation of partial differential equations that model engineering and physics problems of interest. Elliptic, hyperbolic, and parabolic equations are solved with FEM. Prereq: MATH 5660. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 6735 - Continuum Mechanics

Every other year. Indicical notation. Eulerian and Lagrangian coordinates. Deformation, strain, strain rate, stress. Conservation of mass, momentum, and energy. Exploitation of entropy production inequality to obtain constitutive equations for elastic, viscous, visco elastic, plastic, or porous materials. Prereq: MATH 3191 and 3200 or graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 6840 - Independent Study

Max hours: 3 Credits. **Semester Hours:** 1 to 3

MATH 7101 - Topology

Every other year. Topological spaces, compactness, separation properties and connectedness. Prereq: MATH 4320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7132 - Functional Analysis

Every other year. Linear metric and topological spaces, duality, weak topology, spaces of functions, linear operators, compact operators, elements of spectral theory, and operator calculus. Prereq: MATH 6131. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7376 - Statistical Computing

Computationally-intensive methods in statistics, including random number generation and Monte Carlo methods, data partitioning and re-sampling, numerical and graphical methods, nonparametric function estimation, statistical models and data mining methodology, analysis of large data sets. Prereq: MATH 4820/4830 and 4387. Cross-listed with MATH 6376. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7381 - Mathematical Statistics I

Every other year. Mathematical theory of statistics. Parametric inference: discrete and continuous distributions, methods of parameter estimation, confidence intervals. Prereq: MATH 3191 and 4820/5320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7382 - Mathematical Statistics II

Every other year. (Continuation of MATH 7381.) Hypothesis testing, robust estimation, tolerance intervals, nonparametric inference, sequential methods. Prereq: MATH 7381. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7384 - Mathematical Probability

Every other year. Measurable spaces, probability measures, random variables, conditional expectations and martingales. Convergence in probability, almost sure convergence, convergence in distribution, limit theorems (law of large numbers, central limit theorem, laws of iterated logarithm). Prereq: MATH 4810/5310 and MATH 5070 or MATH 6131. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7385 - Stochastic Differential Equations

Brownian motion, Ito integral, Ito formula, Dynkin's formula, stochastic optimal control, boundary value problems, Girsanov theorem, mathematical finance, optimal stopping. Prereq: MATH 7384. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7397 - Nonparametric Statistics

Every three years. Statistical inference without strong model assumptions. Hypothesis testing and estimation using permutations and ranks, analysis of variance, and nonparametric model fitting. Prereq: applied mathematics - statistics (PhD.) Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7405 - Advanced Graph Theory

Continuation of MATH 6404. Topics to be covered include: trees and optimization, encoding and embedding of graphs, generalized colorings and applications, perfect graphs, extremal problems, substructures, connectedness and cycles. Prereq: MATH 6404 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7409 - Applied Combinatorics

Every other year. Emphasis is on enumerative combinatorics. Topics include multinomial coefficients, generating functions, SDRs, Polya's enumeration theory, pigeon-hole principle, inclusion/exclusion and Moebius inversion of finite posets. Topics may also include introduction to designs and finite geometry. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7410 - Combinatorial Structures

Every other year. Finite combinatorial structures; existence, construction and applications. Topics include Latin squares, Hadamard matrices, block designs, finite geometries and extremal and non-constructive combinatorics. Prereq: MATH 5718 and MATH 7409 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7413 - Modern Algebra I

Every other year. Groups, rings and ideals, integral domains. Prereq: MATH 3140. Coreq: MATH 5718. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7414 - Modern Algebra II

Every other year. Field theory, Galois theory, Modules over rings, especially over integral domains. Prereq: MATH 5718 and MATH 7413. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7419 - Mathematical Coding Theory

Error correcting codes are used to recapture information that has been distorted in some transmission process. Various coding schemes use block codes obtained from algebraic, geometric and combinatorial structures. Topics include: fundamentals, linear, Reed-Muller, Golay, cyclic and BCH codes. Prereq: MATH 5718. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7421 - Projective Geometry

Every other year. Synthetic and algebraic development of projective spaces. Collineation groups, representation theorems, quadratic sets and applications. Emphasis is on finite projective spaces. Prereq: MATH 5718 and MATH 7409. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7593 - Advanced Linear Programming

Every three years. A Ph.D. level course that goes deeper into linear programming, starting from where a graduate-level course (5593) ends. Topics include advanced sensitivity analysis, sparse matrix techniques, and special structures. Additional topics, which vary, include deeper analysis of algorithms, principles of model formulation and solution analysis. Prereq: MATH 5593. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7594 - Integer Programming

Every three years. A Ph.D. level course that uses linear programming (5593), especially polyhedral theory, to introduce concepts of valid inequalities and superadditivity. Early group-theoretic methods by Gomory and Chvatal's rounding function are put into modern context, including their role in algorithm design and analysis. Duality theory and relaxation methods are presented for general foundation and analyzed for particular problem classes. Among the special problems considered are knapsack, covering, partitioning, packing, fix-charge, traveling salesman, generalized assignment matchings. Matroids are introduced and some greedy algorithms are analyzed. Additional topics, which vary, include representability theory, heuristic search and complexity analysis. Prereq: MATH 5593. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7595 - Advanced Nonlinear Programming

Every three years. Focuses primarily on the fundamental theory of nonlinear programming. Topics include convex analysis, optimality criteria, Lagrangian and conjugate duality, stability and sensitivity analysis. Other topics vary depending on the research interests of the instructor. Prereq: MATH 6595. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7663 - Finite Difference Methods for Partial Differential Equations

Every other year. Consistency, stability, and convergence for difference schemes. Derivations based on Taylor series and finite series. Methods for parabolic and hyperbolic initial value problems and initial-boundary-value problems, elliptic boundary-value problems, some nonlinear problems. Prereq: MATH 5070 and MATH 5733. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7665 - Numerical Linear Algebra

Every other year. Solution of linear equations, eigenvector and eigenvalue calculation, matrix error analysis, orthogonal transformation, iterative methods. Prereq: MATH 5660 and MATH 5718. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7667 - Introduction to Approximation Theory

Every other year. Linear normed and Banach spaces, convexity, existence and uniqueness of best approximations, least square approximation and orthogonal polynomials, Chebyshev approximation by polynomials and other related families, splines. Prereq: MATH 5070 and MATH 5718. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7821 - Topics in Projective Geometry

Infrequent. Advanced topics in projective geometry. Topics may include finite projective planes, free projective planes, derivation, collineation groups, higher dimensional projective spaces, ovals and ovoids. Prereq: MATH 7421. Max hours: 48 Credits. **Semester Hours:** 3 to 3

MATH 7822 - Topics in Linear Algebra

Infrequent. Topics may include canonical forms, bilinear and quadratic forms, and combinatorial matrix theory. Prereq: MATH 5718. Max hours: 48 Credits. **Semester Hours:** 3 to 3

MATH 7823 - Topics in Discrete Math

Infrequent. Advanced topics in discrete mathematics; will change from semester to semester. Prereq: MATH 7413, 6404 and 7409 or permission of instructor. Max hours: 48 Credits.

Semester Hours: 3 to 3

MATH 7824 - Topics in Computational Mathematics

Infrequent. Topics include methods for differential equations, numerical optimization, approximation theory, inverse problems, and Fourier analysis. Prereq: Permission of instructor. Max hours: 48 Credits. **Semester Hours:** 3 to 3

MATH 7825 - Topics in Optimization

Infrequent. Some topics are extensions of those introduced in MATH 6595, while other topics are new. Examples of topics are: duality, stability, sensitivity, consistency, redundancy, principles of optimality, control theory, calculus of various global (non-convex) optimization and model reformulation. Prereq: Permission of instructor. Max hours: 48 Credits. **Semester Hours:** 3 to 3

MATH 7826 - Topics in Probability and Statistics

Infrequent. Topics may include generalized linear models, information theory, robust methods, spatial statistics, sequential analysis, Monte Carlo methods, queuing theory. Note: Since topics vary each semester, students may register for this course more than once. Prereq: Permission of instructor. Max hours: 48 Credits. **Semester Hours:** 3 to 3

MATH 7827 - Topics in Applied Mathematics

Infrequent. Topics include problems in differential equations, optimization, mathematical modeling, Fourier analysis and approximation theory. Note: Since topics vary each semester, students may register for this course more than once. Max hours: 48 Credits. **Semester Hours:** 3 to 3

MATH 7840 - Independent Study

Available only to Ph.D. students. Max hours: 3 Credits. **Semester Hours:** 1 to 3

MATH 7921 - Readings in Mathematics

Annual. Seven readings courses are offered regularly primarily for Ph.D. students at the research level in the designated fields. The seminar format requires significant student participation. Prereq: permission of instructor. Max hours: 99 Credits. **Semester Hours:** 1 to 1

MATH 7922 - Rdgs:Math Fndts-Cmptr Sc

Max hours: 99 Credits. **Semester Hours:** 1 to 1

MATH 7923 - Readings: Discrete Mathematics

Max hours: 99 Credits. **Semester Hours:** 1 to 1

MATH 7924 - Rdgs:Comp Mathematics

Max hours: 99 Credits. **Semester Hours:** 1 to 1

MATH 7925 - Readings: Optimization

Max hours: 99 Credits. **Semester Hours:** 1 to 1

MATH 7926 - Rdgs:Applied Prob/Stats

Max hours: 99 Credits. **Semester Hours:** 1 to 1

MATH 7927 - Rdgs:Comp/Math Biology

Max hours: 1 Credits. **Semester Hours:** 1 to 1

MATH 8660 - Mathematical Foundations of Finite Element Methods

Every other year. Theoretical foundations of finite element methods for elliptic boundary value problems, Sobolev spaces, interpolations of Sobolev spaces, variational formulation of elliptic boundary-value problems, basic error, estimates, applications to elasticity, practical aspects of finite element methods. Prereq: MATH 6653 (or equivalent programming experience), and MATH 6131/7132. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 8664 - Iterative Methods in Numerical Linear Algebra

Every other year. Preconditioned iterative methods for linear systems and eigen problems, conjugate gradients, multigrid and domain decomposition. Prereq: MATH 5660 and MATH 7665. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 8990 - Doctoral Dissertation

Only for students working on their Ph.D. research. Max hours: 50 Credits. **Semester Hours:** 1 to 10

Mechanical Engineering

MECH 1025 - CAD and Graphics for Mechanical Engineering

Introduction to 3-D computer-aided design software, solid modeling, industry-standard engineering drawing practices, and engineering graphics. Applications to mechanical engineering. Prereq: High School Geometry and Algebra. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 1208 - Special Topics: 1208-1298

Subject matter to be selected from topics of current technological interest. Credit to be arranged. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MECH 2023 - Statics

A vector treatment of force systems and their resultants; equilibrium of trusses, beams, frames, and machines, including internal forces and three-dimensional configurations, static friction, properties of areas, distributed loads and hydrostatics. Prereq: PHYS 2311. Coreq: MATH 2411. Cross-listed with CVEN 2121. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 2030 - Analysis Techniques in Mechanical Engineering

Introduces experimental methods and mathematical analysis used in engineering. Spreadsheets are used to analyze engineering data and prepare tables and graphs. Introduction to computer programming using MATLAB. Prereq: MATH 1401 and MECH 1025. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 2033 - Dynamics

A vector treatment of dynamics of particles and rigid bodies, including rectilinear translation, central-force, and general motion of particles, kinematics of rigid bodies, the inertia tensor, plane motion of rigid bodies, energy and momentum methods for particles, systems of particles, and rigid bodies. Prereq: MECH 2033 or CVEN 2121. Cross-listed with CVEN 3111. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 2208 - Special Topics: 2208-2298

Subject matter to be selected from topics of current technological interest. Credit to be arranged. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MECH 3010 - Elementary Numerical Methods and Programming

A development of basic numerical methods used to solve engineering problems. Introduction to MATLAB to implement numerical simulations. Coreq: MATH 3195 or (MATH 3191 and MATH 3200). Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 3012 - Thermodynamics

Introduces thermodynamic properties and state relationships, processes and cycles with work and heat transfer. Applications of the first and second laws to energy-related engineering systems. Prereq: MATH 1401 and PHYS 2311. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 3021 - Introduction to Fluid Mechanics

Applies exact and approximate theories to engineering problems in fluids. Examples include potential flow theory, Euler's equations for inviscid fluids, Bernoulli's equations, Navier-Stokes equations, and pipe flow. Prereq: MECH 2033 or CVEN 3111 and MATH 2421. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 3022 - Thermodynamics II

Generalized thermodynamic cycles; general thermodynamic cycle considerations, compressor, expander, heat exchanger processes, refrigeration cycles, mixtures and combustion. Prereq: ENGR 3012 and MATH 2421. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 3023 - System Dynamics I: Vibrations

Modeling of dynamical systems. Analysis of single and multiple degree of freedom systems. Introduction to continuous systems. Prereq: CVEN 3111 or MECH 2033, MATH 3195 or MATH 3191 and MATH 3200 and MECH 3010. Coreq: CVEN 3121 or MECH 3043. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 3024 - Introduction to Materials Science

The development of the physical principles relating the structural features of materials to their observed properties. Prereq: PHYS 2311. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 3027 - Measurements

Principles of digital and analog measurements; systems for sensing, transporting, modifying, and outputting information; systematic and random error analysis. The laboratory includes a variety of instruments and components illustrating fundamental experimental measurement techniques and methods. Prereq: MECH 3030 & MATH 3195 or (MATH 3191 & MATH 3200). Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 3028 - Laboratory of Mechanical Measurements

Modern techniques for Mechanical measurements. Laboratory includes techniques for the calibration of transducers and analysis of Statistical uncertainty. Data Acquisition Systems used for Signal acquisition and measurement of common mechanical quantities, such as displacement, velocity, acceleration and force. Design and characterization of a second order measurement system based on strain gages. Prereq: MECH 3032. Coreq: MECH 3027. Max hours: 1 Credits. **Semester Hours:** 1 to 1

MECH 3030 - Electric Circuits and Systems

Basic electrical engineering concepts for non-majors. Basic study of circuit analysis (RLC and Op-amps), transformers and motor equations, and simple electronic circuits (diodes and transistors). Prereq: MATH 2421 and PHYS 2331. Cross-listed with ELEC 3030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 3031 - Fluids/Thermal Laboratory

Laboratory exercise in compressible and incompressible fluid flow; steady state and transient heat transfer. Prereq: ENGR 3012. Coreq: MECH 3021. Max hours: 1 Credits. **Semester Hours:** 1 to 1

MECH 3032 - Electric Circuits and Systems Lab

Basic electrical engineering lab for MECH majors. Coreq: MECH 3030 or ELEC 3030. Max hours: 1 Credits. **Semester Hours:** 1 to 1

MECH 3034 - Properties of Engineering Materials

Experiments to determine material properties and the effect of processing on properties important in mechanical design. Materials include metal, polymers, and composites. Loadings include tension, compression, and bending under static, dynamic impact and creep states. Coreq: MECH 3024 or (MECH 3043 or CVEN 3121). Max hours: 1 Credits. **Semester Hours:** 1 to 1

MECH 3035 - Design of Mechanical Elements

Review of mechanics of materials and stress analysis; detailed design of various machine elements such as fasteners, springs, brakes and gears. Includes design project. Prereq: MECH 3043, CVEN 3121. Coreq: MECH 3024. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 3042 - Heat Transfer

Basic laws of heat transfer by conduction, convection, and radiation with engineering design applications. Includes design project. Prereq: ENGR 3012 and MATH 2421. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 3043 - Strength of Materials

Application of exact and approximate theories of stress and displacement to engineering problems in solids. Examples include torsion of rods and bending of beams. Combined stresses, principal stresses and energy methods are examined. Prereq: MECH 2023, CVEN 2121. Cross-listed with CVEN 3121. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 3065 - Intermediate Dynamics

An in-depth study of Newtonian dynamics with constraints. Mechanism synthesis using graphical and analytic techniques. Prereq: MECH 2033 or CVEN 3111 and MECH 3010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 3145 - Manufacturing Processes Design

Basic manufacturing background will be provided to engineering students in order to: (1) apply manufacturing specifications to the design of mechanical devices, and (2) communicate with technical personnel in a production environment. Topics cover metal casting, bulk and sheet metal forming, material removal and joining and fastening processes. Prereq: MECH 1025. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 3147 - Bioengineering

Explores engineering principles that have application in biology, and principles discovered in biology which may have application in engineering. Some topics covered are: cell biology, molecular biology, viscoelasticity, physical theory of plant cell growth aerodynamics, fluid mechanics, biofluid dynamics and animal flight. Prereq: Junior standing in engineering. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 3208 - Special Topics

Subject matter to be selected from topics of current technological interest. Credit to be arranged. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MECH 3840 - Independent Study

This category is intended for upper-division level special topics which students may wish to pursue on their own initiative, with guidance from a professor who agrees to limited consultation on the work and to award credit when the project is completed. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MECH 4020 - Biomechanics

Static and dynamic biomechanical analysis, effects of mechanical loading on bone and cartilage, design considerations in orthopaedic devices, muscle function, biomechanics of human movement, cardiovascular biomechanics. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 4023 - System Dynamics II: Controls

Introduces the Laplace Transformation. Control system analysis using root locus and frequency response methods. Basic compensation techniques are to be covered. Prereq: MECH 3023. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 4024 - Mechanical Behavior of Materials

Studies the response of materials to applied stresses. Emphasis is on the understanding of the relationships between structure and properties. Fracture mechanics and fatigue are introduced. Prereq: MECH 3024. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 4035 - Senior Design I

Group and individual projects to design engineering components and systems. Design methodology, product specs, creativity, design reviews, communication, presentations, and report writing are emphasized. MECH 4035 and MECH 4045 form a one year sequence and must be taken consecutively. Prereq: MECH 3035 and MECH 3042. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 4045 - Senior Design II

Student teams manufacture and construct and/or redesign mechanical parts or assemblies that they designed in previous course (MECH 4035). A proposal, oral progress reports, and a final written report and demonstration are required. MECH 4035 and MECH 4045 form a one year sequence and must be taken consecutively. Prereq: MECH 4035. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 4110 - Numerical Methods for Engineers

Introduces numerical analysis. Solution of linear and nonlinear equation systems. Numerical methods for ordinary and partial differential equations. Engineering applications. Prereq: MATH 3195 or (3191 and 3200) and some programming experience. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 4112 - Internal Combustion Engines

Students obtain a sufficient understanding of internal combustion engines that will allow them to perform analysis of combustion thermodynamics and actual cycles, including heat addition, heat loss, air/fuel flow, and engine design and performance. Prereq: ENGR 3012. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 4114 - Designing with Composites

Analysis and design of polymers and polymer-based composites. Failure criteria include static strength, stiffness, creep, fatigue, impact and fracture toughness. Design criteria include strength-to-weight ratio and cost-to-strength ratio. Prereq: MECH 3043/CVEN 3121. Cross-listed with MECH 5114. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 4115 - Applied Plasticity and Creep

Plastic deformation of materials applied to bulk and sheet metal manufacturing processes such as extrusion, rolling and sheet metal. Linear and nonlinear viscoelastic creep with applications to plates and shells. Prereq: MECH 3043. Cross-listed with MECH 5115. Max hours: 3 Credits.

Semester Hours: 3 to 3

MECH 4116 - Robotics

Introduces kinematics, dynamics, and control of robot manipulators. Emphasis is placed on computer use in control of actual robots and in computer simulation of mathematical models of robots. Students must turn in a project report based on the computer simulation. Prereq: MECH 3065. Max hours: 3 Credits.

Semester Hours: 3 to 3

MECH 4120 - Methods of Engineering Analysis

Selected topics from real analyses with applications to engineering analyses. Topics include vector calculus, ordinary differential equations, partial differential equations, and calculus of variations. Prereq: MATH 3195 or (MATH 3191 and MATH 3200). Cross-listed with MECH 5120. Max hours: 3 Credits.

Semester Hours: 3 to 3

MECH 4132 - Power Plant Systems Design

Detailed engineering analysis and design of a thermal power plant, including heat balance, selection of equipment (boiler, turbines, heat exchangers, pumps, cooling tower), performance evaluation, economic evaluation and feasibility studies. Prereq: MECH 3022 Max hours: 3 Credits.

Semester Hours: 3 to 3

MECH 4135 - Mechanical Systems Design

Detailed engineering design of mechanical systems. Students work in teams on a project selected for entire class. Projects are similar to typical ones from industry. Course stresses creativity, synthesis, design judgment, and analysis of real-world problems. Oral and written presentations are required. Prereq: MECH 3035. Max hours: 3 Credits.

Semester Hours: 3 to 3

MECH 4136 - Control Systems Design

Detailed engineering design of control systems. Students work in teams on a project selected for entire class. Projects are similar to typical ones from industry. Course stresses creativity, synthesis, design judgment, and analysis of real-world problems. Oral and written presentations are required. Prereq: MECH 4023. Max hours: 3 Credits.

Semester Hours: 3 to 3

MECH 4141 - Fluid Mechanics

Viscous incompressible fluid flows. Topics include derivation of equations governing viscous compressible fluid motion; specializations to simple flows; boundary-layer theory; similarity solutions; introduction to turbulence and Reynolds stresses. Prereq: MECH 3021. Cross-listed with MECH 5141. Max hours: 3 Credits.

Semester Hours: 3 to 3

MECH 4142 - Thermal Systems Design

Detailed engineering design of thermal/fluids systems. Students work in teams on a project selected for entire class. Projects are similar to typical ones from industry. Course stresses creativity, synthesis, design judgment, and analysis of real-world problems. Oral and written presentations are required. Prereq: ENGR 3012 and MECH 3021. Max hours: 3 Credits.

Semester Hours: 3 to 3

MECH 4147 - Engineering Economy

Applies economic and financial principles to evaluation of engineering alternatives. Calculation of annual costs, present worth, and prospective rates of return on investment. Review of systems analysis techniques, including simulation, linear programming, and project scheduling. Prereq: Junior standing in engineering. Cross-listed with CVEN 4077. Max hours: 3 Credits. **Semester**

Hours: 3 to 3

MECH 4155 - Air Conditioning Design

Basic principles of heating and ventilating systems. Determination of heating and cooling loads. Design and layout of heating, ventilating, and air conditioning systems. Includes design project. Prereq: MECH 3022 and MECH 3042. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 4160 - Introduction to Operations Research

Introduces operations research, including mathematical programming models, models for decision alternatives, for procurement and inventory, and for queuing operations. Prereq: MATH 3195 or (MATH 3191 and MATH 3200). Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 4163 - Rigid-Body Dynamics

Review of Newtonian dynamics, Lagrange's equations for particles, systems, and rigid bodies. Conservative and non-conservative systems, moments of inertia, principal axes, angular momentum and Euler equations. Illustrations from spinning bodies, including tops, gyro-compass and rotating machinery. Prereq: MECH 2033 or CVEN 3111, MATH 3195 or (MATH 3191 and MATH 3200). Cross-listed with MECH 5163. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 4166 - Computerized Numerical Control (CNC) Manufacturing

Modern manufacturing engineering concepts using computerized numerical control (CNC). The students learn state-of-the-art CNC methodologies, including digitizing, drawing, generating codes, and manufacturing, using modern CNC machines. Prereq: Junior standing in engineering. Cross-listed with MECH 5166. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 4175 - Finite Element Analysis in Machine Design

Students learn basic theory of finite element analysis (FEA) as it applies to stress analysis and design of mechanical components. Commercial package will be used giving students practical experience in the use of FEA. Prereq: MECH 3035. Cross-listed with MECH 5175. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 4176 - Introduction to Sports Engineering

Sports Engineering requires working both with the principles of biomechanics and the principles of engineering design and analysis. Using biomechanics is necessary in understanding the forces on the interface between the human athlete and his/her equipment. **Semester Hours:** 3 to 3

MECH 4177 - Energy Conversion

This introductory Energy Conversion course introduces the basic background, terminology, and fundamentals of various forms of energy conversion. The topics covered will include: fuel cells, batteries, photovoltaic systems, solar thermal, and wind energy. **Semester Hours:** 3 to 3

MECH 4178 - Solar Engineering

This course provides the student with the basic ideas and calculation procedures on how solar processes work and how their performance can be predicted. **Semester Hours:** 3 to 3

MECH 4179 - Introduction to Turbomachinery

This introductory Turbomachinery course introduces the basic background, terminology, and fundamentals of various forms of turbomachines. The analysis of the various turbomachines will be focused on the performance of the turbomachine. **Semester Hours:** 3 to 3

MECH 4195 - Solid Modeling

This is a basic course in solid modeling using Solid Works computer software. Topics include feature-based modeling, parametric part design, parent/child relationships, use of datums, patterning, relations, sweeps, blends, assembly, tolerancing, rapid prototyping, CNC manufacturing, CMM inspection, and Step standards. Prereq: Junior standing in engineering. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 4208 - Special Topics

Subject matter to be selected from topics of current technological interest. Credit to be arranged. Prereq: Senior standing or permission of instructor. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MECH 4840 - Independent Study

This category is intended for upper division level special topics which students may wish to pursue on their own initiative, with guidance from a professor who agrees to limited consultation on the work and to award credit when the project is completed. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MECH 5020 - Biomechanics

Static and dynamic biomechanical analysis, effects of mechanical loading on bone and cartilage, design considerations in orthopaedic devices, muscle function, biomechanics of human movement, cardiovascular biomechanics. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5024 - Mechanical Behavior of Materials

Students will learn about the mechanical behavior of materials using a multi-scale, materials oriented approach. The course will relate how atomistic and molecular mechanisms relate to macroscopic and continuum properties of materials across acute and long-term time scales. Prereq: MECH 3024, 3145 and 3043 (or equivalent courses). Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5110 - Numerical Methods for Engineers

Introduces numerical analysis. Solution of linear and nonlinear equation systems. Numerical methods for ordinary and partial differential equations. Engineering applications. Prereq: Graduate standing or permission of instructor. Cross-listed with MECH 4110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5112 - Introduction to Internal Combustion Engines

This course provides an introduction to the major characteristics of internal combustion engines and defines the major parameters used to describe the engine operation and design conditions. Students perform analysis of the thermal performance of the engines. Prereq: MECH 3012. **Semester Hours:** 3 to 3

MECH 5114 - Designing with Composites

Analysis and design of polymers and polymer-based composites. Failure criteria include static strength, stiffness, creep, fatigue, impact and fracture toughness. Design criteria include strength-to-weight ratio and cost-to-strength ratio. Prereq: Graduate standing or permission of instructor. Cross-listed with MECH 4114. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5115 - Applied Plasticity and Creep

Plastic deformation of materials applied to bulk and sheet metal manufacturing processes such as extrusion, rolling and sheet metal. Linear and nonlinear viscoelastic creep with applications to plates and shells. Prereq: Graduate standing or permission of instructor. Cross-listed with MECH 4115. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5120 - Methods of Engineering Analysis

Selected topics from real analyses with applications to engineering analyses. Topics include vector calculus, ordinary differential equations, partial differential equations and calculus of variations. Prereq: Graduate standing or permission of instructor. Cross-listed with MECH 4120. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5121 - Introduction to Fluid Dynamics

Physical properties of gases and liquids; kinematics of flow fields; equations describing viscous, heat-conducting Newtonian fluids. Exact solutions and rational approximations for low- and high-speed dissipative flows, surface and internal waves, acoustics, stability, and potential flows. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5122 - Macroscopic Thermodynamics

Axiomatic presentation of fundamentals of classical thermodynamics (first law); energy, work and heat. Equilibrium, reversible, and irreversible processes; entropy production and the second law. Applications to stability and phase equilibrium. Irreversible thermodynamics and the Onsager reciprocal relations. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5123 - Introduction to Continuum Mechanics

Cartesian tensor notation. Deformation, strain, strain rate and compatibility. Definition of stress vector and tensor. Fundamental balance laws of mass, momentum and energy; entropy production inequality. Constitutive equations for elastic, viscoelastic and plastic materials; ideal, compressible, and viscous fluids. Beltrami-Mitchell and Navier-Stokes equations. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5124 - Yield-Limited Behavior of Materials

Analysis of material behavior within the "elastic range," with emphasis on the phenomenon of yield and factors that influence it. Examination of the theory of dislocations; study of strengthening mechanisms in solids. Consideration of various time-dependent but reversible (inelastic) deformation phenomena. Presentation of appropriate engineering case studies to augment various topics. Prereq: MECH 5143. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5133 - Theory of Inelastic Materials

Mathematical theory of linear viscoelasticity. Finite elements models. Solution of boundary-value problems in linear viscoelasticity. Non-Newtonian flow. Selected topics in nonlinear material behavior. Prereq: MECH 5143 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5141 - Viscous Flow

Viscous incompressible fluid flows. Topics include derivation of equations governing viscous compressible fluid motion; specializations to simple flows; boundary-layer theory; similarity solutions; introduction to turbulence and Reynolds stresses. Prereq: Graduate standing or permission of instructor. Cross-listed with MECH 4141. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5142 - Statistical Thermodynamics

Introduces the molecular interpretation and calculation of thermodynamic properties of matter, thermodynamic probability, distribution functions, Schrodinger wave equations and solutions and ensemble theory. Applications to ideal and real gases, solids, liquids, radiation, conduction electrons, and chemical equilibrium. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5143 - Theory of Elasticity

Review of the basic equations of linear theory of elasticity. St. Venant torsion and flexure. Plane strain, plane stress, and generalized plane stress. Application of conformal mapping and Fourier transform techniques. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5144 - Plasticity and Creep

Inelastic deformation of materials such as metals, alloys, glasses, composites and polymers from the phenomenological and structural point of view. Case studies of plastic and creep deformations in engineering materials. Prereq: MECH 5143. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5161 - Compressible Flow

Energy, continuity, and momentum principles applied to compressible flow; one-, two-, and three-dimensional subsonic, supersonic and hypersonic flows. Normal and oblique shocks, and method of characteristics. Prereq: MECH 5141 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5162 - Heat Transfer I

Review of equations governing transport of heat by conduction and radiation. Analytical and numerical solution of boundary value problems representative of heat conduction in solids. Radiation properties of solids, liquids and gases; transport of heat by radiation. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5163 - Dynamics

Review of Newtonian dynamics, Lagrange's equation for particles, systems and rigid bodies. Conservative and non-conservative systems, moments of inertia, principal axes, angular momentum and Euler equations. Illustrations from spinning bodies, including tops, gyro-compass and rotating machinery. Prereq: Graduate standing or permission of instructor. Cross-listed with MECH 4163. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5166 - Computerized Numerical Control (CNC) Manufacturing

Modern manufacturing engineering concepts using computerized numerical control (CNC). The students learn state-of-the-art CNC methodologies, including digitizing, drawing, generating codes, and manufacturing using modern CNC machines. Prereq: Graduate standing or permission of instructor. Cross-listed with MECH 4166. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5172 - Heat Transfer II

Review of equations governing transport of heat in fluids in motion. Description of heat transfer in free and forced convection, including laminar and turbulent flow. Dimensional analysis and heat transfer correlations, numerical methods and combined heat transfer mechanisms. Prereq: MECH 5141 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5175 - Finite Element Stress Analysis

Students learn basic theory of finite element analysis (FEA) as it applies to stress analysis and design of mechanical components. Commercial package will be used giving students practical experience in the use of FEA. Prereq: MECH 5143 or permission of instructor. Cross-listed with MECH 4175. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5176 - Introduction to Sports Engineering

Sports Engineering requires working both with the principles of biomechanics and the principles of engineering design and analysis. Using biomechanics is necessary in understanding the forces on the interface between the human athlete and his/her equipment. **Semester Hours:** 3 to 3

MECH 5177 - Energy Conversion

This introductory Energy Conversion course introduces the basic background, terminology, and fundamentals of various forms of energy conversion. The topics covered will include: fuel cells, batteries, photovoltaic systems, solar thermal, and wind energy. **Semester Hours:** 3 to 3

MECH 5178 - Solar Engineering

This course provides the student with the basic ideas and calculation procedures on how solar processes work and how their performance can be predicted. **Semester Hours:** 3 to 3

MECH 5179 - Introduction to Turbomachinery

This introductory Turbomachinery course introduces the basic background, terminology, and fundamentals of various forms of turbomachines. The analysis of the various turbomachines will be focused on the performance of the turbomachine. **Semester Hours:** 3 to 3

MECH 5208 - Special Topics

Subject matter to be selected from topics of current technological interest. Credit to be arranged. Prereq: Graduate standing or permission of instructor. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MECH 5840 - Independent Study

Available only through approval of the graduate advisor. Subjects arranged to fit needs of the particular student. Prereq: Graduate standing. Max hours: 6 Credits. **Semester Hours:** 1 to 3

MECH 5950 - Master's Thesis

Max hours: 8 Credits. **Semester Hours:** 1 to 6

MECH 5960 - Master's Report

Master of Science in Engineering report. Students seeking the Master of Science in Engineering, and who do not choose to do a thesis, must complete an individual project of an investigative and creative nature under the supervision of a member of the graduate faculty. Max hours: 6 Credits. **Semester Hours:** 3 to 3

MECH 5970 - Graduate Problem Course

The graduate problem course is for the solution of specific problems in MECH specialty areas. Each student is assigned a set of problems of some difficulty requiring the use of the literature of the various areas covered. Prereq: 15 hours of graduate level courses in MECH. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 8990 - Doctoral Dissertation

Max hours: 10 Credits. **Semester Hours:** 1 to 10

Modern Languages

MLNG 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

MLNG 1995 - Travel Study Abroad

Entry-level language and cultural instruction in country of target language. Focuses on vocabulary and grammar to teach students to express themselves in everyday situations. A basic knowledge of the language and culture will be developed through listening, reading, writing and speaking. The classes will be taught primarily in the target language and will be supplemented by cultural excursions. Max hours: 15 Credits. **Semester Hours:** 1 to 15

MLNG 2939 - Internship

Max hours: 3 Credits. **Semester Hours:** 1 to 3

MLNG 4690 - Methods of Teaching Modern Languages

Methodology of teaching foreign language in an urban setting. Note: Requirement for language majors in the teacher certification program, School of Education, CU-Denver. Cross-listed with MLNG 5690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MLNG 4691 - Methods of Teaching Modern Languages II

A continuation of the study of modern language teaching methods. This second course has an emphasis on experiential learning through individual teaching demonstrations, class observations, as well as team teaching with experienced instructors. Prereq: MLNG 4690. Cross-listed with MLNG 5691. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MLNG 5690 - Methods of Teaching Modern Languages

Methodology of teaching foreign language in an urban setting. Requirement for language majors in the teacher certification program, School of Education, CU-Denver. Cross-listed with MLNG 4690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MLNG 5691 - Methods of Teaching Modern Languages II

A continuation of the study of modern language teaching methods. This second course has an emphasis on experiential learning through individual teaching demonstrations, class observations, as well as team teaching with experienced instructors. Prereq: MLNG 5690. Cross-listed with MLNG 4691. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Music

MUSC 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 2450 - Performing Arts Management and Presentation

Introduces students to nonprofit and for-profit arts organization issues in performance presentation including organization structure, performance production and management, development of leadership and organizational skills as well as a general understanding of the profession. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 2540 - Audio Production I

Operating principles and performance characteristics of microphones, amplifiers, speaker systems, equalizers, mixers and multi-track recorders; acoustics of music, auditoriums and recording studios. Prereq: MUSC 2700. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 2560 - Audio Production II

Studies include theoretical and practical music production techniques with topics covering digital audio workstations, signal flow, digital signal processing, MIDI production, synthesis, and sampling. Team lab recording projects involve recording, mixing, and other music production techniques. Prereq: MUSC 2540. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 2700 - Introduction to Music Business

Introduces music as a business and a product, emphasizing music publishing, recording, broadcasting, marketing, licensing and legal aspects. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 2815 - Music Industry Topics

Various topics related to music business and recording arts industries. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3125 - Sound and Music for Video Games

This course will give students an overview of the function of sound and music for video games including: history, sound engines, types of audio utilized, stereo and surround sound localization, music capabilities of hardware configurations and future trends in sound for video games. Prereq: MUSC 2540 and MUSC 2470 or permission of instructor. Max hours: 1 Credit. **Semester Hours:** 1 to 1

MUSC 3210 - Music and Entertainment Marketing

In this course students learn the essential elements of marketing as applied to the music and entertainment industry. Course topics include: marketing principles, theories and tools utilized in the music and entertainment businesses and specific industry practices and applications. Prereq: MUSC 2700. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3220 - Artist Management

Students learn the theory and practice of artist management as it relates to developing a career through entrepreneurship, establishing business structures for the artist, and concepts including: promotion, live performance, recording, contracts, and essential business practices. Prereq: MUSC 2700 Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3550 - Critical Listening for Recording Arts

Students will be trained to recognize: boosts and cuts in different bands of frequencies at increasingly small increments, types of distortion, parameters for compression, delay, reverb and stereo imaging. Students will develop a vocabulary for describing sounds and improving auditory memory. Prereq: MUSC 2560 and PHYS 3620. Coreq: MUSC 4550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3615 - Topics In Music Business

Various topics relating to the study of music business. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3690 - Concert Promotion, Tour, and Venue Management

This course gives students a working knowledge of touring, presenting, promoting, marketing and management of live concerts. They will undertake an in-depth analysis from various points of reference: issues for agent, independent promoter, venue manager, tour/production manager and performer. Prereq: MUSC 3210 and MUSC 3220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3700 - Music and Entertainment Business in the Digital Age

In this course students learn the trends and developments changing the industry in the Digital Age. Course focuses on current technology, terminology and business models shaping the industry, preparing students for entry into an evolving music and entertainment career. Prereq: MUSC 3210 and 3220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3710 - CAM Records

Provides students with an opportunity to use knowledge and skills from music business courses to create and execute initiatives while partnering with local artists and music-related entities for a hands-on learning experience that benefits the student and local music community. Prereq: MUSC 3210 and 3220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3715 - Music Business Modules

Modular courses intended to expose students to specific business and management aspects of various subindustries within the music industry.. Prereq: MUSC 3690. Max hours: 1 Credit. **Semester Hours:** 1 to 1

MUSC 3720 - Law and the Music Industry

Students will learn how to use and analyze music law principles through a review of essential court case studies. Students will be tested on lecture material and provided with an opportunity to complete research papers for a more in-depth examination. Prereq: MUSC 3690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3755 - Music Publishing

Students will learn key issues related to music publishing and song marketing activities, as well as the function and responsibilities of music publishers. Students will gain insight into skills needed to operate a music publishing company. Prereq: MUSC 3210 and 3220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3785 - Current Issues In the Music Business

Class discusses and analyzes cutting-edge business and legal developments in the music industry, focusing particularly on the developments' impact on historical traditions, career paths and creative applications in the field. Prereq: MUSC 3690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3790 - Video Production in the Arts: Music

Introduces the development of the contemporary music video with an emphasis on stylistic and technical analysis. Combines a lecture demonstration format with hands-on videography. Open to music, theatre, fine arts majors, and students who have successfully completed at least one College of Arts and Media course. Max hours: 4 Credits. **Semester Hours:** 4 to 4

MUSC 3939 - Internship

Max hours: 12 Credits. **Semester Hours:** 1 to 3

MUSC 4100 - Advanced Composition

Composition of extended forms. May be repeated once for credit. Prereq: MUSC 3200. Max hours: 2 Credits. **Semester Hours:** 2 to 2

MUSC 4500 - Topics in Professional Audio

Selected topical subjects to include live or studio sound recording, sound reinforcement, new technologies or practices in the audio industry. Prereq: MUSC 4550. Cross-listed with MSRA 5500. Max hours: 9 Credits. **Semester Hours:** 1 to 1

MUSC 4505 - Audio Post Production I

Reviews all aspects of audio synchronized with picture, including music, sound effects, narration, and dialog replacement. Topics studied with respect to film, video and multi-media. Prereq: MUSC 4560. Coreq: MUSC 4580. Cross-listed with MSRA 5505. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 4510 - Topics in Recording Arts

Selected topical subjects to include live or studio sound recording, sound reinforcement, new technologies or practices in the audio industry. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 4515 - Songs and Scores for Visual Media

This survey of music in film and television will create a better understanding of the process between filmmakers and composers and will acquaint aspiring filmmakers and musicians with concepts of film theory, the creative use of film music, and the pragmatic aspects of organizing scoring sessions and procuring music rights. Prereq: MUSC 2560. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 4530 - Live Sound Reinforcement

This course focuses on the basic elements of sound reinforcement: acoustics, equalization, equipment and mixing techniques. The major emphasis is the production of the final sonic product. Prereq: MUSC 4550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 4550 - Audio Production III

Advanced studies in sound recording and reinforcement, aesthetics and techniques of multi-track digital recording and stereo imaging. Team lab recording projects. Prereq: MUSC 2560 and PHYS 3620. Coreq: MUSC 3550. Cross-listed with MSRA 5550. Max hours: 3 Credits.

Semester Hours: 3 to 3

MUSC 4560 - Mastering & Advanced Digital Audio

A study and practice of the art of mastering. Topics covered include: history, monitoring, signal flow, metering, jitter, audio restoration, limiting, creating a CD pre-master, & mastering for new media. Students will get practical experience mastering their own projects. Prereq: MUSC 3550 and MUSC 4550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 4575 - Surround Sound

This lecture-lab course deals with surround sound in film, digital TV and DVDs. Topics include monitoring, microphone techniques, recording, mixing, mastering, delivery formats and psychoacoustics. Students work on two lab projects in the semester. Prereq: MUSC 4505. Cross-listed with MSRA 5575. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 4580 - Audio Production Seminar I

Faculty and majors of the music engineering program assemble to discuss and demonstrate issues of artistic and technical applications of recording technology. Student projects, faculty, and guest lectures provide topical focus. (Music facility fee applies.) Prereq: MUSC 4560. Coreq: MUSC 4505. Cross-listed with MSRA 5580. Max hours: 12 Credits. **Semester Hours:** 3 to 3

MUSC 4581 - Audio Production Seminar II

A capstone project based course in which students complete professional quality projects in music production and/or post production. Students refine their engineering skills and develop new skills required for integration in the music industry such as portfolio design and resume development. Prereq: MUSC 4580. Cross-listed with MSRA 5581. Max hours: 3 Credits.

Semester Hours: 3 to 3

MUSC 4605 - Audio Post Production II

Students will learn advanced Pro Tools techniques by designing, conceptualizing, and completing sound for a student film project. This interdisciplinary course prepares students for working relationships between Recording Arts, Film and Video areas and an entry level job in post production. Prereq: MUSC 4505 and MUSC 4580. Cross-listed with MSRA 5605. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 4740 - Music Business Analysis

Students learn to analyze specific managerial situations unique to the music and entertainment industries and will understand aspects of finance, taxation, and management science. Prereq: MUSC 3720. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 4820 - Digital Music Techniques

Studies the general principles and applications of digital music technology, emphasizing the function and operation of specific computer software. Topics include digital audio workstations, MIDI sequencers, digital signal processing programs, and distribution on optical discs and computer-based mediums. Prereq: Admittance to Recording Arts/Tech focus. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 4890 - Music Business Senior Seminar

Seminar activities focus on students developing, discussing and completing individual capstone projects. This includes an in-depth research paper and in-class presentation to allow students to explore their relevant interests in the music business. Prereq: MUSC 3720. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Performance Music

PMUS 1001 - Music Appreciation

Explores the style of music in the major compositional periods, including contemporary pop styles. This course will not satisfy any degree requirements for music majors. For non-music majors who want to learn how to listen to music with greater understanding and pleasure. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-AH1 **Semester Hours:** 3 to 3

PMUS 1020 - Beginning Musicianship

Provides basic musical and theoretical skills to students who do not have the proficiency to enroll in Theory I and Ear Training I. Major concepts include an introduction to music fundamentals, basic ear training, introduction to sight singing and an applied understanding of the keyboard. This course will not satisfy any degree requirements for Music majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 1021 - Piano Class For Non-Majors

Elementary group instruction in piano skills for non-majors. Course focuses upon development of basic reading and performance skills for the non-Music Major. Course is repeatable for a maximum of 4 credits. Max hours: 4 Credits. **Semester Hours:** 2 to 2

PMUS 1023 - Piano Class I

This course focuses on beginning note reading in both treble and bass clefs, learning one octave major key scales, basic harmonization, and beginning improvisation. Students perform in both individual and group settings. Note: This course is restricted to Music-Majors only. Coreq: PMUS 1100 and 1110. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 1024 - Piano Class II

This course focuses on intermediate sight reading, technique, chord vocabulary, major and minor scales, and improvisation. Students perform in both individual and group settings. Note: This course is restricted to Music-Majors only. Prereq: PMUS 1023. Coreq: PMUS 1200 and 1210. Max hours: 1 Credits. **Semester Hours:** 1 to 1

PMUS 1025 - Piano Class III

Students entering this course are expected to have general fluency in major and minor scales. The course focuses on expanding chord vocabulary, sight reading, transposition, and performing more advanced repertoire. Students perform in both individual and group settings. Note: This course is restricted to Music-Majors only. Prereq: PMUS 1024. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1026 - Piano Class IV

Students entering this course are expected to have fluency in sight reading, major and minor scales. The course focuses on harmonizing with complex chords, playing by ear, improvisation, and playing repertoire in broader range of key signatures. Students perform in both individual and group settings. Note: This course is restricted to Music-Majors only. Course meets in Roland Piano Lab. Prereq: PMUS 1025. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1040 - Class Guitar

Designed to provide each student with a basic knowledge of the fretboard. The course material focuses on beginning note reading, basic chord forms and elementary improvisation. Students have the opportunity to perform in both individual and group settings. Max hours: 3 Credits. **Semester Hours:** 1 to 1

PMUS 1041 - Class Guitar II

This group guitar class is designed to go beyond PMUS 1040 and provide students with an advanced knowledge of the fretboard. The course material focuses on advance position note reading, complex chord forms and scale vocabulary. Students have the opportunity to perform in both individual and group settings. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1045 - Class Guitar I for Non-Majors

This class will address basic techniques and concepts of playing the guitar, for non-majors. Students will gain a basic proficiency with regard to picking and fingerstyle technique, and learn essential contemporary harmony through the performance of etudes and songs. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1046 - Class Guitar II for Non-Majors

This class will address basic techniques and concepts of playing the guitar, for non-majors. Students will gain a basic proficiency with regard to picking and fingerstyle technique, and learn essential contemporary harmony through the performance of etudes and songs. Prereq: PMUS 1045. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1047 - The Beatles for Fingerstyle Guitar

This course will examine the music of The Beatles, through harmonic analysis, technical etudes and performance practice. Students will develop a basic proficiency with regard to specific fingerstyle techniques. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1050 - Voice Class I

Fundamentals of voice production: posture, breath management and support, tone, resonance, diction, phrasing and interpretation. Development of technique, confidence, and control through group and solo singing. Development of repertoire that includes contemporary and commercial vocal styles. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1051 - Voice Class I for Non-Majors

Voice technique and repertoire for non-music majors taught in a group setting. Students will learn basics of healthy singing technique and how to sing in multiple genres in both group and solo formats. For non-majors with little or no previous singing experience. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 1060 - Voice Class II

Fundamentals of voice production: posture, breath management and support, tone, resonance, diction, phrasing and interpretation. Extension of PMUS 1050, with opportunity to continue to develop individual skills in singing. Development of technique, confidence, and control through group and solo singing. Development of repertoire that includes contemporary and commercial vocal styles. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1061 - Voice Class II for Non-Majors

Intermediate Voice technique for non-majors taught in a group setting. Students will learn elements of technique, style and repertoire geared toward non-majors. Some singing experience or successful completion of Voice I for Non-Music Majors required. Prereq: PMUS 1051 or permission from the instructor. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 1100 - Music Theory I

Study of the evolution of harmonic and melodic procedures, as derived from the common practice period of classical music, and their relationship to contemporary music concepts. Coreq: PMUS 1110 and PMUS 1023. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 1101 - Music Theory & Ear Training Lab

Provides supplemental instruction and tutoring for students enrolled in Theory I and Ear Training Sight Signing I. Course activities include training in the following subject areas: scale formation and identification, chord spelling and identification, interval spelling and identification, basic harmonic analysis and rhythmic dictation. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1110 - Ear Training and Sight Singing I

An aural skills laboratory course that reinforces the concepts taught in Music Theory I through interval, melodic, harmonic, and rhythmic dictation as well as the preparation and sight singing of music. Coreq: PMUS 1100 and PMUS 1023. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1200 - Music Theory II

The study of harmonic and melodic elements as they relate to modern, jazz, and commercial music. Topics include contemporary chord spelling, chord substitution, transposition, voice leading, harmonic analysis and modes. Prereq: PMUS 1110 and PMUS 1100. Coreq: PMUS 1210 and PMUS 1023. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 1210 - Ear Training and Sight Singing II

An intermediate aural skills laboratory course that reinforces the concepts taught in Music Theory II through interval, melodic, harmonic, and rhythmic dictation as well as the preparation and sight singing of music.. Prereq: PMUS 1100 and PMUS 1110. Coreq: PMUS 1200 and PMUS 1023. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1310 - Sight Reading and Improvisation

Explores the techniques and concepts of instrumental jazz/commercial improvisation and beginning sight reading. Major concepts include understanding and interpreting the construction of jazz harmonic nomenclature and the mastery of the melodic elements of improvisation. Prereq: PMUS 1200, 4.0 credits from PMUS 1801 to PMUS 1823 (MIS Applied Lesson). Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 1400 - Group Applied Lessons

Consists of group music lessons of up to four students per group. The course meets for one hour per week. 45 minutes will be in group format and 15 minutes will be rotating private instruction. Note: PMUS 1400 is only available to majors in the Music Industry Studies degree program. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 1410 - Percussion I Ensemble

Beginning Ensemble. Focus on basic percussion techniques and introductory ensemble playing utilizing Afro-Cuban literature. Comprised of percussion instruments of both definite and indefinite pitch. Introduces rhythmic sight-reading. Develops collaborative learning, aural skills and interactive multicultural awareness. Prereq: Audition or meeting with ensemble faculty. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 1420 - UCD A Cappella Voices Ensemble

Beginning Ensemble. A cappella choir. This course will focus on choral singing to further the student's musical and vocal skills. Emphasis will be on successful preparation for the advanced a cappella groups. Prereq: Audition or meeting with ensemble faculty. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 1430 - Solo Vocal Jazz Ensemble

Beginning Ensemble. Focus on basic performance and stylistic skills in the jazz language. Students will learn basic and jazz vocal techniques and skills and their application in study and performance. Students will perform in solo and duo settings. Prereq: Audition or meeting with ensemble faculty. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 1440 - Acoustic Guitar Ensemble

Beginning Ensemble. This course explores the techniques and repertoire of acoustic guitar. Musical styles include: jazz, Latin, bluegrass, Renaissance, Baroque, tango and blues. Prereq: Audition or meeting with ensemble faculty. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 1460 - Beginning Instrumental Ensemble

Focus on basic performance and stylistic skills in the jazz, Latin, and blues genres. Students will learn basic instrumental techniques and their application in group performances. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1470 - Performance Practice Ensemble

This beginning-level ensemble explores individual and group performance settings for first year audition-based MEIS students. Course skills include: performance protocol, presentation, self assessment and peer assessment. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1500 - General Recital

This pass/fail course is a co-requisite for all students enrolled in applied music instruction. Students will evaluate and critique musical performances and presentations as well as develop an informed understanding of live musical performance as it pertains to diversity of genre and excellence in musical achievement. Max hours: 12 Credits. **Semester Hours:** 1 to 1

PMUS 1502 - Applied Electric Bass

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1512 - Applied String Bass

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1522 - Applied Bassoon

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1532 - Applied Clarinet

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1542 - Applied Bass Clarinet

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1552 - Applied Flute

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1562 - Applied French Horn

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1572 - Applied Guitar

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1574 - Applied Guitar, Singer/Songwriter

Private instruction guitar specific to singer/songwriter majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Restricted: BS-MUSC SWR. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Student must be accepted as a Singer/Songwriter major in the music program and have declared guitar as their primary instrument. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1582 - Applied Banjo

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1610 - Topics in Performance Music

Various topics related to music performance. Max hours: 6 Credits. **Semester Hours:** 1 to 1

PMUS 1612 - Applied Drum Kit

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1620 - Topics: Performance Music II

Various topics related to music performance. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 1622 - Applied Oboe

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1630 - Topics: Performance Music III

Various topics related to music performance. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 1632 - Applied World Percussion

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credits. **Semester Hours:** 1 to 1

PMUS 1642 - Applied Piano

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credits. **Semester Hours:** 1 to 1

PMUS 1644 - Applied Piano, Singer/Songwriter

Private instruction in piano specific to singer/songwriter majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Restricted: BS-MUSC SWR. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Student must be accepted as a Singer/Songwriter major in the music program and have declared piano as their primary instrument. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1652 - Applied Jazz Piano

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1662 - Applied Saxophone

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1672 - Applied Synthesizer

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1682 - Applied Trombone

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1692 - Applied Trumpet

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1702 - Applied Violin

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1712 - Applied Viola

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1722 - Applied Cello

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1732 - Applied Voice

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1734 - Applied Voice, Singer/Songwriter

Private instruction in voice specific to singer/songwriter majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Restricted: BS-MUSC SWR. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Student must be accepted as a Singer/Songwriter major in the music program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1742 - Applied Tuba

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1762 - Applied Euphonium

Private music lessons for audition-based music majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 1 Credits. **Semester Hours:** 1 to 1

PMUS 1801 - Appl Electric Bass, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1802 - Appl String Bass, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1803 - Applied Guitar, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1804 - Applied Percussion, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1805 - Applied Drum Kit, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1806 - Applied Piano, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1807 - Applied Jazz Piano, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1808 - Applied Voice, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1809 - Appl Synthesizer, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1810 - Applied Trumpet, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1811 - Applied Trombone, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1812 - Applied Tuba, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1813 - Appl French Horn, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1814 - Applied Euphonium, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1815 - Applied Banjo, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1816 - Applied Bassoon, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1817 - Applied Clarinet, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1818 - Applied Flute, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1819 - Applied Saxophone, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1820 - Applied Oboe, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1821 - Applied Cello, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1822 - Applied Viola, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 1823 - Applied Violin, Non-Juried

Private music lessons for Music Industry Studies majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Note: Only available to non audition based music majors in the Music Industry Studies emphasis area. Coreq: PMUS 1500 and at least 7 non-applied lesson credits. Prereq: Acceptance to the MEIS program. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 2092 - Commercial Piano Styles

Explores the major commercial piano styles of the twentieth century with a focus on the performance of these styles. Note: Students must have already passed PMUS 1026 (Piano Class IV) or be accepted as a pianist in an audition-based degree track in the MEIS department. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 2094 - Rhythm Section Techniques

This course examines jazz and contemporary techniques for the rhythm section. Students will learn styles, skills and expectations for various rhythm instruments including guitar, bass, piano, and drum kit in order to improve musical communication, accompaniment skills and creativity. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2095 - Commercial Guitar Styles and Theory - Harmony

A comprehensive guitar course that focuses on harmonic theory specific to the guitar fingerboard. Topics include: chord voicing and inversions, jazz and commercial accompaniment styles including walking bass, bossa nova, funk and finger picking. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 2096 - Commercial Guitar Styles and Theory - Melody

A comprehensive guitar course that focuses on harmonic theory specific to the guitar fingerboard. Topics include: tetrachords, scales, modes, arpeggios, finger technique development and improvisation. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 2097 - Commercial Singing I

Fundamentals of voice production: posture, breath management and support, tone, resonance, diction, phrasing and interpretation. Development of contemporary solo vocal repertoire (pop, rock, jazz, rhythm and blues) and traditional styles. Training in all aspects of vocal performance needed for live performance and recording sessions (microphone technique, stage presence, appropriate vocal styles and delivery). Development of solid understanding of vocal technique and its application to all vocal styles. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 2098 - Commercial Singing II

Fundamentals of voice production: posture, breath management and support, tone, resonance, diction, phrasing and interpretation. Extension of PMUS 3010, with opportunity to continue to develop individual skills in commercial solo singing. Development of contemporary solo vocal repertoire (pop, rock, jazz, rhythm and blues) and traditional styles. Training in all aspects of vocal performance needed for live performance and recording sessions (microphone technique, stage presence, appropriate vocal styles and delivery). Development of solid understanding of vocal technique and its application to all vocal styles. Prereq: PMUS 3010. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 2100 - Music Theory III

Exposes students to the theoretical aspects of Western European classical music from the Baroque period to the Classical period. Emphasis is placed on the melodic aspects of classical music including the creation of melody and the combining of melodies into polyphonic structures. Prereq: PMUS 1200, 1210, and 1024. Coreq: PMUS 1025 and 2110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 2110 - Ear Training and Sight Singing III

An advanced laboratory course designed to help students listen to music analytically and to apply the harmonic principles learned in Music Theory III to the performance of music. Prereq: PMUS 1200 and PMUS 1210. Coreq: PMUS 2100 and PMUS 1023. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2200 - Jazz Theory

Explores music theory as it applies to the genres of jazz and popular music. The topics include the theory of jazz improvisation, an analysis of jazz and popular music forms, the transcription and analysis of pop/jazz rhythms and melodies, and chord substitutions. Prereq: PMUS 1200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 2220 - Commercial Electronic Music Composition

An investigation, analysis and application of contemporary electronic music compositional and production techniques in relation to commercial music and historical context. Prereq: PMUS 1200, PMUS 1210 and MUSC 2300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 2310 - Introduction to Songwriting

Studies the craft of songwriting. Emphasis is on the creation of original melodies and lyrics. A variety of non-classical contemporary musical styles are considered. Prereq: PMUS 1200, 4.0 credits from PMUS 1801 to PMUS 1823 (MIS Applied Lesson). Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 2400 - Performance Art and Experimental Music

Introduces the history, philosophies and techniques of the European and American Avant-Garde theatrical performance and music. A study of music's various roles provides students with opportunities for creative application. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 2410 - Percussion II Ensemble

Intermediate Ensemble. Focus on percussion techniques and ensemble playing utilizing Afro-Cuban literature. Comprised of percussion instruments of both definite and indefinite pitch. Assumes basic rhythmic sight-reading ability. Introduces theoretical concepts. Develops collaborative learning, aural skills and interactive multicultural awareness. Prereq: Audition or meeting with ensemble faculty. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 2420 - Electro/Acoustic Ensemble

Intermediate Ensemble. This course will study established methods used as agents of musical creativity in the practice of improvised music. Focus on real-time musical collaboration utilizing musical vocabularies from a wide range of sources. Instrumentation of many kinds may be utilized. Prereq: Audition or meeting with ensemble faculty. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 2430 - Pop/Rock Ensemble

Intermediate Ensemble. This course will focus on group rehearsals of contemporary music with challenging technical and vocal requirements. Students will gain experience in transcribing and creating simple arrangements, learning adequate musicality, performing presentation and group cooperation. Prereq: Audition or meeting with ensemble faculty. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 2440 - Chamber Ensemble

Intermediate Ensemble. Mixed instrumental group for string, wind, brass, piano, and percussion players. Students will develop sight-reading and improvisation skills and perform student originals and arrangements including repertoire from the Baroque period through the Avant-Garde with no stylistic limitations. Prereq: Audition or meeting with ensemble faculty. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 2450 - Bluegrass Ensemble

Ensemble designed to give students the opportunity to explore Bluegrass music and related folk/country styles through performance, listening and discussion. Important artists, repertoire, musical trends, and historical perspectives will be studied. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 2460 - Music Theatre Ensemble

Beginning Ensemble. This course consists of group rehearsals of contemporary and original music theater works with a focus on techniques, technologies, and strategies for arranging. Score reading, transposition, ranges, orchestration and composition will be covered. Prereq: Audition or meeting with ensemble faculty. Max hours: 6 Credit. **Semester Hours:** 1 to 1

PMUS 2461 - Musical Theater Ensemble Production

Students will participate in a fully-staged musical theater production to be held every other year in the spring semester. This will include, but is not limited to: auditions, musical coachings, stage and/or acting coachings and dance. Prereq: Audition or meeting with ensemble faculty. Max hours: 6 Credits. **Semester Hours:** 3 to 3

PMUS 2470 - Mobile Device Ensemble

This ensemble will be comprised of students utilizing only laptop computers and mobile devices (e.g., iPads & iPhones) to create music. The ensemble will explore various contemporary styles including house, dance, ambient and other current electronic music. Max hours: 4 Credits.

Semester Hours: 1 to 1

PMUS 2502 - Applied Electric Bass

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1502 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2512 - Applied String Bass

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1512 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2522 - Applied Bassoon

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1522 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2532 - Applied Clarinet

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1532 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2542 - Applied Bass Clarinet

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1542 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2552 - Applied Flute

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1552 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2562 - Applied French Horn

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1562 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2572 - Applied Guitar

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1572 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2582 - Applied Banjo

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1582 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2612 - Applied Drum Kit

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1612 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2622 - Applied Oboe

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1622 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2632 - Applied World Percussion

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1632 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2642 - Applied Piano

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1642 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2652 - Applied Jazz Piano

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1652 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2662 - Applied Saxophone

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1662 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2672 - Applied Synthesizer

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1672 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2682 - Applied Trombone

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1682 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2692 - Applied Trumpet

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1692 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2702 - Applied Violin

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1702 (Two semesters). Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 2712 - Applied Viola

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1712 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2722 - Applied Cello

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1722 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2732 - Applied Voice

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1732 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2742 - Applied Tuba

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1742 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2750 - Functional Guitar Skills: Acoustic Guitar Styles

This course is designed to introduce students to the fundamental architecture and techniques of contemporary acoustic guitar styles. The first part of the course will explore the techniques, repertoire and styles of Fingerstyle Guitar, while the second half will be dedicated to Flatpicking styles and techniques. Max hours: 4 Credits. **Semester Hours:** 2 to 2

PMUS 2751 - Functional Guitar Skills: Electric Guitar Styles

This course is designed to introduce students to the fundamental architecture and techniques of contemporary electric guitar styles with regard to studio and live performance situations. Students will also explore the business aspects of music performance including marketing, self-assessment, career strategies, recording, and press kits. Max hours: 4 Credits. **Semester Hours:** 2 to 2

PMUS 2762 - Applied Euphonium

Private music lessons for audition-based music majors. Lessons emphasize developing proficient technique, learning and performing advanced repertoire, demonstrating musicality, developing rhythmic accuracy and improvising. Students perform in a general recital and jury. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1762 (Two semesters). Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 3060 - Ensemble Engineer

This engineer position is designed to provide audio support for a various performing ensembles. Duties include live audio reinforcement during concerts and rehearsals, audio archiving, organization and equipment management. Enrollment is limited to one semester for non-audition track students and two semesters for audition-track students. Prereq: MUSC 4530. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 3070 - Ensemble Manager

This manager position is designed to provide booking, promotional and organizational support for various performing ensembles. Enrollment is limited to one semester for non-audition track students and two semesters for audition-track students. Prereq: MUSC 3690. Max hours: 2 Credits. **Semester Hours:** 1 to 1

PMUS 3100 - US Music: Social & Political Impact

Examines and describes the social meaning of American music with particular reference to the roles of major ethnic groups in the creation of this music and the way that the music reveals attitudes toward these groups. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 3110 - Social and Political Implications of American Music

Examines and describes the social meaning of American music with particular reference to the roles of major ethnic groups in the creation of this music, and the way that the music reveals attitudes toward these groups. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 3200 - Popular Music Performance Skills

Students develop live performance skills including expression, stage presence and creating energy on stage, as well as connecting with the audience. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 3210 - Introduction to Teaching Private Music Lessons

Prepares students to teach private music lessons. Includes a survey of teaching styles from around the world, exercises, guest lectures, practical guidance for establishing a teaching studio and student research presentations. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 3300 - Advanced Jazz Improvisation

Explores the techniques and concepts of instrumental jazz/commercial improvisation and sight reading. Major concepts include understanding and interpreting the construction of jazz harmonic nomenclature and the mastery of the melodic elements of improvisation. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 3310 - Intermediate Songwriting

Presents concepts of songwriting that build upon those presented in MUSC 2300. Students are expected to understand and discuss musical concepts and lyric structure and use these concepts in the creation of original songs. Prereq: PMUS 1024, PMUS 1200, and PMUS 1210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 3320 - Popular Music Arranging

This course will focus on techniques, technologies and strategies for contemporary arranging. Students score original compositions for various instrumentation using notation software. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 3330 - Advanced Vocal Improvisation

Provides study of harmony, style and advanced improvisation techniques for vocalists. Course activities include study of scat singing, syllables, accents, rhythmic patterns, and phrasing over standard chord changes in several genres. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 3410 - Percussion III Ensemble

Advanced Ensemble. Focus on percussion techniques and ensemble playing utilizing Afro-Cuban literature. Comprised of percussion instruments of both definite and indefinite pitch. Assumes intermediate rhythmic sight-reading ability. Develops collaborative learning and awareness of drumming as universal language. Prereq: Audition or meeting with ensemble faculty. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 3430 - Jazz Combo Ensemble

Advanced Ensemble. Instrumental jazz group. This course will focus on group rehearsals of bebop, swing, funk, & fusion. Prereq: Audition or meeting with ensemble faculty. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 3440 - Voz de la Clave

Advanced Ensemble. This ensemble performs Salsa and Afro-Caribbean music. Ensemble time is spent rehearsing repertoire and learning about Latin music concepts. Prereq: Audition or meeting with ensemble faculty. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 3450 - Singer/Songwriter Ensemble

Advanced Ensemble. Focus on student compositions of original songs with lyrics and instrumental accompaniment including creation of lead sheets for band performances. Individual and group songwriting is explored. Students participate in community-building activities including community engagement and a songwriting retreat. Prereq: Audition or meeting with ensemble faculty. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 3460 - Ninth Street Singers Ensemble

Signature Ensemble. Elite a cappella mixed choir. This course will focus on group rehearsals of various genres of vocal ensemble music, including pop, rock, jazz, musical theater, and gospel. Prereq: Audition or meeting with ensemble faculty. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 3470 - Piano Trio Ensemble

Advanced Piano, Bass and Drum Students will create piano trios, receive feedback from faculty in weekly coaching sessions, and have professional opportunities such as gigs and recordings. Contexts include: Standard Jazz, Contemporary Jam Band and original arrangements. **Semester Hours:** 1 to 1

PMUS 3502 - Applied Electric Bass

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1502 and PMUS 2502 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 3512 - Applied String Bass

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1512 and PMUS 2512 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 3522 - Applied Bassoon

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1522 and PMUS 2522 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3532 - Applied Clarinet

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1532 and PMUS 2532 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3542 - Applied Bass Clarinet

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1542 and PMUS 2542 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3552 - Applied Flute

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1552 and PMUS 2552 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3562 - Applied French Horn

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1562 and PMUS 2562 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3572 - Applied Guitar

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1572 and PMUS 2572 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3582 - Applied Banjo

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1582 and PMUS 2582 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3612 - Applied Drum Kit

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1612 and PMUS 2612 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3622 - Applied Oboe

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1622 and PMUS 2622 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3632 - Applied World Percussion

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1632 and PMUS 2632 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3642 - Applied Piano

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1642 and PMUS 2642 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3652 - Applied Jazz Piano

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1652 and PMUS 2652 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3662 - Applied Saxophone

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1662 and PMUS 2662 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3672 - Applied Synthesizer

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1672 and PMUS 2672 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3682 - Applied Trombone

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1682 and PMUS 2682 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3692 - Applied Trumpet

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1692 and PMUS 2692 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3702 - Applied Violin

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1702 and PMUS 2702 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3712 - Applied Viola

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1712 and PMUS 2712 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3722 - Applied Cello

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1722 and PMUS 2722 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3732 - Applied Voice

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1732 and PMUS 2732 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3742 - Applied Tuba

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1742 and PMUS 2742 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3762 - Applied Euphonium

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing and performing repertoire, demonstrating a high level of musicality, cultivating superior performance practice, identifying musical goals and preparing and performing a junior recital. Note: Students must be an audition-based music major and accepted to performance emphasis. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1762 and PMUS 2762 (two semesters each), and successful completion of sophomore proficiency. Max hours: 2 Credits. **Semester Hours: 2 to 2**

PMUS 3772 - Applied Singer/Songwriter

This is a 2-credit course consisting of one-on-one, hour-long weekly lessons in songwriting and performance skills. Aspects of transcription, analysis, and career development will be incorporated. Co-requisites - PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Max hours: 8 Credits. **Semester Hours: 2 to 2**

PMUS 3820 - Music History Modules

This modular course surveys various popular, Western European, and world music styles. Max hours: 6 Credits. **Semester Hours: 1 to 1**

PMUS 3825 - Real History of Rock and Roll

Examines the historical and social framework developments in music from its roots in country, through jazz and blues to current trends. Special emphasis is given to guest lecturers and their expertise performing, covering and presenting the music. Max hours: 3 Credits. **Semester Hours: 3 to 3**

PMUS 3827 - History Of Jazz

This course will give students an inside look at the history and radical changes brought about by the musicians, technology and the social interplay between US social history and jazz music by examining the music & musicians that performed it. Max hours: 3 Credits. **Semester Hours: 3 to 3**

PMUS 3830 - History and Literature of Music I

This course provides a historical perspective of Western music literature from the medieval through the classical era. Max hours: 3 Credits. **Semester Hours: 3 to 3**

PMUS 3831 - History and Literature of Music II

This course provides a historical perspective of Western music literature from the Romantic era through the present day. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 3840 - Independent Study: PMUS

Max hours: 3 Credits. **Semester Hours:** 1 to 3

PMUS 4060 - Music Theory Analysis

Students analyze the harmonic, melodic, and formal aspects of the music from various musical time periods and genres which include Baroque, Classical, Romantic, Contemporary Classical, jazz and popular music. Prereq: PMUS 2110 and 2200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 4200 - Senior Recital Project

The capstone course for performance majors that coincides with their senior recital. The project focuses on musical and thematic material from the student's senior recital and may include: historical research, theoretical analysis, transcriptions and creation of a digital portfolio. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4310 - Advanced Songwriting

Students will continue to learn the craft of songwriting with focus on the skills of advanced lyric writing technique. Students will expand their knowledge of theoretical aspects of harmony and melody. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 4410 - Claim Jumpers Ensemble

Signature Ensemble. The Claim Jumpers will focus on group rehearsals of significant traditional jazz literature, masterworks of classic jazz of the 1920's, and creativity within the traditional jazz genre at the highest level. Prereq: Audition or meeting with ensemble faculty. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 4430 - Guitar Ensemble

Signature Ensemble. Advance jazz guitar group. This course will focus on group rehearsals of bebop and fusion. Prereq: Audition or meeting with ensemble faculty. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 4460 - Mix A Cappella Ensemble

Advanced a cappella performing group, working in a wide range of stylistic offerings. Enrollment by audition only. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 4461 - UCD Mix Ensemble Management

This class focuses on management activities for the "UCD Mix" A Capella ensemble, including website content, arranging, choreography and recording roles as assigned by the professor. Coreq: PMUS 4460. Max hours: 6 Credits. **Semester Hours:** 2 to 2

PMUS 4502 - Applied Electric Bass

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1502, PMUS 2502, PMUS 3502 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4512 - Applied String Bass

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1512, PMUS 2512, PMUS 3512 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4522 - Applied Bassoon

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1522, PMUS 2522, PMUS 3522 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4532 - Applied Clarinet

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1532, PMUS 2532, PMUS 3532 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4542 - Applied Bass Clarinet

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1542, PMUS 2542, PMUS 3542 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4552 - Applied Flute

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1552, PMUS 2552, PMUS 3552 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4562 - Applied French Horn

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1562, PMUS 2562, PMUS 3562 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4572 - Applied Guitar

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1572, PMUS 2572, PMUS 3572 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4582 - Applied Banjo

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1582, PMUS 2582, PMUS 3582 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4600 - Topics in Music Performance

Various topics related to music performance. Max hours: 9 Credits. **Semester Hours:** 3 to 3

PMUS 4612 - Applied Drum Kit

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1612, PMUS 2612, PMUS 3612 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4622 - Applied Oboe

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1622, PMUS 2622, PMUS 3622 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4632 - Applied World Percussion

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1632, PMUS 2632, PMUS 3632 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4642 - Applied Piano

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1642, PMUS 2642, PMUS 3642 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4652 - Applied Jazz Piano

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1652, PMUS 2652, PMUS 3652 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4662 - Applied Saxophone

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1662, PMUS 2662, PMUS 3662 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4672 - Applied Synthesizer

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1672, PMUS 2672, PMUS 3672 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4682 - Applied Trombone

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1682, PMUS 2682, PMUS 3682 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4692 - Applied Trumpet

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1692, PMUS 2692, PMUS 3692 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4702 - Applied Violin

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1702, PMUS 2702, PMUS 3702 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4712 - Applied Viola

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1712, PMUS 2712, PMUS 3712 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4722 - Applied Cello

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1722, PMUS 2722, PMUS 3722 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4732 - Applied Voice

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1732, PMUS 2732, PMUS 3732 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4742 - Applied Tuba

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1742, PMUS 2742, PMUS 3742 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4762 - Applied Euphonium

Private music lessons for audition-based music majors. Lessons emphasize perfecting musical technique, memorizing professional-level repertoire, demonstrating an expert level of musicality, analyzing repertoire, achieving a musical identity, cultivating superior performance practice and preparing and performing a senior recital. Note: Students must be accepted as an audition-based music major. Instructor permission. Coreq: PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson credits. Prereq: PMUS 1762, PMUS 2762, PMUS 3762 (two semesters each), and successful completion of Junior Recital. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 4772 - Applied Singer/Songwriter

This is a 2-credit course consisting of one-on-one, hour-long weekly lessons in songwriting and performance skills. Aspects of transcription, analysis, and career development will be incorporated. Plan Code: MUSC-BS SWR; Co-requisites - PMUS 1500, enrollment in an ensemble and at least 7 non-applied lesson. Max hours: 8 Credits. **Semester Hours:** 2 to 2

PMUS 4840 - Independent Study: PMUS

Max hours: 3 Credits. **Semester Hours:** 1 to 3

Philosophy

PHIL 1012 - Introduction to Philosophy: Relationship of the Individual to the World

Introductory course in philosophy that focuses on some of the central questions of philosophy, including theories of reality and the nature of knowledge and its limits. The knowledge of these areas is essential to the student for informed participation in the resolution of contemporary problems in today's society. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-AH3 **Semester Hours:** 3 to 3

PHIL 1020 - Introduction to Ethical Reasoning

Studies ethical problems and forms of ethical reasoning within the larger context of social and political philosophy. Specific ethical problems may be addressed, such as poverty, famine, abortion, punishment, animal rights, and environmental sustainability. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-AH3 **Semester Hours:** 3 to 3

PHIL 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

PHIL 1700 - Philosophy and the Arts

Considers philosophical questions involved in the analysis and assessment of artistic expressions and of the objects with which the arts, including the literary arts, are concerned. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 2441 - Logic, Language and Scientific Reasoning

Intro course in argumentation, critical thinking and scientific reasoning. Covers rules of logical inference, informal fallacies, problem solving, and probabilistic reasoning. Enhances analytical and critical thinking skills tested on LSAT and MCAT, central to advancement in sciences, and broadly desired by employers. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-AH3. **Semester Hours:** 3 to 3

PHIL 2510 - Philosophy of Nature

Critical comparison of different views of nature presupposed in science, art, religion, and environmental policy. Concepts of "natural" are examined in relation to such issues as animal rights, wilderness preservation, synthetic landscape, technology, pollution, and population control. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

PHIL 3002 - Ancient Greek Philosophy

History of ancient Greek thought, including traditional myth, pre-Socratic fragments, Plato's dialogues, and Aristotle's systematic philosophy. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 3005 - Roman and Early Medieval Philosophy

Surveys philosophy in the Roman era, focusing on the Hellenistic schools (Epicureanism, Stoicism and Skepticism), Neoplatonic thought, the advent of Christianity, and the earliest Christian philosophers. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 3010 - Medieval Philosophy

History of philosophy from Augustine through Scotus and Ockham, the 5th through the 14th centuries. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 3022 - Modern Philosophy

History of philosophy from Descartes through Kant. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 3032 - Twentieth Century Analytic Philosophy

Surveys representative philosophers, methods, and problems in the 20th century analytic tradition. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 3150 - History of Ethics

Surveys the ethical thought of major figures in the history of philosophy, beginning with Plato and ending with the 19th century. Examples: Aristotle, Hume, Kant and Mill. (Class readings of primary philosophical texts.) Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 3200 - Social and Political Philosophy

Examines basic issues in social and political philosophy, including justice, freedom, individuality, power and community. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 3250 - Business Ethics

Surveys some of the major moral problems which arise in business, such as the nature and scope of the moral responsibilities of corporations, affirmative action, and truth in advertising. Begins with a study of moral reasoning, ethical theory, and the challenges of applying ethical theory. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 3280 - War and Morality

Attempts to identify and analyze some of the major moral issues of war. When is a war just, when is it not? What are morally acceptable rules of engagement? What, if anything, justifies violating them? How does one evaluate terrorism and war against terrorism? What are moral alternatives to the violence of war? Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 3300 - Special Topics in Philosophy

Max hours: 6 Credits. **Semester Hours:** 1 to 3

PHIL 3350 - Metaphysics

Studies major theories of reality, including topics such as the nature of substance, space and time, and universals and particulars. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 3360 - Epistemology

Study of major theories of knowledge, including such problems as perception and the distinction between belief and knowledge. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 3440 - Introduction to Symbolic Logic

Covers truth functional and quantificational logic through polyadic first order predicate calculus and theory of identity. Attention is given to such problems in metatheory as proofs of the completeness and consistency of systems of logic. Cross-listed with MATH 3440. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 3500 - Ideology and Culture: Racism and Sexism

Surveys the nature and role of racism and sexism. Topics may include ideology theory, naturalism, the equal protection clause, recent scientific discussion, sociolegal history, and social constructionism. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 3550 - Philosophy of Death and Dying

Historical overview of the metaphysical question of whether there is life after bodily death, beginning with classical arguments through the current debate over such phenomena as near death experiences and deathbed visions. Also focuses on ethical controversies such as suicide, euthanasia, and capital punishment, and the efficacy of philosophical consolations for grief. Prereq: Three hours of philosophy; preferably PHIL 1012. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 3656 - Contemporary Religious Ethics: Jewish and Christian Traditions

Historical and thematic introduction to ethics in Judaism, Roman Catholicism and Protestantism. A study of selected ethical issues: bio-medical, social justice, sexuality, economic justice, business and personal ethics. Prereq: English composition; intro to philosophy; world religions; world history; junior status. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 3666 - Asian Philosophies and Religions

We in the Western world encounter a vastly different world, a radically different "universe of meaning," when we examine the traditions of the East. Even what we tacitly assume to be "real" is claimed by the Hindus and Buddhists of India to be a grand illusion. The world of China is, again, very different from India. An examination of Tibetan and Japanese religious forms will conclude our study of Asian thought. Cross-listed with RLST 3400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 3840 - Independent Study

Max hours: 6 Credits. **Semester Hours:** 1 to 3

PHIL 3939 - Internship

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA. Max hours: 9 Credits.

Semester Hours: 1 to 3

PHIL 3981 - Chinese Philosophy and Culture

China is a fascinating world with its own characteristic orientation to philosophical questions. Chinese thinkers produced the "Flowering of a Hundred Schools of Thought" in the Axial Age, the same period of time in which philosophy was coming to birth in ancient Greece. Covers some of the Chinese schools, including Confucianism, Taoism, Mohism, Legalis, Chinese "logic," and the later schools of schools of Neo-Confucianism, Neo-Taoism and Chinese Buddhism. Cross-listed with RLST 3660. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4000 - 19th Century Philosophy

Covers the systematic work of such German idealists as Hegel, Fichte, and Shelling, as well as responses to those systems by such authors as Marx, Kierkegaard, and Nietzsche. Prereq: PHIL 3002 or 3022. Cross-listed with PHIL 5000, HUMN 5000 and SSCI 5000. Max hours: 3 Credits.

Semester Hours: 3 to 3

PHIL 4040 - Skepticism

Considers various forms of skepticism in the history of philosophy, as well as the ways that philosophers have responded to skepticism, especially in theories of belief. Prereq: PHIL 3002 or 3022 with a C or permission of instructor. Cross-listed with PHIL 5040. Max hours: 3 Credits.

Semester Hours: 3 to 3

PHIL 4101 - Pragmatism: Classical American Philosophy

The most significant philosophical tradition born in the United States is pragmatism. Examines several of the most important classical works of this tradition, the influence of thinkers who have helped to shape pragmatism, and the contemporary relevance of this tradition. Figures who may be included are: Emerson, Pierce, Royce, James, Dewey, Mead and Rorty. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor.

Cross-listed with PHIL 5101, HUMN 5101, SSCI 5101. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4150 - Twentieth Century Ethics

Surveys representative philosophers, methods, and/or problems in 20th century ethics. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4200 - Philosophical Problems and Contemporary Culture

Issues and controversies in contemporary culture, their relation to modern theories of society, and their manifestations in the arts, science and technology, education, religion and ethics.

Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4220 - Aesthetics and the Philosophy of Art

Introduction to major theories of aesthetics and contemporary discussions of problems in aesthetics and the philosophy of art, including topics such as: the nature of art, interpretation and evaluation in art. Cross-listed with PHIL 5220 and HUMN 5220. Max hours: 3 Credits.

Semester Hours: 3 to 3

PHIL 4230 - Postmodernism

Traces the history of a set of ideas collectively known as postmodern. Disrupting traditional frameworks of knowledge, these concepts have had an enormous impact on the social sciences, the humanities, and the arts. Course readings expose students to the cross-disciplinary impact of postmodernism on theory, content, and method. Prereq: Upper division standing; PHIL 3002 or 3022, minimum grade of "C" in each previous philosophy course, or permission of instructor.

Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4242 - Bioethics

Examines some of the major moral issues confronting the nation's health care system. The class will search for solutions to such problems as financing health care for those unable to do so on their own, determining the extent of a patient's right to both refuse and demand certain types of medical treatment, and allocating scarce medical resources such as lifesaving vital organs. The springboard for examining these issues will be the doctor or patient relationship framed by the moral principles of respect for persons and beneficence. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5242, SSCI 5242, HUMN 5242. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4250 - Environmental Ethics

While human industry/technology creates enormous material prosperity, it can result in devastating environmental damage. This course analyzes the moral values, consequences and duties implied in relationships between human beings, animals and ecological systems, while seeking out new and ethical approaches. Cross-listed with PHIL 5250, HUMN 5250 and SSCI 5250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4260 - Philosophy of Law

Surveys theoretical positions on the nature of law, with particular emphasis on American law. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5260. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4270 - Philosophy of History

Examines critical and speculative theories of history, including the problems of methodology, explanation, values, and the relationship between history and social philosophy. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4300 - Philosophy of Mind

Consideration of the problems in the philosophy of mind, such as the mind-body problem, the problem of our knowledge of other minds, the compatibility of free will and determinism, and discussion of such concepts as action, intention, motive, desire, enjoyment, memory, imagination, dreaming and self-knowledge. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4360 - American Legal Process

Introduces students to basic issues in American jurisprudence as well as to the elements and dynamics of the modern American legal system. Cross-listed with PHIL 5360. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4460 - Theories of Human Nature

Consideration of such problems as the changeability and definability of human nature, and the possibility of a science of human nature. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4470 - Concepts of the Soul

Asks the questions: What is the nature of the human being? What makes us "human?" Do humans have a "soul?" What is its nature? Is it different from the "spirit?" What is its ultimate fate? Examines the various theories put forward by philosophers of both Eastern and Western traditions. Cross-listed with PHIL 5470 and RLST 4440, 5440. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4480 - Perspectives on Good and Evil

Examines the "problem of evil" as formulated in the philosophical tradition. Presents classical formulation of the problem, traditional solutions, and classical critiques of each answer. Considers perspectives of various religious orientations, which deal differently with the question of suffering. Cross-list PHIL 5480, RLST 4480/5480. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4600 - Philosophy of Religion

Nature of religion and methods of studying it. Cross-listed with HUMN 5600, PHIL 5600, RLST 4060, 5060, and SSCI 5600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4650 - Differing Concepts of God

God, gods, and goddesses have been imagined in many different modes, forms, aspects, and guises throughout human history. This course investigates Paleolithic models of God, the Great Goddess of the Neolithic era, the gods of mythological traditions, Biblical God, the abstract God of the philosophers, the God of the pantheists, the deists, and the God of the mystics. Cross-listed with PHIL 5655, RLST 4400 and 5400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4700 - Seminar in a Major Philosopher

The major philosophical texts of one philosopher is studied in this course. Philosophers to be studied are major figures in the history of philosophy such as Plato, Aristotle, Kant and Hume. Note: May be taken for credit more than once. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Max hours: 15 Credits. **Semester Hours:** 3 to 3

PHIL 4710 - Western Religious Thought

Focuses on philosophers and theologians who have contributed to the evolution of the three great religious traditions of the West: Judaism, Christianity and Islam. Targets thinkers from three periods: the ancient or formative era, the medieval era, and the contemporary era. Note: Specific philosophers chosen may vary in different semesters. Cross-listed with RLST 4070. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4720 - Eastern Religious Thought

Parallels the course in Western religious thought. The great religious traditions of the East, including Hinduism, Buddhism, Confucianism, and Taoism, are examined as they are presented in the writings of key philosophical representatives of each tradition. Cross-listed with RLST 4080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4730 - Philosophy and Literature

Considers the philosophical dimensions of literature. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5730, ENGL 4735 and 5735. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4735 - Rationalism

Addresses the fundamental questions of truth and reality through natural reason. Topics vary and may include metaphysics and the rise of modern science; women and the enlightenment; historical problems and linguistic analysis. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5735. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4740 - Empiricism

Considers the nature and importance of experience. Focuses on British Empiricism, but additional themes which vary may include: American pragmatism, logical positivism, scientific empiricism, phenomenology of experience. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5740. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4750 - Introduction to Phenomenology

Examines the contribution of phenomenology to selected topics in the theory of meaning, philosophy of mind, ontology, and epistemology, through a study of such philosophers as Husserl, Heidegger, Sartre and Merleau-Ponty. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5750. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4760 - Kant

A close study of Immanuel Kant's revolutionary thought, focusing on Kant's ontology, epistemology, and ethical theory, as they are articulated in his Critique of Pure Reason and Critique of Practical Reason. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5830. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4770 - Hegel

A systematic study of the thought of G.W.F. Hegel through his most important and influential works: The Phenomenology of Spirit; The Encyclopedia of Philosophical Sciences; The Science of Logic; Lectures on the Philosophy of History; and his lectures on the history of philosophy, art and religion. Focus of the course varies. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5770. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4780 - Heidegger

Studies the thought of Martin Heidegger, one of the most important philosophers of the 20th century. Includes texts from both Heidegger's early and later periods, and focuses on his analyses of human subjectivity and being. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5780. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4790 - Nietzsche

A close study of Nietzsche's philosophical writings, with attention to his significance for philosophy in the 20th century and beyond. Cross-listed with PHIL 5790. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4795 - Marx and Marxism

A close study of the most influential works of Karl Marx and subsequent theorists who provide either an influential interpretation of the works of Marx or contribute to an innovative application or elaboration of the basic tenets of Marxism.. Cross-listed with PHIL 5795. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4800 - Plato

A careful study of Plato's writings, emphasizing the dialogue form, and discussion of Plato's significance for the history of ethics, political theory, psychology, metaphysics and epistemology. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5800. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4810 - Aristotle

Examines Aristotle's systematic philosophy and discusses its contributions to logic, epistemology, physics, psychology, metaphysics, ethics and political theory. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5810. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4812 - Special Topics in Philosophy

Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Max hours: 15 Credits. **Semester Hours:** 3 to 3

PHIL 4820 - Hume

Considers the work of eighteenth century philosopher David Hume. Emphasis on unity of Hume's thought. Prereq: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course, or permission of instructor. Cross-listed with PHIL 5820. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4833 - Existentialism

Examines one of the most influential movements in recent European thought, beginning with existentialism's 19th century roots, and continuing on to the existentialist philosophers of the 20th century. Figures covered may include Dostoyevsky, Kierkegaard, Nietzsche, Heidegger, Sartre and de Beauvoir. Prereq: PHIL 3000 or 3022, a minimum grade of "C" in each previous philosophy course or permission of instructor. Cross-listed with PHIL 5833, HUMN 5833 and SSCI 5833. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4840 - Independent Study: PHIL

Max hours: 12 Credits. **Semester Hours:** 1 to 3

PHIL 4900 - John Dewey

John Dewey was one of the most important of the American philosophers and public intellectuals of the twentieth century. Topics may include Dewey's philosophical naturalism, pragmatist epistemology, process metaphysics and philosophies of experience, aesthetics, religion, technology and democracy. Cross-listed with PHIL 5900. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4920 - Philosophy of Media and Technology

A philosophical examination of interrelationships between contemporary media, technology, and their impacts upon character of contemporary life and values. Topics may include ethics, epistemology, democracy, advertising, media literacy and criticism. Cross-listed with PHIL 5920, HUMN 5920, SSCI 5920. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4933 - Philosophy of Eros

What does it mean to understand philosophy as an erotic activity? This question will be examined, first by studying Plato's dialogues—such as Lysis, Symposium and Republic—and then by reading texts from Sigmund Freud, Michael Foucault and others. Cross-listed with PHIL 5933, WGST 4933/5933, SSCI 5933 and HUMN 5933. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4950 - Honors Thesis

Max hours: 6 Credits. **Semester Hours:** 3 to 6

PHIL 4980 - Special Topics in Philosophy

Max hours: 15 Credits. **Semester Hours:** 1 to 3

PHIL 5000 - 19th Century Philosophy

Covers the systematic work of such German idealists as Hegel, Fichte, and Shelling, as well as responses to those systems by such authors as Marx, Kierkegaard, and Nietzsche. Prereq: PHIL 3002 or 3022. Cross-listed with PHIL 4000, HUMN 5000 and SSCI 5000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5013 - Philosophical Problems in the Social Sciences and the Humanities

Presents an overview of key theoretical issues currently emerging across academic disciplines. Examines questions about reality, knowledge, and ethics that affect social research and writing in the humanities. Readings explore how contemporary philosophical and cultural discourses have altered theory and method. Assignments include influential theoretical pieces by key historical and contemporary thinkers, examples of application in social research, and interpretations of thought and affect in cultural contexts. Cross-listed with HUMN/SSCI 5013. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5020 - Elements of Social Thought

Introduces students to the disciplines that comprise the social sciences (classical anthropology, sociology, sociology of religion, philosophy of history, political theory, classical psychology, etc.). Provides necessary tools for interdisciplinary students to understand the social infrastructure of contemporary society. Cross-listed with SSCI 5020 and HUMN 5020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5040 - Skepticism

Considers radical skepticism in the form of Sextus Empiricus' Outlines of Pyrrhonism. Following Peter Suber's "Essay on Classical Skepticism," the course also looks at historical responses to Pyrrhonian skepticism, especially in theories of belief. Cross-listed with PHIL 4040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5101 - Pragmatism: Classical American Philosophy

The most significant philosophical tradition born in the United States is pragmatism. Examines several of the most important classical works of this tradition, the influence of thinkers who have helped pragmatism, and the contemporary relevance of this tradition. Figures who may be included in this course are: Emerson, Pierce, Royce, James, Dewey, Mead and Rorty. Prereq: An introductory course in philosophy. Cross-listed with PHIL 4101, SSCI 5101, HUMN 5101. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5220 - Aesthetics and the Philosophy of Art

Introduction to major theories of aesthetics and contemporary discussions of problems in aesthetics and the philosophy of art, including topics such as: the nature of art, interpretation and evaluation in art. Cross-listed with PHIL 4220 and HUMN 5220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5242 - Bioethics

Examines some of the major moral issues confronting the nation's health care system. The class will search for solutions to such problems as financing health care for those unable to do so on their own, determining the extent of a patient's right to both refuse and demand certain types of medical treatment, and allocating scarce medical resources such as lifesaving vital organs. The springboard for examining these issues will be the doctor or patient relationship framed by the moral principles of respect for persons and beneficence. Cross-listed with PHIL 4242, HUMN 5242, SSCI 5242. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5250 - Environmental Ethics

While human industry/technology creates enormous material prosperity, it can result in devastating environmental damage. This course analyzes the moral values, consequences and duties implied in relationships between human beings, animals and ecological systems, while seeking out new and ethical approaches. Cross-listed with PHIL 4250, HUMN 5250 and SSCI 5250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5260 - Philosophy of Law

Surveys theoretical positions on the nature of law, with particular emphasis on American law. Cross-listed with PHIL 4260. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5300 - Philosophy of Mind

Consideration of the problems in the philosophy of mind, such as the mind-body problem, the problem of our knowledge of other minds, the compatibility of free will and determinism, and discussion of such concepts as action, intention, motive, desire, enjoyment, memory, imagination, dreaming and self-knowledge. Cross-listed with PHIL 4300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5360 - American Legal Process

Introduces students to basic issues in American jurisprudence as well as to the elements and dynamics of the modern American legal system. Cross-listed with PHIL 4360. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5470 - Concepts of the Soul

Asks the questions: What is the nature of the human being? What makes us "human?" Do humans have a "soul?" What is its nature? Is it different from the "spirit?" What is its ultimate fate? Examines the various theories put forward by philosophers of both Eastern and Western traditions. Cross-listed with PHIL 4470 and RLST 4440, 5440. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5480 - Perspectives on Good and Evil

Examines the "problem of evil" as formulated in the philosophical tradition. Presents classical formulation of the problem, traditional solutions, and classical critiques of each answer. Considers perspectives of various religious orientations, which deal differently with the question of suffering. Cross-list PHIL 4480, RLST 4480/5480. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5550 - Paris 1910: Art, Philosophy and Psychology

Traces the influences of philosophy, psychology, and art in the English, French, and German-speaking worlds in the early twentieth century. This intellectual history is extended to broader cultural and political contexts. Key period is between 1910 and 1968, when modernity's key aspirations and tensions became explicit. Cross-listed with HUMN 5550 and SSCI 5550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5600 - Philosophy of Religion

Nature of religion and methods of studying it. Cross-listed with HUMN 5600, PHIL 4600, RLST 4060, 5060, and SSCI 5600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5650 - Reflections on Modernity

Explores modernity as a historical epoch and a theoretical space, looking at the commentaries and reflections of influential 20th century thinkers including Adorno, Arendt, Levinas, Merleau-Ponty, Habermas and Foucault. Examines how the theoretical inclinations of modernity were influenced by politics, art, literature and culture. Cross-listed with HUMN 5650 and SSCI 5650. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5655 - Differing Concepts of God

God, gods, and goddesses have been imagined in many different modes, forms, aspects, and guises throughout human history. This course investigates Paleolithic models of God, the Great Goddess of the Neolithic era, the gods of mythological traditions, Biblical God, the abstract God of the philosophers, the God of the pantheists, the deists, and the God of the mystics. Cross-listed with PHIL 4650, RLST 4400 and 5400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5730 - Philosophy and Literature

Considers the philosophical dimensions of literature. Cross-listed with PHIL 4730, ENGL 4735 and 5735. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5735 - Rationalism

Addresses the fundamental questions of truth and reality through natural reason. Topics vary and may include metaphysics and the rise of modern science; women and the enlightenment; historical problems and linguistic analysis. Prereq: Six hours in Western philosophy. Cross-listed with PHIL 4735. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5740 - Empiricism

Considers the nature and importance of experience. Focuses on British Empiricism, but additional themes which vary may include: American pragmatism, logical positivism, scientific empiricism, phenomenology of experience. Prereq: Six credit hours in Western philosophy. Cross-listed with PHIL 4740. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5750 - Introduction to Phenomenology

Examines the contribution of phenomenology to selected topics in the theory of meaning, philosophy of mind, ontology, and epistemology, through a study of such philosophers as Husserl, Heidegger, Sartre and Merleau-Ponty. Cross-listed with PHIL 4750. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5755 - Philosophical Psychology

Explores debates about psyche and body, mind and world, self and others, and consciousness and nature. Examines the philosophical questions related to those debates that arise within theories of perception, affect and cognition offered by influential psychological models. Cross-listed with HUMN 5750, SSCI 5750. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5770 - Hegel

A systematic study of the thought of G.W.F. Hegel through his most important and influential works: The Phenomenology of Spirit; The Encyclopedia of Philosophical Sciences; The Science of Logic; Lectures on the Philosophy of History; and his lectures on the history of philosophy, art and religion. Focus of the course varies. Cross-listed with PHIL 4770. Max hours: 3 Credits.

Semester Hours: 3 to 3

PHIL 5780 - Heidegger

Studies the thought of Martin Heidegger, one of the most important philosophers of the 20th century. Includes texts from both Heidegger's early and later periods, and focuses on his analyses of human subjectivity and being. Prereq: Six credit hours in Western philosophy. Cross-listed with PHIL 4780. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5790 - Nietzsche

A close study of Nietzsche's philosophical writings, with attention to his significance for philosophy in the 20th century and beyond. Cross-listed with PHIL 4790. Max hours: 3 Credits.

Semester Hours: 3 to 3

PHIL 5795 - Marx and Marxism

A close study of the most influential works of Karl Marx and subsequent theorists who provide either an influential interpretation of the works of Marx or contribute to an innovative application or elaboration of the basic tenets of Marxism.. Cross-listed with PHIL 4795. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5800 - Plato

A careful study of Plato's writings, emphasizing the dialogue form, and discussion of Plato's significance for the history of ethics, political theory, psychology, metaphysics and epistemology. Cross-listed with PHIL 4800. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5810 - Aristotle

Examines Aristotle's systematic philosophy and discusses its contributions to logic, epistemology, physics, psychology, metaphysics, ethics and political theory. Cross-listed with PHIL 4810. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5812 - Special Topics in Philosophy

Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5820 - Hume

Considers the work of eighteenth century philosopher David Hume. Emphasis on unity of Hume's thought. Cross-listed with PHIL 4820. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5830 - Kant

A close study of Immanuel Kant's revolutionary thought, focusing on Kant's ontology, epistemology, and ethical theory, as they are articulated in his Critique of Pure Reason and Critique of Practical Reason. Cross-listed with PHIL 4760. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5833 - Existentialism

Examines one of the most influential movements in recent European thought, beginning with existentialism's 19th century roots, and continuing on to the existentialist philosophers of the 20th century. Figures covered may include Dostoyevsky, Kierkegaard, Nietzsche, Heidegger, Sartre and de Beauvoir. Cross-listed with PHIL 4833, HUMN 5833 and SSCI 5833. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5840 - Independent Study: PHIL

Max hours: 3 Credits. **Semester Hours:** 1 to 3

PHIL 5900 - John Dewey

John Dewey was one of the most important of the American philosophers and public intellectuals of the twentieth century. Topics may include Dewey's philosophical naturalism, pragmatist epistemology, process metaphysics and philosophies of experience, aesthetics, religion, technology and democracy. Cross-listed with PHIL 4900. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5920 - Philosophy of Media and Technology

A philosophical examination of interrelationships between contemporary media, technology, and their impacts upon character of contemporary life and values. Topics may include ethics, epistemology, democracy, advertising, media literacy and criticism. Cross-listed with PHIL 4920, HUMN 5920, SSCI 5920. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5933 - Philosophy of Eros

What does it mean to understand philosophy as an erotic activity? This question will be examined, first by studying Plato's dialogues—such as Lysis, Symposium and Republic—and then by reading texts from Sigmund Freud, Michael Foucault and others. Cross-listed with PHIL 4933, WGST 4933/5933, SSCI 5933 and HUMN 5933. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Physics

PHYS 1000 - Introduction to Physics

Introductory survey course for nonscientists that emphasizes the main concepts of physics. Although this course is mainly descriptive, some high school algebra will be used. The accompanying lab work is designed to illustrate the material discussed in the lectures. Max hours: 4 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1 **Semester Hours:** 4 to 4

PHYS 1052 - General Astronomy I

The history of astronomy is studied from early civilizations to the present. The basic motions of the earth, moon, sun, and planets are discussed both qualitatively and quantitatively, using elementary principles of physics. Properties of our solar system are discussed in detail, including results from unmanned space probes. Note: An additional 30 hours of laboratory work (at times to be arranged), plus appropriate report preparation time, are required to complete laboratory component of the course. Prereq: High school algebra or equivalent. Max hours: 4 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1 **Semester Hours:** 4 to 4

PHYS 1100 - Foundations of Physics

One-semester non-lab survey course especially designed for non-science majors. Acquaints students with some of the major principles and methods of physics. Includes applications of physics to everyday life and some discussion of the historical development of physics. Prereq: A good working knowledge of elementary algebra. Max hours: 4 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC2 **Semester Hours:** 4 to 4

PHYS 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

PHYS 1115 - Physics Content

Covers content areas of undergraduate physics. Topics include matter and energy; heat and thermodynamics; atomic and nuclear structure; mechanics; electricity and magnetism; and wave characteristics. Max hours: 3 Credits. **Semester Hours:** 1 to 3

PHYS 1332 - Explorations in Physics

Applications of physics are explored in depth for students considering physics as a major or minor. Topics vary each semester, providing conceptual and mathematical insights and hands-on activities on how physics is used in the real world or at research frontiers. Prereq: Algebra and Trigonometry. Max hours: 6 Credits. **Semester Hours:** 3 to 3

PHYS 1840 - Independent Study: PHYS

Students must check with a faculty member before taking this course. Max hours: 3 Credits. **Semester Hours:** 1 to 3

PHYS 2010 - College Physics I

This is an algebra based physics course covering mechanics, heat and sound. Prereq: College algebra and trigonometry. Max hours: 4 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC2. **Semester Hours:** 4 to 4

PHYS 2020 - College Physics II

This is an algebra based physics course covering electricity, magnetism, light and modern physics. Prereq: PHYS 2010. Max hours: 4 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC2. **Semester Hours:** 4 to 4

PHYS 2030 - College Physics Lab I

Max hours: 1 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1. **Semester Hours:** 1 to 1

PHYS 2040 - College Physics Lab II

Prereq: PHYS 2030. Max hours: 1 Credit. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC1. **Semester Hours:** 1 to 1

PHYS 2311 - General Physics I: Calculus-Based

This is a calculus based physics course covering vector displacement, uniform and accelerated motion, force, momentum, energy, rotating systems, oscillations, and an introduction to thermodynamics. Emphasis is on basic principles. Prereq: MATH 1401. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PHYS 2321 - General Physics Laboratory I

Max hours: 1 Credit. **Semester Hours:** 1 to 1

PHYS 2331 - General Physics II: Calculus-Based

This is a calculus based physics course covering electrostatics, magnetic fields, electromagnetic waves (including light), and optics. Prereq: PHYS 2311 and MATH 2411. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PHYS 2341 - General Physics Laboratory II

Prereq: PHYS 2321. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PHYS 2711 - Vibrations and Waves

Introduces vibrations and waves associated with physical phenomena. Analytic and numerical methods in physical contexts. Topics include harmonic oscillators, resonance, coupled oscillators, nonlinear oscillators, waves in elastic media, sound waves, pulses and dispersion. Prereq: PHYS 2331 and MATH 2411. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 2811 - Modern Physics I

Presents a study of the events and discoveries that occurred during the latter part of the 19th and the first part of the 20th centuries which led to the discovery of quantum mechanics; namely, special relativity, particle nature of radiation, wave properties of particles, models of the atom, and the introduction of quantum mechanics. Prereq: PHYS 2331 and MATH 2411. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PHYS 2821 - Modern Physics II

Quantum physics used for an understanding of energy levels and configuration of hydrogen atoms, strength of molecular bonds, atomic and molecular spectroscopy, solid state physics, band theory, nuclear and subatomic physics. Also includes quantum statistics, general relativity and cosmology. Prereq: PHYS 2811. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 2840 - Independent Study: PHYS

Students must check with a faculty member before taking this course. Max hours: 3 Credits.

Semester Hours: 1 to 3

PHYS 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

PHYS 3040 - Modern Cosmology

Designed for non-majors, covering the large-scale structure of the universe. Topics covered are gravitational concepts, neutron stars, pulsars, black holes, big bang universe and cosmological tests. Prereq: PHYS 2010 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 3050 - General Astronomy II

Evolution of our sun and other stars is studied, as well as the methods used to gain the information. Discussion includes objects such as neutron stars, novae and supernovae, and black holes. Large-scale structures, including clusters and galaxies, are studied. Prereq: PHYS 1052, 2010 or 2311. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 3082 - Energy and the Environment

For students of various backgrounds who wish to increase their understanding of the environmental and technical issues of supplying the energy demands of our society. Alternative energy sources and conservation are explored as solutions to promote sustainable society. Prereq: One college-level science course and MATH 1110 or equivalent. Cross-listed with ENV5 3082. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 3120 - Methods of Mathematical Physics

Typically covers calculus of variations, special functions, partial differential equations, integral transforms, linear vector spaces, and tensor analysis. Prereq: MATH 2421 and 3195 (or equivalent) or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 3151 - Biophysics Outlook I

Designed as a companion to General Biology I (but can take stand-alone), this course explores how biophysics concepts and experimental methods add to the knowledge of life's processes at the molecular and cellular level. Prereq: PHYS 2010 and 2020 strongly recommended for optimal student success. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PHYS 3161 - Biophysics Outlook II

Designed as a companion to General Biology I (but can take stand-alone), this course explores how biophysics concepts and experimental methods contribute to the understanding of the structure and function of plants, animals & ecological systems. Prereq: PHYS 2010 and PHYS 2020 strongly recommended for optimal student success. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PHYS 3211 - Analytical Mechanics

Topics include the Lagrange and Hamiltonian formulations, the two-body problem, rigid body motion, and small oscillations. Prereq: PHYS 2711, MATH 2421 and 3195 or equivalent. Coreq: PHYS 3120. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PHYS 3251 - Biophysics of the Body

Fundamental ideas of mechanics are used to model the form and function of the human body, including statistics, locomotion, energy, and fluid flow. Topics from analytical mechanics are included to ensure student knowledge of Lagrangian and Hamiltonian formalisms. Prereq: PHYS 2020 and MATH 2411 strongly recommended for optimal student success. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PHYS 3411 - Thermal Physics

Covers the basic concepts of the three related disciplines of thermodynamics, statistical mechanics, and kinetic theory. Prereq: PHYS 2331, 2811 and MATH 2421; Coreq: MATH 3195 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 3451 - Biophysics of the Cell

This course will cover the fundamentals of thermodynamics and statistical mechanics and apply these physical principles to the understanding of biological systems. Topics covered include, heat entropy, equilibrium, brownian motion, probability and statistics. The biological processes studied will include molecular motors, protein function, membranes, ion channels, and action potentials. Prereq: PHYS 2020 and MATH 2411 strongly recommended for optimal student success. Coreq: MATH 3195 or equivalent. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PHYS 3620 - Sound and Music

Considers the basic nature of sound waves, the ear and hearing, and musical instruments. Although this course is mainly descriptive, some high school algebra will be used. Prereq: MATH 1070 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 3711 - Junior Laboratory I

Advanced laboratory in classical and modern physics. Prereq: PHYS 2811. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PHYS 3721 - Junior Laboratory II

Advanced laboratory in classical and modern physics. Prereq: PHYS 3711. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PHYS 3811 - Quantum Mechanics

A course in which both wave and matrix mechanics are developed and applied to selected problems in atomic physics. Prereq: PHYS 2811 and 3211. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 3840 - Independent Study: PHYS

Note: Students must check with a faculty member before taking this course. Max hours: 6 Credits. **Semester Hours:** 1 to 3

PHYS 3939 - Internship

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA. Max hours: 9 Credits.

Semester Hours: 1 to 3

PHYS 4331 - Principles of Electricity and Magnetism

Elements of mathematical theory of electricity and magnetism, including electrostatics, magnetostatics, polarized media, direct and alternating current theory, and introduction to electromagnetic fields and waves. Prereq: PHYS 2331 and 3120. Max hours: 4 Credits.

Semester Hours: 4 to 4

PHYS 4351 - Bioelectromagnetism

The fundamental theory of electric and magnetic fields is developed and applied to problems of biology and medicine. Examples in medical diagnostics and treatment are built upon rigorous application of Maxwell's equations and constitutive models of electromagnetic properties of biomaterials. Prereq: PHYS 2331 and MATH 2421 strongly recommended for optimal student success. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PHYS 4400 - Topics in Scientific Instrumentation and Laboratory Methods

Short courses on practical knowledge needed to design scientific instruments, develop technical products, and use special laboratory procedures to research. Topics include materials, mechanisms, electronics, and optics. Specific topic information is available through the physics department web site. Prereq: Two semesters of 2000-level introductory physics or instructor's permission. Cross-listed with PHYS 5400-5499. Max hours: 6 Credits. **Semester Hours:** 1 to 1

PHYS 4401 - Special Topics

Max hours: 3 Credits. **Semester Hours:** 1 to 3

PHYS 4510 - Optics

Presents a contemporary treatment of selected topics in optics, such as matrix methods in geometrical optics, the Fourier analysis approach to physical optics, and interaction of light with matter. Prereq: PHYS 2331, 2811 and 3120. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 4550 - Astrophysics

Covers stellar astrophysics, solar physics, star formations, stellar evolution, processes in the interstellar medium, galactic dynamics and evolution, formation of galaxies and cosmology. Prereq: MATH 3195; PHYS 2821 and 3050 recommended. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 4610 - Computational Physics

Designed to provide an understanding of the role of the computer in modern theoretical physics by studying the simulation of physical phenomena in various fields of physics. Prereq: PHYS 3120. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PHYS 4620 - Computational Physics II

Assigns the student to an individual, advanced-level project modeling a physical phenomenon on the computer. Prereq: PHYS 4610. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PHYS 4650 - Solid State Physics

Covers the basic thermal and electrical properties of solids which are explained in terms of the Brillouin zone structures of phonons and electrons. Prereq: PHYS 3411 and 3811. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 4711 - Senior Laboratory I

Individual project laboratory with emphasis on modern methods of physical experimentation. Prereq: PHYS 3721. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PHYS 4721 - Senior Laboratory II

Individual project laboratory with emphasis on modern methods of physical experimentation. Prereq: PHYS 4711. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PHYS 4788 - Bioinformatics

Provides a broad exposure to the basic concepts and methodologies of bioinformatics and their application to analyzing genomic and proteomic data. Topics may include dynamic programming algorithms, graph theoretic techniques, hidden Markov models, phylogenetic trees, RNA/protein structure predictions and microarray analysis. Prereq: CSCI 1410, MATH 3191 or 3195. Cross-listed with CSCI 4788, MATH 4788. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 4810 - Atomic and Molecular Structure

A course in which quantum mechanical methods are applied to problems in atomic and molecular physics, such as the one-electron atom, atomic and molecular spectra, and particle scattering. Prereq: PHYS 3811. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 4820 - Subatomic Physics

Introductory treatment of the various concepts and models used to describe nuclear and high energy particle phenomena. Prereq: PHYS 2811. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 4840 - Independent Study: PHYS

Note: Students must check with a faculty member before taking this course. Max hours: 12 Credits. **Semester Hours:** 1 to 3

PHYS 4850 - Physics for Design and Innovation I

A service-learning project using fundamental physical principles to design a prototype scientific instrument, technical device, or technical process for a real-world client. Includes instruction on project management, intellectual property, and market analysis. Cross-listed with PHYS 5850. Max hours: 6 Credits. **Semester Hours:** 3 to 3

PHYS 4852 - Physics for Design and Innovation II

A capstone project using fundamental physical principles to prototype a scientific instrument, technical device or technical process. The focus is on the student's own product idea. Includes online guided readings on the wider context of product development. Students should consult with instructor on necessary physics and mathematics preparation for the project. Prereq: PHYS 4850. Cross-listed with PHYS 5852. Max hours: 6 Credits. **Semester Hours:** 3 to 3

PHYS 4920 - Advanced Undergraduate Seminar

Studies a focused topic such as: size and age of the universe, critical phenomena, non-linear optics, energy, fiber-optic communications, among others. Students research these topics and give a seminar outlining their findings. Prereq: PHYS 2811 or permission of instructor. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PHYS 4931 - Internship in Applied Physics

Lab experience at major federal and industrial laboratories; an alternative means by which senior physics students complete their senior lab requirement. Note: To be taken in lieu of PHYS 4711 and/or 4721. Prereq: PHYS 3721. Max hours: 4 Credits. **Semester Hours:** 2 to 4

PHYS 4939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 3

PHYS 4980 - Advanced Physics Topics

Covers a particular topic, as announced in the 'Schedule Planner.' Note: May be taken more than once for credit in different topics. Prereq: PHYS 2811. Max hours: 3 Credits. **Semester Hours:** 1 to 3

PHYS 5101 - XP Forces and Motion

Concepts of motion, forces, momentum, and mechanical energy are connected to major technologies. A key goal is to exhibit how an experienced practitioner from a field other than physics assimilates these concepts into applications in daily life and the workplace. Prereq: permission of instructor required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 5102 - XP Electromagnetism and Energy

Concepts such as charge, current, electric field, potential, and magnetic field are developed with focus on energy and power generation. A key goal is to exhibit how an experienced practitioner from a field other than physics assimilates these concepts into applications in daily life and the workplace. Prereq: Permission of instructor required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 5103 - XP Light, Color and Optics

The physical nature of light explains optical technologies using illumination, shadows, reflection, refraction, color, polarization and interference. A key goal is to exhibit how an experienced practitioner from a field other than physics assimilates these concepts into applications in daily life and the workplace. Prereq: Permission of instructor required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 5104 - RM-MSMSP Aviation Fundamentals

Designed for teachers in the RM-MSMSP program Explores flight instruments, aerodynamics, safety of flight, charts/airspace, radios/communication, weather, navigation, aircraft performance, NASA microgravity and medical issues, cross country flight, route and aircraft planning, Crew resource management, aeronautical decision making and more. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PHYS 5105 - RM-MSMSP Research Experience for Teachers - Physics Cohort

A five - week research exploration in which RM-MSMSP teachers will raise their level of relevant scientific understanding by engaging in a "hands-on" workshop, transforming what they have learned into new curricular materials that will improve the scientific abilities of their students and hopefully stimulate them to consider a STEM career. Note: credit may not apply toward any CLAS degree. Max hours: 6 Credits. **Semester Hours:** 1 to 6

PHYS 5400 - Topics in Scientific Instrumentation and Laboratory Methods

Short courses on practical knowledge needed to design scientific instruments, develop technical products, and use special laboratory procedures in research. Topics include materials, mechanisms, electronics, and optics. Specific topic information is available through the physics department web site. Cross-listed with PHYS 4400-4499. Max hours: 6 Credits. **Semester Hours:** 1 to 1

PHYS 5401 - Special Topics

Max hours: 3 Credits. **Semester Hours:** 1 to 3

PHYS 5840 - Independent Study: PHYS

Note: Students must check with a faculty member before taking this course. Max hours: 3 Credits. **Semester Hours:** 1 to 3

PHYS 5850 - Physics for Design and Innovation I

A service-learning project using fundamental physical principles to design a prototype scientific instrument, technical device, or technical process for a real-world client. Includes instruction on project management, intellectual property, and market analysis. Cross-listed with PHYS 4850. Max hours: 6 Credits. **Semester Hours:** 3 to 3

PHYS 5852 - Physics for Design and Innovation II

A capstone project using fundamental physical principles to prototype a scientific instrument, technical device or technical process. The focus is on the student's own product idea. Includes online guided readings on the wider context of product development. Students should consult with instructor on necessary physics and mathematics preparation for the project. Prereq: PHYS 4850 or 5850. Cross-listed with PHYS 5852. Max hours: 6 Credits. **Semester Hours:** 3 to 3

PHYS 5939 - Internship

Note: Students must check with a faculty member before taking this course. Max hours: 9 Credits. **Semester Hours:** 1 to 6

PHYS 5950 - Master's Thesis

Note: Students must check with a faculty member before taking this course. Max hours: 8 Credits. **Semester Hours:** 1 to 8

PHYS 5960 - Master's Project

Note: Students must check with a faculty member before taking this course. Max hours: 8 Credits. **Semester Hours:** 1 to 8

PHYS 5980 - Advanced Physics Topics

Covers a particular topic as announced in the 'Schedule Planner.' Note: May be taken more than once for credit in different topics. Prereq: PHYS 2811 or permission of instructor. Max hours: 12 Credits. **Semester Hours:** 1 to 3

PHYS 6840 - Independent Study: PHYS

Note: Students must check with a faculty member before taking this course. Max hours: 3 Credits. **Semester Hours:** 1 to 3

Political Science

PSCI 1001 - Introduction to Political Science: The Quest for Freedom and Justice

Introduces the study of politics, its human importance, and its relationship to social institutions. Analysis of the relationship between individual political behavior and characteristics of the political system. Development of key concepts such as power, legitimacy, authority, political socialization, and revolution. Note: Required of all PSCI majors. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS1 **Semester Hours:** 3 to 3

PSCI 1101 - American Political System

General introduction to the American political system with emphasis upon citizen involvement, the relationships among the various levels and branches of government, formal and informal institutions, processes, and behavior. Note: Required of all PSCI majors. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS1 **Semester Hours:** 3 to 3

PSCI 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

PSCI 2001 - Topics in Political Science

Covers different areas of politics. Note: May be taken more than once for credit when topics vary. Max hours: 9 Credits. **Semester Hours:** 1 to 3

PSCI 2006 - Global Political Issues

Studies global political issues, exploring the broad forces at play in the world: international economics, national interests, military power, nationalism, ethnicity, the environment and human rights. Discussion of world events and underlying global issues, incorporating analytical tools used by political scientists. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 2840 - Independent Study

An opportunity for lower division students who demonstrate academic potential to pursue the study of some subject of interest in greater detail, with supervision from a faculty member in the department. Subjects chosen and arrangements for assignments to be made between student and faculty. Prereq: One semester of course work at Downtown Denver Campus. Max hours: 3 Credits. **Semester Hours:** 1 to 3

PSCI 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA. Max hours: 3 Credits. **Semester Hours:** 1 to 3

PSCI 3000 - Topics: Conference Participation

Max hours: 1 Credit. **Semester Hours:** 1 to 1

PSCI 3002 - Topics in Political Science

Covers different areas of politics. Note: May be taken more than once for credit when topics vary. Max hours: 9 Credits. **Semester Hours:** 1 to 3

PSCI 3011 - Research Methods

Design of political/social research, both qualitative and quantitative. Applications of statistical techniques and procedures to social and political phenomena. Use of computer and the Internet. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 3022 - Introduction to Comparative Politics

Comparison of the basic political features of selected countries with focus on political behavior, institutions and political cultures. Themes examined include development, democratization, social movements, political instability and globalization. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 3034 - Race, Gender, Law and Public Policy

Historical overview of race and gender relations in the U.S. and an examination of the treatment of issues of race and gender in the judicial system and public policy. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 3035 - Political Movements: Race and Gender

Examines the emergence, growth, and decline of social movements for race and gender equality. Discussion of political issues of race and gender in the 1990s. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 3042 - Introduction to International Relations

Basic background and theories of international relations with focus on the interaction between nation states, international organizations, regimes and transnational movements. Themes examined include foreign policy conduct, international security and political economy, human rights and environmental management. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 3064 - Power and Empowerment in the United States

Introduces U.S. political economy. Analysis of the political and economic forces and structures that shape the opportunities available to the American people. Among topics included are reciprocal impacts of government and business, the federal budget, taxation, lobbying and special interests, community organizing, and elections. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 3075 - Community Organizing and Community Development

Engages the history, theory and skills of community organizing and development. An essential question guiding the course is, "How do we become ethical agents of change?" Students answer this question through rigorous study, development and application of the theory and practice of community organizing and development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 3214 - Federal Law and American Indians

Examines the legal and political history of the U.S. in relation to American Indian Nations. Focuses on specific laws and Supreme Court cases in federal Indian law, with analysis of U.S. policy. There will be some comparison with Indian policies of other countries. Cross-listed with ETST 3216. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 3333 - Utopian Transformations

Explores cutting-edge theory and practice in social change that transcends traditional left-right divisions and merely incremental reform. Utopian and transformative experiments studied include communes, worker cooperatives, neighborhood organizing, and green parties. Note: Service-learning option can fulfill major requirement. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 3347 - Film and Politics

Presents historical and contemporary films to introduce students to critical evaluation of film as a political medium. Whether designed as propaganda or entertainment, films shape and reflect critical issues in our political and social culture. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 3840 - Independent Study: PSCI

Max hours: 6 Credits. **Semester Hours:** 1 to 3

PSCI 3914 - The Urban Citizen

Course emphasis is community, the individual, and the good life. Experiential learning and classroom discussions about capacities of urban citizens. Focus is on social, political, and economic resources that individuals command, issues of equality and inequality, and possibilities of constructive change. Prereq: A willingness to spend a semester working and studying together as a team in both the classroom and the community. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 3939 - Internship

Designed experiences involving application of political concepts and skills in supervised employment situations. Prereq: Junior or senior standing and 3.0 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

PSCI 4002 - Topics in Political Science

Specialized areas of politics. Note: May be taken more than once for credit when topics vary. Max hours: 9 Credits. **Semester Hours:** 3 to 3

PSCI 4009 - Politics of the Budgetary Process

Develops each student's understanding of budgeting and financial management in the public and nonprofit sectors. An overview of public sector and nonprofit fiscal management is provided, along with thorough exploration of the political influences that affect financial decision-making. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4011 - GIS in Political Science

Computer lab course developing methodological skills in Geographic Information Systems (GIS) in political contexts. Geospatial computerized mapping skills are important in political fields such as urban planning, electoral analysis, environmental justice, demographics, public health, and criminal justice. Designed for beginners. Cross-listed with PSCI 5011. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4014 - Media and Politics

Explores the impact of the news media on the American political system, including public policy and citizen participation, and addresses trends in news coverage and media ownership, and their impact on public opinion. Prereq: PSCI 1001 and 1101 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4024 - Legislatures and Legislation

Structure and organization of legislatures, informal influences, and the process of statute law making. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4025 - Local Governance and Globalization

Introduces international political economy, consequences of globalization for localities, interplay between wealth and power among nations, multinational corporations, NGOs and the UN, and impact of their actions on local governments. Topics include development, aid, trade, outsourcing, eco-sustainability and global equity. Prereq: Graduate standing or permission of instructor. Cross-listed with PSCI 5025. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4034 - Political Parties and Pressure Groups

Democrats, Republicans, third parties, and pressure groups in the United States. Analysis of pressure politics and political behavior. Impact of parties and pressure groups on the public good. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4044 - The Presidency

An overview of the historical, constitutional, and functional aspects of the presidency. Focuses on the powers and vulnerabilities of the presidency and on the style and politics of the current president. Prereq: PSCI 1101. Cross-listed with PSCI 5044. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4057 - Religion and Politics

Exploration of: (1) theoretical perspectives on the relationship between religion and politics; (2) causes of and justifications for the historical development of the Western separation of "church and state;" (3) contemporary responses to and analyses of this separation; and (4) several current debates about public policy in America that reveal tensions between these two spheres. Cross-listed with PSCI 5057 and RLST 4500, 5500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4074 - Urban Politics

The crisis and the promise of U.S. cities. Nature and roots of critical urban problems. Citizen involvement in urban decision making. Government as problem and as solution. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4084 - Local Government and Administration

Policy and administrative challenges faced by local government in the 21st century. Emphasis on cities under federalism, alternative forms of city governance, and new challenges from increasingly diverse constituents. Issues of poverty, public safety, health, transportation, environment, corruption, and accountability. Cross-listed with PSCI 5084. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4085 - Comparative Public Policy

Comparison of public policy making in such areas as health care, environment, family assistance, and employment in the United States and at least two other countries. Prereq: Graduate standing or permission of instructor. Cross-listed with PSCI 5085. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4094 - Seminar: American Politics

Foundations of U.S. politics and contemporary political issues. Federal/state/community relations. Relationship among the three branches of the Federal government. Colorado controversies arising under the U.S. Constitution. Cross-listed with PSCI 5014. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4105 - Comparative Politics: Europe

An intensive and comparative analysis of the political systems and processes of Europe. Emphasis on political culture and economy; executive-legislative relationships; electoral systems; political parties and interest groups; political conflict and citizen participation; and the impact of social changes on political institutions. Cross-listed with PSCI 5105. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4115 - Third World Politics

Examines the factors challenging political stability in low income nations and the prospects for democracy and economic development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4124 - Denver Politics

Surveys Denver's dominant political and economic forces and community agendas that compete with the downtown growth machine. Examines urban renewal strategies, gentrification and grass-roots resistance, and the role of officials in shaping Denver's distribution of wealth and life-opportunities. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4126 - Introduction to International Political Economy

A short introduction to international economy, including classic readings of international political economy (such as Smith, Ricardo, Marx, Lenin), and more recent work on globalization, applying related theories to the current world economy. Max hours: 6 Credits. **Semester Hours:** 3 to 3

PSCI 4144 - Indigenous Political Systems

Surveys political theory and practice in indigenous societies in the Americas. Examines the impact of indigenous political thought on Euro-American politics, especially the U.S. Constitution, and explores the contemporary impact of indigenous people on current politics. Cross-listed with ETST 4144. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4146 - Indigenous Politics

Surveys the status of the world's native peoples and nations, and the role of law and politics in the future of indigenous peoples in the global arena. Examines questions of human rights, economic development, and international law and politics. Prereq: PSCI 1001. Cross-listed with PSCI 5145 and ETST 4146. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4155 - Political Systems of the Middle East and North Africa

Comparative analysis of political processes in the Middle East and North Africa. Islamic political theory and its contemporary manifestations. The role of nationalism and the quest for modernity in the political development of this region. Parties and programmed modernization in transitional politics. Violent and nonviolent change. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4156 - The Arab-Israeli Peace Process

Critical analysis of Arab and Israeli perspectives on the on-going peace negotiations in the Middle East. Historical background and religious-cultural aspects of current problems. Prereq: Upper division standing. Cross-listed with ETST 4156. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4165 - Islamic Politics and Culture

Comprehensive, in-depth study of Islam and Muslims. Islam is viewed as a "way of life" with social, economic, psychological, spiritual, and political implications. Among topics to be examined are: women in Islam, Jihad, fundamentalism, Islamic movements, Islam and the West. Cross-listed with RLST 3100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4176 - Gandhi's Legacy: Non-Violent Resistance Today

This course assesses the legacy of Gandhi's nonviolent struggle against systemic oppression. We examine Gandhi's ideas and practices, consider Western images of political violence, and then focus on questions and possible answers raised by empirical studies. Prereq: This course is restricted to students with junior standing or higher (completed 60 credits). Cross-listed with PSCI 5176. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4185 - Corruption in the U.S. and Abroad

Explores the causes and consequences of administrative and political corruption in developed and developing countries, and evaluates various anti-corruption strategies. Prereq: PSCI 1001 or 3022. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4186 - East Asia in World Affairs

Political and economic systems and foreign policies of East Asian powers, such as China, Japan, Taiwan, South Korea and Hong Kong; interactions of these powers and their collective economic and political roles in world affairs; major theoretical approaches to the study of East Asian powers. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4195 - Political Systems of Sub-Saharan Africa

Analysis of major types of political systems in sub-Saharan Africa and intensive case studies of selected countries exemplifying each type. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4206 - Social Movements, Democracy and Global Politics

Examines global social movements as new political actors within world politics; how theoretical perspectives in international relations and democracy address these actors; and the forms of interaction among these actors, states, and global governance institutions. Cross-listed with PSCI 5206. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4207 - Theories of Social and Political Change

Conservative, radical, and incremental approaches to change. Role of psychological and sociological factors in political change. Comparative perspectives on change. Self-perpetuation processes of power systems and their vulnerabilities. Requisites of system maintenance and system change. Selected case studies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4215 - Women's Rights, Human Rights: Global Perspectives

Explores the global feminist movement's campaign to "engender" human rights. Examination of women's human-rights issues and the critique of this campaign as representing cultural imperialism. Prereq: Six hours of political science or instructor permission. Cross-listed with WGST 4215. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4216 - International Politics: Human Rights

The system of nation states, concepts of national interest, goals of foreign policies, conduct of diplomacy, and the bearing of these elements on the problem of human rights. Presentation and evaluation of the solutions that have been offered for the securing of justice and the maintenance of peace. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4224 - Dictatorships in 21st Century

Analyzes and classifies political systems of non-democratic regimes. Reviews earlier and contemporary theories that explain the origins, survival and death of authoritarian regimes. Discusses the impact of dictatorial rule on domestic developments as well as on international relations. Cross-listed with PSCI 5224. PSCI 3022 recommended for student success. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4225 - Democracy and Democratization

Examines the conditions under which countries turn from authoritarianism towards democracy and become stable democratic regimes. Also examines the impact of foreign and international factors on new democracies. Cross-listed with PSCI 5225. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4226 - The United Nations in World Affairs

Current operation and future potential of the United Nations as a complex actor in world affairs, both expressing conflicting interests of its participants and promoting universal goals, including world peace, human rights, and environmental protection. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4235 - Politics and Markets in Latin America

Explores political economic development in Latin America within the context of the world system. Includes the study of colonization, land tenure, foreign investment, authoritarianism, militarism, social and revolutionary movements, human rights and democratization. Max hours: 6 Credits. **Semester Hours:** 3 to 3

PSCI 4236 - American Foreign Policy

Examines the postwar events, controversies, and most recent challenges in U.S. foreign policy. Analyses of the major sources of U.S. foreign policy, such as ideology, national interests, and national power. Attention to the pattern and process of foreign policy-making. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4237 - American National Security

Examines American national security, utilizing an interdisciplinary analysis of its domestic historical development and its function in the current global context. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4248 - Gender, Globalization and Development

Analyzes the effects of globalization on the gendered processes of international development and strategies to empower women to achieve gender justice across race, class and national divisions. Cross-listed with PSCI 5245 and WGST 4248/5248. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4265 - Social Justice And Globalization

Examines issues of justice and ethical responsibility in a globalizing world. Do moral obligations of individuals and institutions end at national borders or do they encompass all human beings and extend to the environment and to future generations? Cross-listed with PSCI 5265. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4266 - International Law

Investigates the body of law that regulates relations between nations and provides a framework for solving common problems and disputes between nations. Prereq: Upper division political science major. Cross-listed with PSCI 5266. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4274 - Conflict Resolution and Public Consent Building

Alternative strategies for resolving or mediating conflicts facing public or nonprofit organizations and for building public consent, with emphasis on personal, interpersonal, organizational, interest-group, cross-cultural, and roots of conflict and bases for consent. Cross-listed with PSCI 5274. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4276 - Conflicts and Rights in International Law

Explores contending interpretations and practices in international law regarding issues such as the legitimacy of humanitarian intervention, efficacy of truth commissions, tensions between truth and justice in cases of genocide and war crimes, and legal changes needed to devise viable rules. Cross-listed with PSCI 5276. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4286 - International Relations: War or Peace?

Presents alternative theoretical frameworks for the explanation of war and peace. Investigations of the efficacy of international law, just-war norms and the UN in preventing or containing conflict. Prereq: PSCI 1001. Cross-listed with PSCI 5286. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4324 - Politics, Public Policy and Leadership

Role of politics in public and nonprofit sectors. Theories of administration and policy-making, emphasizing the role of leadership in public outcomes. Hands-on approach to case studies and use of students' policy experiences in practical application of theories. Cross-listed with PSCI 5324. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4326 - Advanced International Political Economy: Globalization

Engages the current debate about globalization. Conceptualizes globalization and evaluates the pros and cons of global trade and finance for developed and developing countries. Develops a model for a sustainable and just global economy. Prereq: PSCI 4126. Cross-listed with PSCI 5326. Max hours: 6 Credits. **Semester Hours:** 3 to 3

PSCI 4330 - U.S. Health Policy

The role of public health policy as legislated at the federal and state levels. Individual health policy (e.g. social security and managed care) and public health policy (e.g. mandatory immunizations, HIV testing, air and water quality). Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4354 - Environmental Politics

Political, legal, and economic forces in environmental law and policy. Special emphasis on air and water pollution and on threats to public and agricultural land. Environmental groups and their opponents. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4365 - Global Ecological Crises

Overview of global ecological problems such as climate change, transboundary pollutions, and loss of bio-diversity in an attempt to understand the political, economic, and cultural forces behind these problems and the status of legal and policy initiatives to address them. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4374 - Public Priorities for the 21st Century

Identification of and planning for social, political, and economic trends in American society likely to transform governmental, nonprofit, and private entities. Rigorous examination of and debate on competing priorities such as liberty, security, welfare, equality, diversity, growth and ecology. Cross-listed with PSCI 5374. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4407 - Early Political Thought

Main currents of political thought in their historical setting from Plato to Machiavelli, with a critical evaluation of those elements of continuing worth. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4414 - Organizational Change Agents

Explores strategies for changing public and nonprofit organizations and of ways leadership abilities can be used for this purpose. Analysis of obstacles to organizational change and of methods for overcoming them. Principles of change applied to real-life contexts. Cross-listed with PSCI 5514. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4417 - Modern Political Thought

Main currents of political thought in their historical setting from the 17th century to the present. Development of the student's own political theory. PSCI 4407 is not a prerequisite for PSCI 4417. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4427 - Law, Politics and Justice

Analysis of the relationship of politics, law, and justice, particularly the degree to which moral norms and political concerns should and do influence legal standards and their perceived legitimacy. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4437 - Coercion and the State

An analysis of: (1) the historical emergence of the modern state; (2) the theoretical justifications for the concentration of political power and the activist state; (3) the internationalization of the European state system; and (4) anarchist and Fourth World challenges. Max hours: 3 Credits.

Semester Hours: 3 to 3

PSCI 4444 - Contemporary Culture and Politics in America

Intellectual and experiential investigation of the interplay of culture and politics in American society, as manifested in literature, social and political philosophy, psychological writings and trends, radical movements, popular culture, and daily behavior. Max hours: 3 Credits.

Semester Hours: 3 to 3

PSCI 4446 - Advanced Indigenous Peoples' Politics

Builds upon the theoretical and applied foundations of PSCI 4146. Intensive study of international legal and political developments are examined, particularly in the United Nations and the Organization of American States systems. Prereq: PSCI 4144 or 4146 or permission of instructor. Cross-listed with PSCI 5446. Max hours: 3 Credits.

Semester Hours: 3 to 3

PSCI 4457 - American Political Thought

American law, politics, and conflict. History and development of American political theories and ideas from Native American roots through the colonial period to the present. Political theory and practice in the U.S. today. Max hours: 3 Credits.

Semester Hours: 3 to 3

PSCI 4477 - Constitutional Law I

Nature and scope of the following American constitutional principles as developed by the U.S. Supreme Court: federalism, jurisdiction of the federal courts, separation of powers, the taxing power, and the commerce power. Case method. Max hours: 3 Credits.

Semester Hours: 3 to 3

PSCI 4487 - Constitutional Law II

Continuation of PSCI 4477, with emphasis on the war powers of the president, citizenship, the Bill of Rights, and the Civil War amendments. (Case method.) Note: PSCI 4477 is not a prerequisite for PSCI 4487. Max hours: 3 Credits.

Semester Hours: 3 to 3

PSCI 4494 - Judicial Politics

Examines principal actors in the legal system: police, lawyers, judges, citizens. About half of this course is devoted to the study of judicial behavior, especially at the Supreme Court level.

Political and personal influences on judicial behavior. Max hours: 3 Credits.

Semester Hours: 3 to 3

PSCI 4505 - Political System of Russia and Its Neighbors

The class focuses on the political values, institutions and actors of Russia and its neighboring countries, covering the political developments since the late 20th century. The relations between Russia, the European Union and the United States are also analyzed. Max hours: 3 Credits.

Semester Hours: 3 to 3

PSCI 4545 - Immigration Politics

Introduces students to central theories of migration and a survey of immigration law and policy in the 20th century. Highlights experiences of Mexican and Latin American immigrants and related topics, including: U.S.-Mexican foreign relations, bilingual education, undocumented immigration and globalization. Cross-listed with PSCI 5545. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4554 - Chicano and Latino Politics

Analysis of the social, cultural, and economic factors that affect political behavior of Latinos. Special attention is paid to the Mexican American cultural heritage and to relations between Mexican Americans and Anglo Americans. Cross-listed with ETST 4558. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4555 - International Women's Resistance

Examines local and international struggles of women to build peace and justice by resisting systems of inequality such as colonialism, racism, patriarchy, globalization, and religious intolerance. Cross-listed with PSCI 5555, ETST 4555 and WGST 4555/5555. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4564 - Gender and Politics

Analysis of the political experience of women and of strategies for change. Emphasis on the U.S. Cross-listed with WGST 4564. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4605 - Politics and Governments of South Asia

Studies the political systems of Bangladesh, India, Pakistan, Sri Lanka and Nepal. The impact of British rule on the development of political institutions on the subcontinent as well as problems of political development at all levels. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4615 - Politics and Government of China

Political and governmental changes within China, from the 19th century to the present. Primary emphasis on contemporary political systems and sociopolitical problems. China's struggle for independence and economic development. The Chinese revolutions, Maoist communism, and the post-Maoist period. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4644 - Ethical Responsibilities of Leaders

Explores concepts of ethical decision making within the context of public leadership in both the public and non-profit sectors. Universal and individual ethical standards are examined. Cross-listed with PSCI 5644. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4645 - Comparative Political Leadership

Comparative study of historical, socio-cultural, and psychological bases of political leadership. Leadership types in peasant societies, empires, and revolutionary movements. Dilemmas of democratic versus authoritarian leadership in modernizing and industrial states. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4726 - Russian and Chinese Foreign Policy

Foreign policies of Russia and China; relations with Western powers and the Third World; interaction of domestic developments and foreign policy; role of national interest, ideology, and elite personalities. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4736 - The Middle East in World Affairs

Evolution and revolution in the Middle East. The character of nationalism in the area. Analysis of inter-regional and international problems affecting the Middle East, with special emphasis on current Arab-Israeli relations. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4757 - Legal Reasoning and Writing

Introduces the fundamentals of legal reasoning and legal argumentation through intensive class discussion, formal debate and writing. Attention is given to the relationship between case and statutory law and their application in trial and appeals courts in the United States. Prereq: ENGL 1020, 2030, and any one 3000-level English/writing course or COMM 3120. Cross-listed with PSCI 5747, COMM 4750, 5750. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4807 - Political Violence

Investigates different types of political violence including genocide, ethnic and religious conflict, revolution, terrorism, war, state repression and others. Introduces theories of individual, collective and institutional violence, applies them to a range of case studies and explores possible solutions. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4808 - Strategies of Peacebuilding

The course investigates the theories and strategies of peacebuilding in societies that have endured intrastate conflict and/or massive human rights violations and asks whether peace and justice and democracy can or should work together and how forgiveness and reconciliation might develop. Cross-listed with PSCI 5808. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4827 - Women and the Law

Examines the role of the courts in the development of public policy toward women; how the legal system affects the economic power, family roles, safety and political participation of women. Cross-listed with ETST 4827 and WGST 4827. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4837 - Contemporary Issues in Civil Liberties

Conflicting rights of individuals and groups in several areas of civil liberties, including religious groups, free speech, sexual freedom, racial quotas, and anti-governmental actions and publications. This course includes case law, readings, guest speakers and case discussions. Cross-listed with PSCI 5837. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4840 - Independent Study: PSCI

An opportunity for advanced students with good scholastic records, and with appropriate courses completed, to pursue independently the study of some subject of special interest to them. Subjects chosen and arrangements made to suit the needs of each student. Note: Primarily for seniors. Prereq: 15 semester hours in political science and permission of instructor. Max hours: 12 Credits. **Semester Hours:** 1 to 3

PSCI 4934 - CU at the Capitol

Examines current year legislative session of Colorado General Assembly. Study of various elected leaders; Colorado party system; Governor-Assembly relations; citizen and lobbyist influence; corruption and virtue in politics; current affairs. Each student will be placed in a state government internship. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4995 - Travel Study

Students study various topics at an off-campus location, either a foreign country or another city or region in the United States, led by a Downtown Denver Campus instructor. Prereq: PSCI 1001 or 3022 or permission of instructor. Cross-listed with PSCI 5995. Max hours: 3 Credits. **Semester Hours:** 1 to 3

PSCI 5000 - State of the Discipline

Introduces graduate study in political science. Provides an overview of theories and methods in the four fields of American politics, political theory, comparative politics and international relations. Guest lectures by department faculty. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5005 - Political Theory After 9/11

The events of 9/11 brought into sharp focus dilemmas in international politics, including the responses to American hegemony, return of religion, nature of "terrorism" and implications for democracy. This course explores diverse interpretations of these challenges offered by major political theorists. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5007 - Beyond Political Correctness

Explores and critiques "political correctness" defined as "ideological narrowing, intolerance and silencing of dissent." Analysis of origins, dynamics and consequences of PC with emphasis on its advantages and disadvantages for practitioners. Foundational works, illustrative cases and contemporary voices. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5008 - Graduate Topics in Political Science

Max hours: 12 Credits. **Semester Hours:** 1 to 3

PSCI 5009 - Politics of the Budgetary Process

Explores budgeting and financial management in the public and nonprofit sectors. An overview of public sector and nonprofit fiscal management is provided, along with thorough exploration of the political influences that affect financial decision-making. Note: Offered as a special topics course in an intensive three-weekend format, which is reflected in the syllabus. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5011 - GIS in Political Science

Computer lab course developing methodological skills in Geographic Information Systems (GIS) in political contexts. Geospatial computerized mapping skills are important in political fields such as urban planning, electoral analysis, environmental justice, demographics, public health, and criminal justice. Designed for beginners. Cross-listed with PSCI 4011. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5013 - Philosophical Problems in the Social Sciences

Explores the fundamentals of the conduct of inquiry; concept formation and theory construction in the social sciences; issues related to value judgments and objectivity, social praxis, human nature and political choice. Cross-listed with SSCI 5013. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5014 - Seminar: American Politics

Foundations of U.S. politics and contemporary political issues. Federal/state/community relations. Relationship among the three branches of the Federal government. Colorado controversies arising under the U.S. Constitution. Cross-listed with PSCI 4094. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5024 - State Politics: Focus on Colorado

Analysis of unique aspects of Colorado government and politics. Political comparison of Colorado with other states. Preparation and discussion of research papers. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5025 - Local Governance and Globalization

Introduces international political economy, consequences of globalization for localities, interplay between wealth and power among nations, multinational corporations, NGOs and the UN, and impact of their actions on local governments. Topics include development, aid, trade, outsourcing, eco-sustainability and global equity. Prereq: Graduate standing or permission of instructor. Cross-listed with PSCI 4025. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5044 - The Presidency

An overview of the historical, constitutional, and functional aspects of the presidency. Focuses on the powers and vulnerabilities of the presidency and on the style and politics of the current president. Prereq: Graduate status or permission of instructor. Cross-listed with PSCI 4044. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5054 - The Legislative Process

An intensive examination of the structures and interactions through which laws are made in the United States. The major emphasis is the national level, but considerable attention is devoted to state legislatures and local lawmaking bodies. Impact of money and interest groups. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5057 - Religion and Politics

Exploration of: (1) theoretical perspectives on the relationship between religion and politics; (2) causes of and justifications for the historical development of the Western separation of "church and state;" (3) contemporary responses to and analyses of this separation; and (4) several current debates about public policy in America that reveal tensions between these two spheres. Cross-listed with PSCI 4057, and RLST 4500, 5500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5084 - Local Government and Administration

Policy and administrative challenges faced by local government in the 21st Century. Emphasis on cities under federalism, alternative forms of city governance, and new challenges from increasingly diverse constituents. Issues of poverty, public safety, health, transportation, environment, corruption and accountability. Cross-listed with PSCI 4084. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5085 - Comparative Public Policy

Comparison of public policy making in such areas as health care, environment, family assistance, and employment in the United States and at least two other countries. Prereq: Graduate standing or permission of instructor. Cross-listed with PSCI 4085. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5094 - Seminar: Urban Politics

An intensive analysis and research of major aspects of politics and government in metropolitan areas. Impact of corporations and higher levels of government on cities. Opportunities for, and barriers to, citizen participation. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5105 - Comparative Politics: Europe

Examination and writing of research papers on selected topics of industrial democracies, especially those of Europe. Cross-listed with PSCI 4105. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5135 - Seminar: Political Economy of Latin America

Focuses on the political economies and cultures of Latin America. Particular attention is given to the impact of the export-led growth strategy on social and political development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5145 - Indigenous Politics

Surveys the status of the world's native peoples and nations, and the role of law and politics in the future of indigenous peoples in the global arena. Examines questions of human rights, economic development, and international law and politics. Prereq: Graduate status or permission of instructor. Cross-listed with PSCI 4146 and ETST 4146. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5176 - Gandhi's Legacy: Non-Violent Resistance Today

This course assesses the legacy of Gandhi's nonviolent struggle against systemic oppression. We examine Gandhi's ideas and practices, consider Western images of political violence, and then focus on questions and possible answers raised by empirical studies. Prereq: Restricted to graduate students. Cross-listed with PSCI 4176. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5206 - Social Movements, Democracy and Global Politics

Examines global social movements as new political actors within world politics; how theoretical perspectives in international relations and democracy address these actors; and the forms of interaction among these actors, states, and global governance institutions. Cross-listed with PSCI 4206. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5216 - Seminar: International Relations

Introduces contending theories, empirical studies, and research methods in the field. Writing and discussion of comprehensive research papers in the field of international power politics and alternative attempts at controlling conflicts among nations. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5224 - Dictatorships in 21st Century

Analyzes and classifies political systems of non-democratic regimes. Reviews earlier and contemporary theories that explain the origins, survival and death of authoritarian regimes. Discusses the impact of dictatorial rule on domestic developments as well as on international relations. Cross-listed with PSCI 4224. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5225 - Democracy and Democratization

Examines the conditions under which countries turn from authoritarianism towards democracy and become stable democratic regimes. Also examines the impact of foreign and international factors on new democracies. Cross-listed with PSCI 4225. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5236 - Seminar: American Foreign Policy

Examines selected methodological and substantive problems. Particular emphasis on elements of national decision making, America's adaptation to the changing world, and opportunities for student contributions through research and discussion. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5238 - Seminar: Comparative Foreign Policy

Examination of the effects of leaders, groups, institutions, strategic cultures and external influences on national foreign policy-making processes and comparative analysis of foreign policy making of great and emerging powers. Prereq: graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5245 - Gender, Globalization and Development

Analyzes the effects of globalization on the gendered processes of international development and strategies to empower women to achieve gender justice across race, class and national divisions. Cross-listed with PSCI 4248 and WGST 4248/5248. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5256 - Seminar: National Question and Self-Determination

Designed to provide students with a broad theoretical and empirical understanding of the causes of ethnic conflicts and to assess different strategies of conflict resolution. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5265 - Social Justice And Globalization

Examines issues of justice and ethical responsibility in a globalizing world. Do moral obligations of individuals and institutions end at national borders or do they encompass all human beings and extend to the environment and to future generations? Cross-listed with PSCI 4265. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5266 - International Law

Investigates the body of law that regulates relations between nations and provides a framework for solving common problems and disputes between nations. Prereq: Upper division political science major. Cross-listed with PSCI 4266. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5274 - Conflict Resolution and Public Consent Building

Alternative strategies for resolving or mediating conflicts facing public or nonprofit organizations and for building public consent, with emphasis on personal, interpersonal, organizational, interest-group, cross-cultural, and roots of conflict and bases for consent. Cross-listed with PSCI 4274. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5276 - Conflicts and Rights in International Law

Explores contending interpretations and practices in international law regarding issues such as the legitimacy of humanitarian intervention, efficacy of truth commissions, tensions between truth and justice in cases of genocide and war crimes, and legal changes needed to devise viable rules. Cross-listed with PSCI 4276. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5286 - International Relations: War or Peace?

Presents alternative theoretical frameworks for the explanation of war and peace. Investigations of the efficacy of international law, just-war norms and the UN in preventing or containing conflict. Prereq: Graduate status or permission of instructor. Cross-listed with PSCI 4286. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5324 - Politics, Public Policy and Leadership

Role of politics in public and nonprofit sectors. Theories of administration and policy-making, emphasizing the role of leadership in public outcomes. Hands-on approach to case studies and use of students' policy experiences in practical application of theories. Cross-listed with PSCI 4324. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5326 - Advanced International Political Economy: Globalization

Engages the current debate about globalization. Conceptualizes globalization and evaluates the pros and cons of global trade and finance for developed and developing countries. Develops a model for a sustainable and just global economy. Cross-listed with PSCI 4326. Max hours: 6 Credits. **Semester Hours:** 3 to 3

PSCI 5354 - Seminar: Environmental Politics and Policy

Consideration of competing models of the policy process in natural-resources decision making. Focus on selected case studies. Impact of environmental and pro-growth forces on the political process. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5374 - Public Priorities for the 21st Century

Identification of and planning for social, political, and economic trends in American society likely to transform governmental, nonprofit and private entities. Rigorous examination of and debate on competing priorities such as liberty, security, welfare, equality, diversity, growth and ecology. Cross-listed with PSCI 4374. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5414 - Organizational Change Agents

Explores of strategies for changing public and nonprofit organizations and of ways leadership abilities can be used for this purpose. Analysis of obstacles to organizational change and of methods for overcoming them. Principles of change applied to real-life contexts. Cross-listed with PSCI 4414. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5417 - Seminar: Practical Utopias

Explores of utopian theories applied in real-world experiments and political movements, including communes, worker cooperatives, neighborhood organizing and Green parties. One or more field trips and a final retreat during which the class will develop its own practical-utopian model(s). Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5446 - Advanced Indigenous Peoples' Politics

Builds upon the theoretical and applied foundations of PSCI 4146. Intensive study of international legal and political developments are examined, particularly in the United Nations and the Organization of American States systems. Prereq: PSCI 4144 or 4146 or permission of instructor. Cross-listed with PSCI 4446. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5457 - Seminar: American Political Thought

An intensive research in and presentation of competing ideas in the development of American political thought and practice, beginning with those of the Iroquois Confederacy and the founders of the United States Constitution. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5468 - Research Methods in Political Science

Analysis and evaluation of research methods, techniques, and empirical materials in political science application to Internet research. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5477 - The U.S. Constitution: Law and Politics

An intensive analysis of the most recent doctrinal developments in the areas of federal jurisdiction, federalism, separation of powers, commerce, taxing and war powers, civil liberties and civil rights. Prereq: PSCI 4477 or 4487 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5545 - Immigration Politics

Introduces students to central theories of migration and a survey of immigration law and policy in the 20th century. Highlights experiences of Mexican and Latin American immigrants and related topics, including U.S.-Mexican foreign relations, bilingual education, undocumented immigration and globalization. Cross-listed with PSCI 4545. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5555 - International Women's Resistance

Examines local and international struggles of women to build peace and justice by resisting systems of inequality such as colonialism, racism, patriarchy, globalization, and religious intolerance. Prereq: Graduate status or permission of instructor. Cross-listed with PSCI 4555, WGST 4555/5555 and ETST 4555. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5610 - Seminar: Middle East Politics

Examines the Middle East regional system and the region's role in world politics. Investigates questions regarding politics in Iran, Iraq, Palestinian-Israeli relations, political Islam, and relations with the United States. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5615 - Seminar: Chinese Development

Discussion of readings about China. Analysis of several of the following: party-government relations, ideology and political behavior, leadership, diplomacy, political and economic development and post-Mao reforms. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5644 - Ethical Responsibilities of Leaders

Explores concepts of ethical decision making within the context of public leadership in both the public and non-profit sectors. Universal and individual ethical standards are examined. Cross-listed with PSCI 4644. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5726 - Seminar on U.S. and China Relations

Detailed examination of historical context and current issues in U.S./China relations. Emphasis on post-1949 period, with particular attention to post-1978 relations and issues. Prereq: Graduate status or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5747 - Legal Reasoning and Writing

Introduces the fundamentals of legal reasoning and legal argumentation through intensive class discussion, formal debate and writing. Attention is given to the relationship between case and statutory law and their application in trial and appeals courts in the United States. Cross-listed with PSCI 4757, COMM 4750, 5750. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5807 - Seminar: Conflict Behavior and the Politics of Violence

Theoretical and empirical analysis of conflict behavior with special emphasis on the explanation of political violence. Revolution, international warfare, and urban unrest are studied as forms of political violence, and the role of systematic empirical research is emphasized in the development of general theories of intergroup conflict. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5808 - Strategies of Peacebuilding

The course investigates the theories and strategies of peacebuilding in societies that have endured intrastate conflict and/or massive human rights violations and asks whether peace and justice and democracy can or should work together and how forgiveness and reconciliation might develop. Cross-listed with PSCI 4808. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5827 - Seminar: Political Psychology

Role of personality variables in political attitudes, behavior, and system maintenance and change; human nature as a parameter; political relevance of psychoanalytic, behaviorist, humanistic and social psychology; alienation, ethnocentrism, dogmatism, and aggression as political variables. Prereq: Political science or psychology background. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5837 - Contemporary Issues in Civil Liberties

Conflicting rights of individuals and groups in several areas of civil liberties, including religious groups, free speech, sexual freedom, racial quotas, and anti-governmental actions and publications. This course includes case law, readings, guest speakers and case discussions. Cross-listed with PSCI 4837. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5840 - Independent Study: PSCI

Max hours: 6 Credits. **Semester Hours:** 1 to 3

PSCI 5914 - Community Development

The theory and practice of community-sensitive development. Global forces challenge communities, alternatively, with floods and droughts of international capital. By collaborating with a non-profit community-based organization, this class examines how communities develop progressive methods of engaging global forces. Prereq: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 6

PSCI 5950 - Master's Thesis

Max hours: 6 Credits. **Semester Hours:** 1 to 6

PSCI 5960 - Master's Project

Max hours: 3 Credits. **Semester Hours:** 1 to 3

PSCI 5995 - Travel Study

Students study various topics at an off-campus location, either a foreign country or another city or region in the United States, led by a Downtown Denver Campus instructor. Prereq: PSCI 1001 or 3022 or permission of instructor. Cross-listed with PSCI 4995. Max hours: 3 Credits.

Semester Hours: 1 to 3

PSCI 6840 - Independent Study: PSCI

Max hours: 3 Credits. **Semester Hours:** 1 to 3

Pre-Nursing

PRNU 2939 - Internship

Pre-Health internship offering students an opportunity to obtain hands-on experience in a clinical setting; will not apply to the Biology major. Involves application of technical concepts and skills in supervised allied health environment, such as a hospital or medical clinic. Note: May not be used as an upper-division elective. Prereq: One year of general biology with a grade of 'C' (2.0) or higher, junior standing, and a GPA of 2.75 or higher. Max hours: 3 Credits. **Semester Hours:** 1 to 3

PRNU 3939 - Internship

Pre-Health internship offering students an opportunity to obtain hands-on experience in a clinical setting; will not apply to the Biology major. Involves application of technical concepts and skills in supervised allied health environment, such as a hospital or medical clinic. Note: May not be used as an upper-division elective. Prereq: One year of general biology with a grade of 'C' (2.0) or higher, junior standing, and a GPA of 2.75 or higher. Max hours: 3 Credits. **Semester Hours:** 1 to 3

Psychology

PSYC 1000 - Introduction to Psychology I

Introduces the scientific study of behavior, including an overview of the biological basis of behavior, sensation or perception, states of consciousness, learning and memory, thinking and language, intelligence, motivation and emotion. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS3 **Semester Hours:** 3 to 3

PSYC 1005 - Introduction to Psychology II

Introduces the scientific study of behavior, including an overview of the history of psychology, development, personality, psychological disorders, therapy, health psychology and social behavior. PSYC 1000 is not a prerequisite for this course. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS3
Semester Hours: 3 to 3

PSYC 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

PSYC 2050 - Improving Memory

Applies psychological principles of memory function and process to everyday settings and experiences. Covers topics such as how memory works, principles of memory improvement, and strategies for effective learning. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PSYC 2060 - Psychology Applied to Everyday Life

A primer in psychological principles applied to everyday situations. Covers topics such as learning, stress and health, attraction and love, and personality. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 2090 - Statistics and Research Methods

Introduces statistics and research methods in the field of psychology. Note: Intended for those who plan to major in psychology. Completion of college algebra or equivalent is recommended. Prereq: PSYC 1000. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PSYC 2220 - Biological Basis of Behavior

Introduces the biological basis of behavior. This course will feature concepts like neurons, synaptic and hormonal transmission, and physiological set-points. Behavior of simple (invertebrate) and complex organisms (vertebrates) will be related to the activity of specific brain neural networks. Prereq: PSYC 1000 or BIOL 2051. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SC2
Semester Hours: 3 to 3

PSYC 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

PSYC 2990 - Topics in Psychology

Studies special topics to be selected by the instructor. Note: May be repeated for credit. Max hours: 3 Credits. **Semester Hours:** 1 to 3

PSYC 3050 - Decision Making

This course discusses current research on decision making/behavioral economics, as well as its application to individual well-being and public policy. You will gain insights on how and why people can be irrational in their daily decisions. Max hours: 3 Credits. Cross-listed with PBHL 3050 and ECON 3050. **Semester Hours:** 3 to 3

PSYC 3090 - Research Methods in Psychology

Covers principles of experimental methodology in Psychology. Includes active participation in data collection and interpretation, presentation of results, evaluation of scientific literature, scientific writing and advanced statistical concepts as they relate to the field of Psychology. Prereq: PSYC 1000, 1005 and 2090. Max hours: 6 Credits. **Semester Hours:** 3 to 3

PSYC 3104 - Behavioral Genetics

Interdisciplinary course on relationships between behavior and heredity, with emphasis on human behavioral genetics. Prereq: General biology or general psychology. Cross-listed with BIOL 3104. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3144 - Human Cognition

Studies information processing in humans, with emphasis on memory, thinking and language. Prereq: PSYC 1000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3145 - Industrial and Organizational Psychology

Surveys the fields of industrial and organizational psychology. These fields apply psychological principles to improving productivity and satisfaction in the workplace. Topics include motivation, leadership, group processes, team functioning, occupational health, selection and training of employees, and performance management. Prereq: PSYC 1000 and 1005. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3205 - Human Development I: Child Psychology

Studies human development covering birth, infancy, toddler, preschool and school-aged child. Covers biological, cognitive and social processes. Prereq: PSYC 1000 or 1005. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3215 - Human Development II: Adolescence and Adulthood

Study of human development from adolescence through adulthood and aging. Covers biological, cognitive, and social processes. Prereq: PSYC 1000 and 1005. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3222 - Principles of Learning and Behavior

Introduces the scientific study of learning and behavior, focusing on "Behaviorism." Principles of operant and classical conditioning are discussed. A particular emphasis is placed on the relevance and application of these principles to understanding human behavior and psychopathology. Prereq: PSYC 1000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3235 - Human Sexuality

Examines the physiological, psychological, and social psychological bases of human sexuality. Research on the range of sexual behaviors, individual sexual response, sexual development, sexual dysfunction, and variants of sexual orientation. Prereq: PSYC 1000 and 1005. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3254 - Introduction to Animal Behavior

Surveys the behavior of nonhuman animals, emphasizing the evolution through natural selection. Prereq: One semester of general biology, biological anthropology, or other course emphasizing evolutionary perspective. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3262 - Health Psychology

An overview of the scientific study of attitudes, behaviors, and personality variables related to health and illness. Emphasis is on the interaction of biological, psychological, and social factors that cause illness and influence its treatment and prevention. Prereq: PSYC 1000 and 2220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3263 - Hormones and Behavior

The hormonal regulation of behavior will be the primary focus of this course. Topics include: hormonal basis of sexual differentiation and behavioral differences, parental behavior, biological rhythms, aggression, mood and stress. Prereq: PSYC 1000 and 2220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3265 - Drugs, Brain and Behavior

Explores the pharmacological, biological, and behavioral basis of drug effects. Topics include mechanisms of drug action, brain reward pathways, role of environment and history on drug effects, and the impact of science on drug abuse and medication development. Prereq: PSYC 1000 and 2220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3305 - Abnormal Psychology

Borderline disorders as extreme variations of the normal personality. Major functional and organic disorders. Theories of mental disorders and methods of psychotherapy. Prereq: PSYC 1000 and 1005. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3405 - Family Psychology

Overview of theory and research pertaining to marital and family structure, functioning and dynamics. Prereq: PSYC 1000 and 1005. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3415 - Experimental Social Psychology

Surveys the field of Social Psychology, the study of the way in which cognitions, emotions, and behaviors are influenced by the presence, or perceived presence, of others. Heavily focuses on experimentation and experimental methods within the field of Social Psychology. Prereq: PSYC 1000 and 1005. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3505 - Psychology and the Law

Examines the legal and extralegal applications of psychology, such as assessment of insanity and competence, psychologists as expert witnesses, accuracy of eyewitness accounts, and issues relating to employment discrimination. Prereq: PSYC 1000 and 1005. Max hours: 3 Credits.

Semester Hours: 3 to 3

PSYC 3600 - Topics in Psychology

Studies special topics to be selected by the instructor. Note: May be repeated for credit. Max hours: 9 Credits. **Semester Hours:** 1 to 3

PSYC 3610 - Psychological Trauma

Overview of psychological trauma, including: history, theoretical application, trauma models, diagnosis and treatment implications. Topics include family violence, child abuse, sexual abuse, and the trauma of war. Prereq: PSYC 1000 and 1005. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3611 - Psychology of Women

Reviews psychological theories and research of women's social, cultural, emotional and behavioral experience. Examines the sociocultural context of women's experience and explores women's socialization, developmental issues, cognitive abilities and achievement motivation, personality variables, stereotypes, psychological disorders, victimization, intimacy and sexuality. Prereq: PSYC 1000 and 1005. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3612 - Domestic Abuse

Examines the nature and extent of domestic violence. Personal characteristics and dynamics that contribute to spouse abuse are reviewed. Theories and research in the general field of family violence, victims' and perpetrators' treatment, and child abuse are discussed. Prereq: PSYC 1000 and 1005. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3615 - Positive Psychology

This course provides an introduction to the science of positive traits, subjective experiences and institutions. It focuses on the empirical study of the factors that enable humans to flourish, develop resilience, mature and master life's challenges. Prereq: PSYC 1000 and 1005. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3724 - Developmental Psychobiology

Explores the biological influences on the development of brain and behavior. Emphasis is on the evolution and development, the role of experience in prenatal and postnatal development, the ontogeny of sensory systems, learning and memory, and the biological bases of language acquisition. Prereq: PSYC 1000/1005 or BIOL 2051/2061. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3810 - Neuropsychology

Brain organization and function and its relationship to human memory, language, perception, and other cognitive abilities. Covers the application of clinical neuropsychology to working with individuals that have neurological disorders. Prereq: PSYC 1000 and 2220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3822 - Aging, Brain and Behavior

Examines the aging process, behavioral changes during senescence and the accompanying changes in the aged brain. Changes that are part of healthy aging are studied, as will age-related brain disorders. Prereq: PSYC 1000 and 2220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3832 - Neural Basis of Learning

Survey of advances in neuroscience that further the understanding of how neurons within our brains are modified by experience and thus influence subsequent behavior. Includes discussions of how these mechanisms contribute to various psychopathologies. Prereq: PSYC 1000 and 2220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3939 - Internship

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing, completion of minimum of 12 hours in psychology with minimum grade of 'C.' Max hours: 9 Credits. **Semester Hours:** 1 to 3

PSYC 4054 - Behavioral Neuroscience

The morphological, neurochemical and physiological bases of behavior. Emphasis is on structure and function of the brain. Prereq: PSYC 1000, 1005, 2090, 2220, 3090 and 6 upper-division elective credits in psychology. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 4090 - Research Design and Development

This advanced writing and research methods course is designed to help students develop independent research ideas in Psychology into formal proposals and products, such as a thesis proposal, grant application, presentation and study protocol. Prereq: PSYC 3090 and instructor permission. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 4101 - Applied Statistics Using SAS and SPSS I

Teaches the practical statistical tools social scientists use to analyze real-world problems. It is split into four modules, each taught by a different instructor. The first module introduces SAS and SPSS; modules 2-4 are problem-based and cover topics such as ANOVA, multivariate regression, and cluster analysis. Prereq: Any statistics course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 4102 - Applied Statistics Using SAS and SPSS II

Students use the skills they learned in the previous semester to analyze a social issue of their choosing and present their findings. Note: A continuation of PSYC 4101. In addition to lectures, weekly one-on-one meetings between faculty and students are required. Prereq: PSYC 4101. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 4164 - Psychology of Perception

Studies sensory processes and perceptual variables. Covers processes related to vision, audition, gustation and olfaction. Prereq: PSYC 1000 and 2220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 4455 - Theories of Personality

An in-depth look at several major theories of personality, including those from psychodynamic, behavioral, and humanistic schools of thought. Students are required to think actively and abstractly, and communicate their ideas in papers and classroom contributions. Prereq: PSYC 1000 and 1005. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 4485 - Psychology of Cultural Diversity

Studies diversity in the development of the individual across Asian, Black, Hispanic, and Native American cultures. The experience of self, role of the family, expression of emotions, and psychology of prejudice are emphasized. Prereq: Six semester hours of psychology, sociology, and/or anthropology in any combination. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 4500 - Psychotherapy

Overview of the major systems of psychotherapy, including psychoanalysis, person-centered therapy, family therapy, cognitive or behavioral approaches, and relationships among the various approaches. Prereq: PSYC 1000, 1005, 2090, 2220, 3090 and 6 upper-division elective credits in psychology. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 4511 - History of Psychology

Development of psychological theories since 500 B.C. Schools of psychology and their adherents. Readings of primary and secondary sources. Prereq: PSYC 1000, 1005, 2090, 2220, 3090 and 6 upper-division credits in psychology. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 4680 - Behavioral Sciences Research Seminar

Introduces research in the behavioral sciences. Students will learn about behavioral sciences research programs at CU Denver and other centers, present results of their own research, and interact with the community of local behavioral science research scholars and visiting scientists. Prereq: permission of the instructor. Max hours: 4 Credits. **Semester Hours:** 1 to 1

PSYC 4730 - Clinical Psychology: Ethics and Issues

An in-depth exploration of the values and ideas that guide professional practice in psychology, including professional codes of conduct and philosophical ethical principles. Topics include confidentiality, informed consent, competence, integrity and respect. Prereq: 1000, 1005, 2090, 2220 and 3090. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 4780 - Behavioral Sciences Research: Ethics and Issues

Students will critically review and analyze some of the major ethical and policy issues that arise during the conduct of basic and applied behavioral research. Prereq: PSYC 1000, 1005, 2090, 2220 and 3090 or instructor permission. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 4803 - Principles of Psychological Testing

Principles underlying construction, validation, and use of tests of ability, intelligence, and personality and of attitude surveys. Covers statistical topics such as content and construct validity, item analysis, and reliability analysis. Prereq: A prior course in statistics. Cross-listed with PSYC 5803. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 4840 - Independent Study: PSYC

Prereq: Permission of instructor. Max hours: 12 Credits. **Semester Hours:** 1 to 3

PSYC 4939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 3

PSYC 4990 - Topics in Psychology

Advanced study of special topics to be selected by the instructor. May be repeated for credit. Prereq: Permission of instructor. Cross-listed with PSYC 5990. Max hours: 3 Credits. **Semester Hours:** 1 to 3

PSYC 5803 - Principles of Psychological Testing

Principles underlying construction, validation, and use of tests of ability, intelligence, and personality and of attitude surveys. Covers statistical topics such as content and construct validity, item analysis, and reliability analysis. Prereq: Admission to psychology graduate program. Cross-listed with PSYC 4803. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 5840 - Independent Study: PSYC

Max hours: 12 Credits. **Semester Hours:** 1 to 3

PSYC 5939 - Internship

Max hours: 12 Credits. **Semester Hours:** 1 to 6

PSYC 5990 - Topics in Psychology

Advanced study of special topics to be selected by the instructor. Note: May be repeated for credit. Prereq: Permission of instructor. Cross-listed with PSYC 4990. Max hours: 3 Credits. **Semester Hours:** 1 to 3

PSYC 6200 - Developmental Psychopathology

The study and prediction of maladaptive behaviors and processes across time. Students develop a sophisticated understanding of important concepts related to emotional and behavioral problems in children and adolescents, including DSM-IV-TR diagnostic criteria and the basic tenets of successful intervention. Prereq: Admission to the Psychology MA, Clinical program or the Clinical Health Psychology Ph.D. program or with permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 6840 - Independent Study

A structured experience, planned and implemented with the assistance of a sponsoring faculty member in ongoing programs of research or other scholarly activity. Prereq: Admission to the graduate program in psychology. Max hours: 12 Credits. **Semester Hours:** 1 to 3

PSYC 6841 - Independent Study: PSYC

Max hours: 9 Credits. **Semester Hours:** 1 to 3

PSYC 6910 - Research Practicum

Max hours: 12 Credits. **Semester Hours:** 3 to 3

PSYC 6930 - Clinical Internship

Clinical experience in a setting which provides supervision by qualified professionals. Students participate in assessment, intervention, and/or evaluation and research. Prereq: Completion of 24 hours of course work in the UCD Psychology MA, Clinical program. Max hours: 12 Credits.

Semester Hours: 1 to 6

PSYC 6950 - Master's Thesis

Max hours: 6 Credits. **Semester Hours:** 1 to 6

PSYC 7144 - Advanced Cognition and Emotion

Overview of contemporary psychological theories and research in human learning, memory, cognition, and emotion. Emphasis on cognitive and affective neuroscience and the physiological-psychological organization of functional systems. Prereq: Admission to the Clinical Health Psychology Ph.D. Program or with permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 7205 - Advanced Developmental Psychology

A survey of neurobiological, cognitive, social and cultural processes in human development from conception through adulthood. Prereq: Admission to the Psychology MA, Clinical program or Clinical Health Psychology Ph.D. program or with permission of instructor and a graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 7220 - Advanced Biological Bases of Behavior

Survey course of advances in psychobiology which inform our understanding of the brain and behavior with special emphasis on perception, action, and cognition. A major goal of the course is to foster appreciation of the importance of interdisciplinary research. Prereq: Admission to the Clinical Health Psychology PhD program or permission of instructor. Max hours: 3 Credits.

Semester Hours: 3 to 3

PSYC 7262 - Health Psychology I

Part I of a 2-course sequence. Presents crucial aspects of health psychology and behavioral medicine, including theoretical models, anatomy and physiology epidemiology, health promotion and primary prevention of medical problems. Prereq: Admission to the Clinical Health Psychology Ph.D. Program or with permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 7350 - Psychotherapy I

Surveys some of the major schools of psychotherapy, including cognitive and cognitive-behavioral therapies as well as motivational interviewing. Coverage also includes therapy techniques, process of therapy, and treatment-outcome research. Prereq: Admission to the Psychology MA, Clinical program or the Clinical Health Psychology Ph.D. program or with permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 7360 - Psychotherapy II

Theoretical approaches and techniques used in research, assessment and treatment of major forms of psychopathology, including anxiety, depression, schizophrenia and substance abuse, as well as marital problems and childhood disorders. Prereq: Admission to the Clinical Health Psychology Ph.D. Program or with permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 7400 - Child Assessment

Psychometric theory and practice in assessment of children with focus on the diagnostics, the WISC-III, and personality assessment. Prereq: Admission to the Clinical Health Psychology Ph.D. program or with permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 7410 - Personality Assessment

Reviews the process of selection, evaluation, administration, utilization, and interpretation of psychological tests related to psychosocial functioning. Issues of validity, reliability, utility, clinical judgement, ethics, and cross-cultural competence are reviewed. Prereq: Admission to the Clinical Health Psychology Ph.D. program, Clinical Psychology MA program, or by permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 7420 - Cognitive Assessment

Reviews the process of selection, evaluation, administration, utilization, and interpretation of psychological tests related to cognitive functioning. Issues of validity, reliability, utility, clinical judgement, ethics, and cross-cultural competence are reviewed. Prereq: Admission to the Clinical Health Psychology Ph.D. program, Clinical Psychology MA program, or by permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 7485 - Diversity in Clinical Psychology

Designed to foster understanding of diversity and its implications for clinical practice, research, and mental health policy. Students will learn to orient to the worldviews of clients from diverse backgrounds and to tailor their interventions to competently serve individuals in a pluralistic society. Prereq: Admission to the Clinical Health Psychology Ph.D. program or with permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 7490 - Topics in Health Psychology Summer Lecture Series

Weekly lectures given by Clinical Health Psychology department faculty, advanced graduate students, alumni and area professionals on selected topics in the field. Note: This course is required for first, second and third-year graduate students. Prereq: Admission to the Clinical Health Psychology Ph.D. Program. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PSYC 7500 - Advanced Psychopathology

Key features of major mental disorders in adult populations. Includes classification, DSM diagnosis, epidemiology, course and prognosis, age/culture/gender features, etiology and biological bases. Prereq: Admission to Psychology MA, Clinical program or the Clinical Health Psychology Ph.D. program or with permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 7511 - Historical and Philosophical Foundations of Psychology

Philosophical and historical antecedents to contemporary psychology, with particular emphasis on clinical psychology. Prereq: Admission to the Clinical Health Psychology Ph.D. Program or with permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 7520 - Experimental Psychopathology

Theories of etiology of major psychopathologies, including: personality disorders, anxiety disorders, affective disorders, substance use disorders and schizophrenia and other psychoses. Prereq: Admission to the Clinical Health Psychology Ph.D. program or with permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 7700 - Clinical Research Methods

Principles of research methodology in clinical psychology. Major topics include research ethics, subject recruitment, ethnic and cultural considerations, selecting and evaluating research measures, epidemiology and comorbidity, taxonomic and outcome research and research design. Prereq: Admission to the Psychology MA, Clinical program or the Clinical Health Psychology Ph.D. program or with permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 7710 - Multivariate Statistics

Topics include multiple regression, logistic regression, factor analysis, and structural equation modeling. Both experimental and non-experimental designs will be considered. Students will learn underlying theory of these techniques as well as how to perform analyses using software like SPSS and Mplus. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 7713 - Advanced Statistics

Experimental design and analysis of controlled interventions and evaluations. Emphasis on multifactor analysis of variance, orthogonal contrasts, post-hoc tests, multiple regression, and analysis of co-variance. Prereq: Admission to the Psychology MA, Clinical program or the Clinical Health Psychology Ph.D. program or with permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 7730 - Ethics and Professional Issues in Psychology

An in-depth exploration of the values and ethical ideas that guide professional practice in psychology, including philosophical ethical principles and professional codes of conduct. Specific topics include confidentiality, informed consent, competence, and respect for persons. Students are expected to be able to think about and communicate difficult ethical concepts in the form of class participation and a major paper. Prereq: Admission to the Psychology MA, Clinical program or the Clinical Health Psychology Ph.D. program or with permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 7830 - Clinical Interviewing

Students practice interviewing and develop skills, including the ability to listen actively, to critique their own work and the work of others, and to think carefully about issues that arise in clinical work with clients. Prereq: Admission to the Psychology MA, Clinical program or the Clinical Health Psychology Ph.D. program or with permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 1 to 3

PSYC 7910 - Clinical Practicum

Clinical experience under supervision of licensed, doctoral-level professionals. Students participate in assessment, intervention, and/or evaluation and research in a variety of settings. Note: All field placements must be approved by the Director of Clinical Training (DCT) in advance of registration. Prereq: Completion of 24 hours of course work in the UCD Clinical Health Psychology PhD program. Max hours: 12 Credits. **Semester Hours:** 1 to 6

PSYC 8100 - Clinical Behavioral Medicine

Presents basic assessment and psychotherapeutic techniques used for patients with various disorders, focusing on cognitive-behavioral methods and the unique needs of patients experiencing chronic disease. Prereq: Admission to the Clinical Health Psychology Ph.D. Program or with permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 8200 - Teaching Skills Workshop

Students will learn, explore, and practice the basic principles and strategies of good teaching. We will also explore research and theory for teaching at the college level. Prereq: Admission to the Clinical Health Psychology Ph.D. program or with permission of instructor(s). Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 8262 - Health Psychology II

Part II of a 2-course sequence. Further aspects of health psychology and behavioral medicine, including health service utilization, patient-provider relationships, social support, terminal illness and issues related to chronic disease states. Prereq: Admission to the Clinical Health Psychology Ph.D. Program or with permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 8501 - Primary Care Psychology

Examines emerging trends in the role of professional psychology and psychologists serving as health care providers in primary care medical settings. Knowledge, skills and attitudes as they apply to competencies unique to primary care will be covered. Prereq: Admission to the Clinical Health Psychology Ph.D. program or with permission of instructor and graduate program director. Students must also have completed PSYC 7262, 8262, and 7730, or equivalent courses. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 8502 - Cardiovascular Health Psychology

The course focuses on research and clinical practice regarding psychological factors related to cardiovascular functioning and disease. The physiology of the cardiovascular system will be presented and primary and secondary prevention as related to psychological functioning will be emphasized. Prereq: Admission to the Clinical Health Psychology PhD program or with permission of instructor and graduate program director. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 8503 - Group Interventions in Health Psychology

The course will serve as an introduction to group psychotherapy and group process principles with a focus on the design, implementation and delivery of evidence-based group interventions in the field of Clinical Health Psychology. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 8550 - Advanced Social Psychology

This is a graduate level seminar that broadly covers the social bases of behavior from a social psychological perspective. It includes discussion of topics such as group processes, attribution theory, discrimination, and perspectives on attitudes. Prereq: Admission to the Clinical Health Psychology Ph.D. program or with permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 8910 - Clinical Health Practicum

Advanced clinical experience under supervision of licensed, doctoral-level professionals. Students participate in assessment, intervention, and/or evaluation and research in a variety of health care settings to address the interface between physical and psychological functioning. Note: All field placements must be approved by the Director of Clinical Training (DCT) in advance of registration. Prereq: PSYC 7930. Max hours: 12 Credits. **Semester Hours:** 1 to 6

PSYC 8938 - Pre-Doctoral Internship

Intensive full-time clinical experience with supervision by licensed, doctoral-level professionals. Interns participate in assessment, intervention, and/or evaluation and research in a variety of settings. Students apply through the Association of Psychology Postdoctoral and Internship Centers (APPIC) national matching process. Note: All field placements must be approved by the Director of Clinical Training (DCT) in advance of registration. Prereq: Successful defense of the dissertation proposal in Clinical Health Psychology. Max hours: 12 Credits. **Semester Hours:** 1 to 3

PSYC 8990 - Doctoral Dissertation

Independent research on the doctoral dissertation in Clinical Health Psychology. Prereq: Admission to the Clinical Health Psychology Ph.D. Program. Max hours: 10 Credits. **Semester Hours:** 1 to 10

Public Administration

PUAD 1001 - Introduction to Leadership and Public Service

This course provides a broad introduction to public service and encourages exploration of personal values and interests related to leadership, community, and life choices. Multiple paths to advancing the public good are explored, including volunteerism, citizenship, and service in government and nonprofits. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5001 - Introduction to Public Administration and Public Service

Examines the fundamental theories, structures, and processes of governance in the United States. Explores the constitutional foundations and functions of legislative, administrative, and legal institutions. Covers topics such as federalism, public-private relations, and comparative public administration. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5002 - Organizational Management and Behavior

This course provides coverage of those elements which, when combined, create a resilient learning organization. Topics include, but are not limited to, organization theory and design, managing human capital, group development and performance, inter- and intra-group communication, information management, and ethical decision making. These topics are presented within the framework of how to organize people to enhance the delivery of public services. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5003 - Research and Analytic Methods

Examines quantitative research methods used to answer questions and test hypotheses in public and non-profit settings. Methods covered include identifying and reviewing scholarly literature; formulating research questions; selecting appropriate design, data collection and sampling strategies; and analyzing data. Topics include causal and descriptive designs, interview and survey methods, and descriptive and inferential statistics such as chi square and regression. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5004 - Economics and Public Finance

Uses economics to explore public and private sector roles & the allocation of resources in the public sector. Introduces the concepts of public goods, market failure & externalities. Through study of expenditure theory, revenue mobilization, & welfare, the effects of taxation & subsidies on consumer and firm behavior are analyzed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5005 - The Policy Process and Democracy

Provides an introduction to theoretical and applied studies of the policy process. The policy process includes the manner in which (I) issues are conceptualized and brought to the government as problems needing action; (II) policies are designed and selected; and (III) the enacted policies are implemented, monitored, evaluated, and revised. The policy process also includes the study of politics, especially how government and non-government actors interact and exercise power in allocating societal benefits and burdens. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5006 - Leadership and Professional Ethics

Examines theories of leadership applied to the public and non-profit sectors and the skills and processes employed by effective leaders. The course also considers ethical theories as applied to problems in the public and non-profit sectors; emphasizes critical thinking to address value conflicts, notably in the context of a pluralistic society; and teaches moral reasoning as a practical professional skill. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5007 - Qualitative Research Methods

Focuses on qualitative research methods that incorporate field work techniques such as observation, interviews, and content analysis. The main objective is to discover practicalities and limitations of ethnographic methods with a comparative methodology perspective. Students are required to conduct a research project. Cross-listed with PUAD 7007. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5010 - Rocky Mountain Program

This program encourages participants to examine their public sector roles, develop an understanding of their leadership styles, develop communication skills, and enhance their ability to think more systematically and strategically in their positions. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5030 - Denver Community Leadership Forum

Designed to increase cross sector cooperation and enhance personal leadership skills and knowledge, program is administered annually February to November. Students gain skills in conflict management, participate in Outward Bound program in July, and learn leadership theories and concepts from a variety of presenters and trainers. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5110 - Seminar in Nonprofit Management

This course provides an overview of the principles and concepts that are unique to nonprofit management. Topics include executive management, funding diversity, human resource management, marketing, volunteer management and ethics. Students are also given an introduction to the history and the importance of the nonprofit sector. Cross-listed with PUAD 7110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5115 - Effective Grant Writing for Nonprofit and Public Sector Managers

This course is designed to provide students with the knowledge and skills to perform one of the most critical functions for any public or nonprofit sector agency today: gaining funds through proposals. Students learn how to locate and analyze funding opportunities through public and private funders and how to research, plan and write effective and competitive proposals. The course provides theoretical and practical knowledge about persuasive writing, the proposal submission and review process, building effective relationships with funders and how to proceed after post-funding decisions (positive or negative). Cross-listed with PUAD 7115. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5120 - Nonprofits and Public Policy

Examines the intersection of public policy and the nonprofit world and the ways in which each affects the other. The course examines current policy issues that relate to the nonprofit sector such as conversion of nonprofit to for-profit status, regulation of the nonprofit sector, issues of financial management, the role of nonprofits in devolution and privatization of government services, tax exemptions, "charitable choice," donor control, governance and the future of the future of the sector. The course examines the ways nonprofits have affected the policy process and public policies by exploring the factors that shape social movements, nonprofit advocacy, strategies of influence, and the role of nonprofits in social movements such as Civil Rights and the environment. Cross-listed with PUAD 7120. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5125 - Civil Society and Nongovernmental Organizations

This course is designed for students interested in the international nonprofit sector. The course compares non-Western forms of civil society with the American tradition of civil society. Students will learn about the efforts of Nongovernmental Organizations (NGOs) working in Third World countries to influence democracy, free association, and/or increased political and societal pluralism. Additionally, the course will focus on NGO management and governance issues in countries where there are strict controls and limits on the activities of NGOs. Cross-listed with PUAD 7125. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5130 - Collaboration Across Sectors

The blurring of the three economic sectors - government, business and nonprofits-- continues to increase as more partnerships are developed across sectors. This course focuses on collaboration and partnerships involving public, nonprofit and for-profit organizations. Additionally, students are expected to gain an understanding of the issues and policies associated with the bidding, contracting, program delivery and reporting processes when nonprofit organizations are contracted to achieve public sector goals and/or private sector objectives. Cross-listed with PUAD 7130. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5140 - Nonprofit Financial Management

Financial management is one of the core competencies of effective nonprofit managers. Every nonprofit organization needs money to sustain or advance its mission. This course provides a grounding in financial management for the "non-accountant" by focusing on an array of knowledge and management skill areas necessary for allocating and controlling resources and for analyzing, reporting and protecting the fiscal health of the organization. Topics include key accounting principles, understanding and using financial statements, the budget development process, cash flow analysis, banking relationships, using the audit report, maximizing investment policy and strategy, and understanding the boundaries of tax exemption. Cross-listed with PUAD 7140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5150 - Fundraising & Financial Resource Development

Designed to provide a comprehensive overview of funding sources available to nonprofit organizations (e.g., foundation and governmental grants, individual and corporate donations, entrepreneurial sources of revenue and events.), as well as detailed information on how to secure support of the various sources presented. Additionally, students are expected to gain both theoretical and practical knowledge relevant to why it is important to diversify an organization's revenue streams. Cross-listed with PUAD 7150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5160 - Nonprofit Boards and Executive Leadership

The important roles and responsibilities of a voluntary board of directors and the process of governing are often misunderstood. This course explores the special powers of a nonprofit board of directors as framed by and responsive to public policy. From the perspective of organizational behavior and theory, the course examines the leadership role and interplay between board members and the executive director. The examination includes a comparative analysis of different governing models, and explores fundamental questions of board composition, the role of advisor boards, achieving effective board meetings, the realm of liability, using committees, and the board's role in fundraising, among other special subject matter. Cross-listed with PUAD 7160. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5170 - Strategic Management for Nonprofit and Public Managers

Designed to train public and nonprofit managers in the effective use of strategic management tools and techniques traditionally used by corporations. Strategic management tools and skills, although traditionally used by business, should not be seen as the exclusive domain of corporations. The course teaches students how to adapt traditional strategic management capabilities to the particular conditions of public and nonprofit organizations. Cross-listed with PUAD 7170. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5180 - Social Entrepreneurship

Designed to introduce students to the concept of social entrepreneurship. Using nonprofit (and public) organizational examples, students gain an understanding of what it means to be an innovative manager. Students study techniques designed to advance an organization's mission and increase organizational effectiveness, accountability and efficiency through the use of for-profit techniques within a nonprofit context. Cross-listed with PUAD 7180. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5220 - Human Resource Management

Covers human resource functions in public and nonprofit agencies. Topics include job analysis, compensation, recruiting, selection, rewarding, training and development. Contemporary issues concerning civil service reforms are also presented. Prereq: PUAD 5002 or PUAD 7002. Cross-listed with PUAD 7220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5250 - Intergovernmental Management

Surveys the basic literature of intergovernmental management and examines the interactive role of managers at federal, state, and local levels of government. Emphasis is placed on current intergovernmental issues. Cross-listed with PUAD 7250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5260 - Managing Diversity

Using a systems approach, diversity within organizations is examined through the construction and review of theories in private, public, and nonprofit organizations. Existing models of managing diversity are examined and analyzed. Cross-listed with PUAD 7260. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5271 - Managing Conflict and Change

Explores the process of change in organizations, communities, society, and conflicts that arise. Through the use of relevant case studies and role playing exercises, students are provided a practical framework for looking at change and managing conflict associated with change. Cross-listed with PUAD 7271. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5280 - American Public Service Environment

Designed for SPA international students, especially those in their first or second semester, students will compare US culture and its public and nonprofit organizations (NGOs) with those in their home countries. Class sessions include: site visits; guest speakers from public and nonprofit organizations; case studies, with an emphasis on applying theory to current issues in public policy and management. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5310 - Policy Formulation & Implementation

Building on PUAD 5005, students learn how policy is developed and implemented in several levels of government - local, state, federal - and within organizations themselves. The course makes use of the case studies to explore the intricacies of developing and implementing policy and the political, economic, and institutional contexts that affect these two states of policy development. Students also consider the different criteria that can be used to judge the effectiveness of programs and policies. Prereq: PUAD 5005 or 7005. Cross-listed with PUAD 7310. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5320 - Public Policy Analysis

Provides training in the systematic analysis of policy and program initiatives using an economics orientation and employing a case method. The course covers benefit-cost analysis, cost-effectiveness analysis, present values, and the treatment of multiple criteria in public sector program analysis. Prereq: PUAD 5003/7003, 5004/7004 and 5005/7005. Cross-listed with PUAD 7320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5330 - Intermediate Statistical Analysis

Follows PUAD 5003/7003 and is focused on more advanced statistical techniques to be used in research. These techniques include the use of regression in time series analysis; binary response; nonlinear, logistic, and profit models; and factor and path analysis. Evaluating potential problems with model specification and the remedies are included. Students are required to test hypotheses using these models with a data set. Prereq: PUAD 5003 or 7003. Cross-listed with PUAD 7330. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5350 - Program Evaluation

Describes the theory and methodology for the design of social research and demonstration projects and the application of analytic and statistical methods for evaluating public programs. Focus is on the application of evaluation methods and techniques of data interpretation. Report preparation is emphasized. Prereq: PUAD 5003 or PUAD 7003 and PUAD 5005 or PUAD 7005. Cross-listed with PUAD 7350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5361 - Capstone Seminar

In this seminar, students demonstrate their mastery of the knowledge and skills acquired in core courses, through the conduct of a client-based project. Students in a concentration must undertake a project related to that concentration. Students also make a juried oral presentation of the professional paper which reports project findings. This is the cumulative opportunity for students to apply concepts, theories, and research skills gained in the program to professional practice. (Successful completion of this course is an M.P.A. degree program requirement.) Cross-listed with PUAD 7361. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5370 - Media and Public Policy

Explores the conventions and practices of the print and electronic media in the United States. The course enables students to better understand the place of the media in society, the way the media look at themselves and how journalists confront conflicting values in the performance of their roles. Cross-listed with PUAD 7370. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5380 - Citizen Participation: Theory and Practice

Tackles the issues of citizen participation and community involvement in theory and practice. Students work in class on understanding the theoretical foundations that are relevant to citizen participation. Students engage in significant out-of-class projects to ground them in the practice of public involvement. Cross-listed with PUAD 7380. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5410 - Administrative Law

Examines legal aspects of policy implementation particularly the relationship between courts and administrative agencies. Covers standards of judicial review and agency action; administrative procedure and due process; selected special topics such as rights, liabilities, and immunities of public employees; and administrative discretion and scientific uncertainty. Cross-listed with PUAD 7410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5420 - Law and Public Policy

Examines the relationship between courts and legislative assemblies. Explores how legislators use the policy process to shape and influence the exercise of judicial authority, and how the courts affect the policy process in reviewing the constitutionality of state and federal legislation. Cross-listed with PUAD 7420. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5430 - Seminar in Legal Research Methods and Public Law Scholarship

Provides law library-based training in locating and analyzing primary and secondary sources of law. Individualized guidance in understanding and using the content of legal materials in the conduct of public law scholarship and law-based writing. When taken as PUAD 7430 satisfies the PhD qualitative research methods requirement. Cross-listed with PUAD 7430. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5440 - Negotiation and Conflict Resolution

Focuses on concepts and skills necessary to negotiate policy and management decisions and manage internal and external conflicts. Designed to help students understand the dynamics that affect negotiations and to apply the principles and strategies of negotiation in a variety of decision making and dispute resolution contexts. Cross-listed with PUAD 7440. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5450 - Law of All-Hazards Management

This course conveys knowledge of the statutes, regulations and court decisions governing the management of hazards by governmental agencies. It covers local, state and federal agencies as they mitigate, prepare for, respond to and recover from naturally, accidentally and intentionally caused disasters. Cross-listed with PUAD 7450. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5460 - Political Advocacy

Addresses advocacy & lobbying issues of public policy & govt problems. Special attention is given to how advocacy process works in the public sector & policy making bodies & how lobbying techniques & processes can be understood. General focus on practical applications at all levels of govt with primary attention to state & local govt. Cross-listed with PUAD 7460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5501 - Contemporary Issues in Revenue and Tax Administration and Policy

This course provides a contemporary evaluation of Colorado's tax structure, revenue system, and the state budget. The interaction of politics, the initiative process, the State Constitution, and stakeholders is studied. Cross-listed with PUAD 7501. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5502 - Public Financial Management and Policy

Provides basic understanding of issues & tools relevant to financial mgmt of public & non-profit org, including managerial acct (managing resources & obligations, investing idle funds, reporting, financial statement analysis, overview of budgeting, revenue forecasting, & costing) & debt management. Cross-listed with PUAD 7502. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5503 - Governmental Budgeting

Focuses on theory and practices of government budgeting, including cycles, formats, political considerations, costing and analytical tasks. Covers both operating and capital budgeting, plus fiscal management issues. Cross-listed with PUAD 7503. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5540 - Organization Development

Studies the dynamics involved in managing and facilitating change in organizations by application of behavioral science knowledge. Emphasis is placed on both cognitive and experiential learning. A background in organization theory and administrative behavior is required. Cross-listed with PUAD 7540. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5615 - Health Policy

Draws upon existing policy models and evaluates the status of health policy formulation and implementation. Health policy topics include Medicaid and Medicare, managed care, health care reform proposals, telemedicine, the non-profit and for-profit role in health. Cross-listed with PUAD 7615. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5625 - Local Government Management

Relates the systems, processes, and principles of public management to the local government environment. Public management concepts such as strategic planning, bureaucracy, formal and informal organizational structures, human resource planning, management control, systems theory, and administrative behavior are explored within the context of local government. Cross-listed with PUAD 7625. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5626 - Local Government Politics and Policy

Examines local government from the perspective of politics and public policy making. The course focuses on local government political structures, policy analysis and formulation, political forces in administrative decision making, and the relationships between professional administrators and elected officials. Cross-listed with PUAD 7626. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5628 - Urban Social Problems

Examines local government from the perspective of sociology and group dynamics. Course could include some or all of the following subjects: neighborhoods and community groups, class and race relations, community crime, social service issues, immigration, the underclass in American society, and related urban social problems. Cross-listed with PUAD 7628 and URPL 6449. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5631 - Seminar in Environmental Politics and Policy

Examines the fundamental principles of politics and policy that shape strategies of environmental protection. Focuses on the role of institutional processes, government organizations and nongovernmental organizations in environmental politics and policy. Cross-listed with PUAD 7631. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5632 - Seminar in Environmental Management

Examines the practical challenges facing environmental managers today, using a series of case studies. Focuses on the role of institutional processes, government organizations and nongovernmental organizations in the practice of environmental management. Cross-listed with PUAD 7632. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5633 - Seminar in Natural Resource and Environmental Health Law

Studies administrative law aspects of environmental policy implementation & enforcement, role of courts in stimulating & limiting statutory reform, & regulatory innovation. Focuses on legal aspects of natural resource allocation & mgmt, & environmental protection. Alternatives to traditional processes for environmental dispute resolution. Cross-listed with PUAD 7633. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5634 - Theories of Sustainable Infrastructure Management

This seminar introduces theories of sustainable infrastructure management from a variety of disciplinary perspectives. Students then apply them to resolution of a variety of actual infrastructure management problems. Cross-listed with PUAD 7634. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5650 - Disaster and Emergency Management Policies

Examines policies for the management of hazards, emergencies and disasters. Focuses on a series of case studies concerning major disasters and on management principles drawn from those cases. Examines the role of institutional processes, government organizations and nongovernmental organizations in emergency management. Cross-listed with PUAD 7650. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5655 - Principles of Emergency Management

This course is an introduction to the practice of emergency management. It provides instruction on the discipline of emergency management and covers not only administrative practice, but how public policy shapes how governments at all levels address hazards, emergencies and disasters. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5710 - Public Sector Technology

This course addresses the impact and current use of technology in the modern government and nonprofit sector environments, including implications for interacting with citizens and organizational stakeholders, organizational decision-making and communication, and core functions such as budgeting and human resources. Cross-listed with PUAD 7710. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5910 - Nature and Scope of Interpersonal Violence

This course will analyze the social, historical, political, legal, and psychological aspects of gender based violence. Topics addressed include: definitions of the problem, demographics, children and youth exposed, national and global perspectives. Strategies for prevention, intervention, treatment, and social change are explored. Cross-listed with PUAD 7910, CRJU 5910 and 7910. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5920 - The Psychology of Interpersonal Violence

This class addresses the contributions and limitations of current empirical and clinical psychological literatures about interpersonal violence (IPV). The primary focus of the course is on the effects of IPV on adult and child survivors, on their psychological needs, and on the contribution of psychological knowledge to practice in IPV. Cross-listed with PUAD 7920, CRJU 5920 and 7920. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5930 - Interpersonal Violence Law and Public Policy

This course provides insight into public policy and law affected by or affecting interpersonal violence, (welfare reform, child maltreatment, criminal and civil court responses). Students will understand the role of law enforcement agents and the practice of victim advocacy, and describe and engage in methods to change law and policy. Cross-listed with PUAD 5930, CRJU 5930 and 7930. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5940 - Interpersonal Violence Advocacy and Social Change

Students will gain an understanding of different models of social change and the various approaches to public address, including social movements and campaigns, that accomplish change. Strategies for engaging diverse individuals, systems and communities to address interpersonal violence will be examined at individual to societal levels. Cross-listed with PUAD 7940, CRJU 5940 and 7940. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5960 - Interpersonal Violence and Health Care

Provides students with the knowledge and skills necessary for responding to the health care needs of patients experiencing interpersonal violence (IPV). Also explores how healthcare professionals can develop public & institutional discourses that transform healthcare policies & systems to address the health needs of IPV survivors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5961 - Interpersonal Violence, Health Advocacy and Systems Change

Explores how healthcare professionals can develop successful public & institutional discourses that transform healthcare policies & systems to address the health needs of patients experiencing interpersonal violence. Methods of advocacy, activism & organizational change that produce positive results including effective educ techniques. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 6600 - Special Topics: Public Administration

Studies special topics relevant to public administration, such as public/private sector partnerships, community participation, international development, conflict management, regionalism, managing economic options for Colorado, and nonprofit management and marketing. Each semester various topics are studied. Cross-listed with PUAD 7600. Max hours: 15 Credits. **Semester Hours:** 1 to 4

PUAD 6840 - Independent Study: PUAD

Affords students the opportunity to do independent, creative work. Prereq: Permission of instructor. Max hours: 9 Credits. **Semester Hours:** 1 to 6

PUAD 6910 - Field Study in Public Administration

For students who have not had government experience. Studies and reports are made while students have full- or part-time administrative traineeships, internships, or similar positions in government agencies or government-related organizations. Prereq: Completion of the common core courses. It is recommended that at least three of the track courses also be completed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 6950 - Master's Thesis

Max hours: 6 Credits. **Semester Hours:** 3 to 6

PUAD 7007 - Qualitative Research Methods

Focuses on qualitative research methods that incorporate field work techniques such as observation, interviews, and content analysis. The main objective is to discover practicalities and limitations of ethnographic methods with a comparative methodology perspective. Students are required to conduct a search project. Cross-listed with PUAD 5007. Max hours: 3 Credits.

Semester Hours: 3 to 3

PUAD 7110 - Seminar in Nonprofit Management

This course provides an overview of the principles and concepts that are unique to nonprofit management. Topics include executive management, funding diversity, human resource management, marketing, volunteer management and ethics. Students are also given an introduction to the history and the importance of the nonprofit sector. Cross-listed with PUAD 5110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7115 - Effective Grant Writing for Nonprofit and Public Sector Managers

This course is designed to provide students with the knowledge and skills to perform one of the most critical functions for any public or nonprofit sector agency today: gaining funds through proposals. Students learn how to locate and analyze funding opportunities through public and private funders and how to research, plan and write effective and competitive proposals. The course provides theoretical and practical knowledge about persuasive writing, the proposal submission and review process, building effective relationships with funders and how to proceed after post-funding decisions (positive or negative). Cross-listed with PUAD 5115. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7120 - Nonprofits and Public Policy

Examines the intersection of public policy and the nonprofit world and the ways in which each affects the other. The course examines current policy issues that relate to the nonprofit sector such as conversion of nonprofit to for-profit status, regulation of the nonprofit sector, issues of financial management, the role of nonprofits in devolution and privatization of government services, tax exemptions, "charitable choice," donor control, governance and the future of the sector. The course also examines the ways nonprofits have affected the policy process and public policies by exploring the factors that shape social movements, nonprofit advocacy, strategies of influence, and the role of nonprofits in social movements such as Civil Rights and the environment. Cross-listed with PUAD 5120. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7125 - Civil Society and Nongovernmental Organizations

This course is designed for students interested in the international nonprofit sector. The course compares non-Western forms of civil society with the American tradition of civil society. Students will learn about the efforts of Nongovernmental Organizations (NGOs) working in Third World countries to influence democracy, free association, and/or increased political and societal pluralism. Additionally, the course will focus on NGO management and governance issues in countries where there are strict controls and limits on the activities of NGOs. Cross-listed with PUAD 5125. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7130 - Collaboration Across Sectors

The blurring of the three economic sectors - government, business and nonprofits-- continues to increase as more partnerships are developed across sectors. This course focuses on collaboration and partnerships involving public, nonprofit and for-profit organizations. Additionally, students are expected to gain an understanding of the issues and policies associated with the bidding, contracting, program delivery and reporting processes when nonprofit organizations are contracted to achieve public sector goals and/or private sector objectives. Cross-listed with PUAD 5130. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7140 - Nonprofit Financial Management

Financial management is one of the core competencies of effective nonprofit managers. Every nonprofit organization needs money to sustain or advance its mission. This course provides a grounding in financial management for the "non-accountant" by focusing on an array of knowledge and management skill areas necessary for allocating and controlling resources and for analyzing, reporting and protecting the fiscal health of the organization. Topics include key accounting principles, understanding and using financial statements, the budget development process, cash flow analysis, banking relationships, using the audit report, maximizing investment policy and strategy, and understanding the boundaries of tax exemption. Cross-listed with PUAD 5140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7150 - Fundraising & Financial Resource Development

Designed to provide a comprehensive overview of funding sources available to nonprofit organizations (e.g., foundation and governmental grants, individual and corporate donations, entrepreneurial sources of revenue and events.), as well as detailed information on how to secure support of the various sources presented. Additionally, students are expected to gain both theoretical and practical knowledge relevant to why it is important to diversify an organization's revenue streams. Cross-listed with PUAD 5150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7160 - Nonprofit Boards and Executive Leadership

The important roles and responsibilities of a voluntary board of directors and the process of governing are often misunderstood. This course explores the special powers of a nonprofit board of directors as framed by and responsive to public policy. From the perspective of organizational behavior and theory, the course examines the leadership role and interplay between board members and the executive director. The examination includes a comparative analysis of different governing models, and explores fundamental questions of board composition, the role of advisory boards, achieving effective board meetings, the realm of liability, using committees, and the board's role in fundraising, among other special subject matter. Cross-listed with PUAD 5160. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7170 - Strategic Management for Nonprofit and Public Managers

Designed to train public and nonprofit managers in the effective use of strategic management tools and techniques traditionally used by corporations. Strategic management tools and skills, although traditionally used by business, should not be seen as the exclusive domain of corporations. The course teaches students how to adapt traditional strategic management capabilities to the particular conditions of public and nonprofit organizations. Cross-listed with PUAD 5170. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7180 - Social Entrepreneurship

Designed to introduce students to the concept of social entrepreneurship. Using nonprofit (and public) organizational examples, students gain an understanding of what it means to be an innovative manager. Students study techniques designed to advance an organization's mission and increase organizational effectiveness, accountability and efficiency through the use of for-profit techniques within a nonprofit context. Cross-listed with PUAD 5180. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7220 - Managing People in Public and Nonprofit Organizations

The study and practice of human resource management to build effective organizations. This course reviews the process of staffing an organization, motivating and managing employees from the initial steps of describing a position and determining compensation to recruiting qualified and diverse applicants, screening and selecting good employees, hiring, training, motivating, developing and providing feedback to employees; and layoffs and promotions. Contemporary issues concerning managerial flexibility and merit pay will be reviewed. Prereq: PUAD 7002 or PUAD 5002. Cross-listed with PUAD 5220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7250 - Intergovernmental Management

Surveys the basic literature of intergovernmental management and examines the interactive role of managers at federal, state, regional, and local levels of government. Emphasis is placed on current intergovernmental issues. Cross-listed with PUAD 5250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7260 - Managing Diversity

Using a systems approach, diversity within organizations is examined through the construction and review of theories in private, public, and nonprofit organizations. Existing models of managing diversity are examined and analyzed. Cross-listed with PUAD 5260. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7271 - Managing Conflict and Change

Explores the process of change in organizations, communities, and society, and conflicts that arise. Through the use of relevant case studies and role playing exercises, students are provided a practical framework for looking at change and managing conflict associated with change. Cross-listed with PUAD 5271. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7310 - Policy Formulation & Implementation

Building on PUAD 5005, students learn how policy is developed and implemented in several levels of government - local, state, federal - and within organizations themselves. The course makes use of the case studies to explore the intricacies of developing and implementing policy and the political, economic, and institutional contexts that affect these two states of policy development. Students also consider the different criteria that can be used to judge the effectiveness of programs and policies. Prereq: PUAD 5005 or 7005. Cross-listed with PUAD 5310. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7320 - Public Policy Analysis

Provides training in the systematic analysis of policy and program initiatives using an economics orientation and employing a case method. The course covers benefit-cost analysis, cost-effectiveness analysis, present values, and the treatment of multiple criteria in public sector program analysis. Prereq: PUAD 7003/5003, 7004/5004 and 7005/5005. Cross-listed with PUAD 5320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7350 - Program Evaluation

Describes the theory and methodology for the design of social research and demonstration projects and the application of analytic and statistical methods for evaluating public programs. Focus is on the application of evaluation methods and techniques of data interpretation. Report preparation is emphasized. Prereq: PUAD 7003 or PUAD 5003 and PUAD 7005 or PUAD 5005. Cross-listed with PUAD 5350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7361 - Advanced Seminar in Public Policy and Management

In this seminar, students demonstrate their mastery of the knowledge and skills acquired in core courses, through the conduct of a client-based project. Students in a concentration must undertake a project related to that concentration. Students also make a juried oral presentation of the professional paper which reports project findings. This is the cumulative opportunity for students to apply concepts, theories, and research skills gained in the program to professional practice. (Successful completion of this course is an M.P.A. degree program requirement.) Cross-listed with PUAD 5361. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7370 - Media and Public Policy

Explores the conventions and practices of the print and electronic media in the United States. The course enables students to better understand the place of the media in society, the way the media look at themselves and how journalists confront conflicting values in the performance of their roles. Cross-listed with PUAD 5370. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7380 - Citizen Participation: Theory and Practice

Tackles the issues of citizen participation and community involvement in theory and practice. Students work in class on understanding the theoretical foundations that are relevant to citizen participation. Students engage in significant out-of-class projects to ground them in the practice of public involvement. Cross-listed with PUAD 5380. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7410 - Administrative Law

Examines legal aspects of policy implementation particularly the relationship between courts and administrative agencies. Covers standards of judicial review and agency action; administrative procedure and due process; selected special topics such as rights, liabilities, and immunities of public employees; and administrative discretion and scientific uncertainty. Cross-listed with PUAD 5410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7420 - Law and Public Policy

Examines the relationship between courts and legislative assemblies. Explores how legislators use the policy process to shape and influence the exercise of judicial authority, and how the courts affect the policy process in reviewing the constitutionality of state and federal legislation. Cross-listed with PUAD 5420. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7430 - Seminar in Legal Research Methods and Public Law Scholarship

Provides law library-based training in locating and analyzing primary and secondary sources of law. Individualized guidance in understanding and using the content of legal materials in the conduct of public law scholarship and law-based writing. When taken as PUAD 7430 satisfies the PhD qualitative research methods requirement. Cross-listed with PUAD 5430. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7440 - Negotiation and Conflict Resolution

Focuses on concepts and skills necessary to negotiate policy and management decisions and manage internal and external conflicts. Designed to help students understand the dynamics that affect negotiations and to apply the principles and strategies of negotiation in a variety of decision making and dispute resolution contexts. Cross-listed with PUAD 5440. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7450 - Law of All-Hazards Management

This course conveys knowledge of the statutes, regulations and court decisions governing the management of hazards by governmental agencies. It covers local, state and federal agencies as they mitigate, prepare for, respond to and recover from naturally, accidentally and intentionally caused disasters. Cross-listed with PUAD 5450. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7460 - Political Advocacy

Addresses advocacy & lobbying issues of public policy & govt problems. Special attention is given to how advocacy process works in the public sector & policy making bodies & how lobbying techniques & processes can be understood. General focus on practical applications at all levels of govt with primary attention to state & local govt. Cross-listed with PUAD 5460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7501 - Contemporary Issues in Revenue and Tax Administration and Policy

This course provides a contemporary evaluation of Colorado's tax structure, revenue system, and the state budget. The interaction of politics, the initiative process, the State Constitution, and stakeholders is studied. Cross-listed with PUAD 5501. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7502 - Public Financial Management and Policy

Provides basic understanding of issues & tools relevant to financial mgmt. of public & non-profit org, including managerial acct (managing resources & obligations, investing idle funds, reporting, financial statement analysis, overview of budgeting, revenue forecasting, & costing) & debt management. Cross-listed with PUAD 7502. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7503 - Governmental Budgeting

Focuses on theory and practices of government budgeting, including cycles, formats, political considerations, costing and analytical tasks. Covers both operating and capital budgeting, plus fiscal management issues. Cross-listed with PUAD 5503. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7540 - Organization Development

Studies the dynamics involved in managing and facilitating change in organizations by application of behavioral science knowledge. Emphasis is placed on both cognitive and experiential learning. A background in organization theory and administrative behavior is required. Cross-listed with PUAD 5540. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7600 - Special Topics: Public Administration

Studies special topics relevant to public administration, such as public/private sector partnerships, community participation, international development, conflict management, regionalism, managing economic options for Colorado, and nonprofit management and marketing. Each semester various topics are studied. Cross-listed with PUAD 6600. Max hours: 15 Credits. **Semester Hours:** 1 to 4

PUAD 7615 - Health Policy

Draws upon existing policy models and evaluates the status of health policy formulation and implementation. Health policy topics include Medicaid and Medicare, managed care, health care reform, proposals, telemedicine, and the non-profit and for-profit role in health. Cross-listed with PUAD 5615. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7625 - Local Government Management

Relates the systems, processes, and principles of public management to the local government environment. Public management concepts such as strategic planning, bureaucracy, formal and informal organizational structures, human resource planning, management control, systems theory, and administrative behavior are explored within the context of local government. Cross-listed with PUAD 5625. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7626 - Local Government Politics and Policy

Examines local government from the perspective of politics and public policy making. The course focuses on local government political structures, policy analysis and formulation, political forces in administrative decision making, and the relationships between professional administrators and elected officials. Cross-listed with PUAD 5626. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7628 - Urban Social Problems

Examines local government from the perspective of sociology and group dynamics. Course could include some or all of the following subjects: neighborhoods and community groups, class and race relations, community crime, social service issues, immigration, the underclass in American society, and related urban social problems. Cross-listed with PUAD 5628 and URPL 6449. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7631 - Seminar in Environmental Politics and Policy

Examines the fundamental principles of politics and policy that shape strategies of environmental protection. Focuses on the role of institutional processes, government organizations and nongovernmental organizations in environmental politics and policy. Cross-listed with PUAD 5631. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7632 - Seminar in Environmental Management

Examines the practical challenges facing environmental managers today, using a series of case studies. Focuses on the role of institutional processes, government organizations and nongovernmental organizations in the practice of environmental management. Cross-listed with PUAD 5632. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7633 - Seminar in Natural Resource and Environmental Health Law

Studies administrative law aspects of environmental policy implementation & enforcement, role of courts in stimulating & limiting statutory reform, & regulatory innovation. Focuses on legal aspects of natural resource allocation & mgmt, & environmental protection. Alternatives to traditional processes for environmental dispute resolution. Cross-listed with PUAD 5633. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7634 - Theories of Sustainable Infrastructure Management

This seminar introduces theories of sustainable infrastructure management from a variety of disciplinary perspectives. Students then apply them to resolution of a variety of actual infrastructure management problems. Cross-listed with PUAD 5634. Max hours: 3 Credits.

Semester Hours: 3 to 3

PUAD 7650 - Disaster and Emergency Management Policies

Examines policies for the management of hazards, emergencies and disasters. Focuses on a series of case studies concerning major disasters and on management principles drawn from those cases. Examines the role of institutional processes, government organizations and nongovernmental organizations in emergency management. Cross-listed with PUAD 5650. Max hours: 3 Credits.

Semester Hours: 3 to 3

PUAD 7655 - Principles of Emergency Management

This course is an introduction to the practice of emergency management. It provides instruction on the discipline of emergency management and covers not only administrative practice, but how public policy shapes how governments at all levels address hazards, emergencies and disasters.

Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7710 - Public Sector Technology

This course addresses the impact and current use of technology in the modern government and nonprofit sector environments, including implications for interacting with citizens and organizational stakeholders, organizational decision-making and communication, and core functions such as budgeting and human resources. Cross-listed with PUAD 5710. Max hours: 3 Credits.

Semester Hours: 3 to 3

PUAD 7910 - Women and Violence: A Sociological Perspective

This course is a sociological, feminist analysis of violence against women and girls that addresses the intersection of sexism and other forms of oppression such as racism, classism and heterosexism, within historical, cultural, social and institutional contexts. Topics covered focus on overt and covert forms of sexual coercion, harassment and assault, battering and stalking.

Cross-listed with PUAD 5910, CRJU 5910 and 7910. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7920 - Psychology of Violence Against Women

This class addresses the contributions and the limitations of current empirical and clinical psychological literatures about domestic violence. Topics covered include: distinguishing among mental health professionals regarding work with DV clients; the psychological impacts of domestic violence; services useful for responding to the needs of women and children; and an introduction to the psychology and treatment of batterers. Cross-listed with PUAD 5920, CRJU 5920 and 7920. Max hours: 3 Credits.

Semester Hours: 3 to 3

PUAD 7930 - Battered Women and the Legal System

This course provides a practical understanding of how the following relate to battered women and their children: (a) major developments in federal, state, tribal, administrative, statutory and case law; (b) the role and responses of law enforcement, judges, attorneys, victim assistance providers and other legal system agents; and (c) the role and process of victim advocacy. Cross-listed with PUAD 5930, CRJU 5930 and 7930. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7940 - Domestic Violence Social Change and Advocacy

Info on theories & strategies behind contemp social change movements & skills necessary to organize & implement actions to influence public awareness & policy. Values of US society are complex & require advocates/activists to develop a heightened sense of self, community, & ethical framework while confronting sexism, racism & oppressions. Cross-listed with PUAD 5940, CRJU 5940 and 7940. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 8010 - Historical and Comparative Foundations of Public Administration

A doctoral seminar on developments and changes in public administration as a field of study. It examines how theory and practice have evolved and how the field is defined, studied and taught. It must normally be taken during the first full semester of the doctoral program. Prereq: PUAD 7001 or PUAD 5001 (or equivalent). Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 8020 - Seminar in Public Management

An in-depth examination of contemporary literature, concepts, and theories of public management. Current issues and research problems are emphasized to prepare students for their advanced research. Prereq: PUAD 7003/5003, 7004/5004 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 8030 - Seminar in Public Policy

Offers an in-depth examination of contemporary literature, concepts, and theories of public policy, with an emphasis on policy process. Current issues and research problems are emphasized to prepare students for their advanced research. Prereq: PUAD 7004/5004, 7005/5005 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 8040 - Seminar In Economic and Institutional Foundations of Public Affairs

Offers an in-depth examination of the economic and institutional foundations of public affairs, with an emphasis on the evolution of theory and research in these fields. Prereq: PUAD 8010 and 8030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 8050 - Quantitative Methods I

Introduces foundational principles & techniques of quantitative analysis in social sciences generally & in public affairs specifically, incl statistical inference, regression analysis, other related estimation techniques, & commonly-used statistical software packages. Students should have taken master level stats course w/in last 3 yrs. Prereq: PUAD 8010, 8020, 8030, and 8040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 8060 - Seminar On The Conduct Of Empirical Inquiry

Introduces basic elements of research design in the social sciences, focusing on the relationship between theories and methods, concept development and measurement, selection of observations or cases, and alternative methods of data collection and analysis. Prereq: PUAD 5003,7003 or equivalent, PUAD 8010, 8020, 8030, and 8040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 8070 - Quantitative Methods II

Moves beyond basic linear regression techniques by covering advanced analytic methods for improved causal inference. Students will also be introduced to data management skills and techniques for using longitudinal data. Prereq: PUAD 8010, 8020, 8030, 8040, 8050, and 8060. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 8840 - Independent Study: PUAD

(Doctoral level) Affords students the opportunity to do independent, creative work. Prereq: Permission of advisor. Max hours: 9 Credits. **Semester Hours:** 1 to 6

PUAD 8990 - Doctoral Dissertation

Once students are admitted to candidacy, they must be continuously registered for dissertation credit each fall and spring semester or be automatically dropped from the program. Students must register for 5 credit hours per semester. In cases where students will not be using any university resources during a particular semester, they may petition the Ph.D. director to register for fewer semester credit hours. Students must be registered for dissertation credit during the semester they have a colloquium or defense. Max hours: 30 Credits. **Semester Hours:** 1 to 10

Public Health

PBHL 1111 - Freshman Seminar

Max hours: 6 Credits. **Semester Hours:** 3 to 3

PBHL 2001 - Introduction To Public Health

An overview of the discipline and practice of public health. Includes the history of the field, its population perspective, emphasis on prevention, tools and techniques. General principles of the field are illustrated through contemporary public health case studies. Max hours: 4 Credits.

Semester Hours: 4 to 4

PBHL 2020 - Introduction to Environmental Health

This introductory survey course focuses on the human health implications of environmental exposures. Topics include pathways of exposure, toxicology, risk assessment, regulations, and policy development. Additionally, environmental equity, ethics, globalization, international perspectives, climate change, sustainability, and activism are considered. Prereq: PBHL 2000 is recommended. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 2052 - Global Demography and Health

Examines current issues in population growth, fertility, mortality and migration in the United States and globally. Introduces students to the basic tools of demography and encourages them to think critically about the causes and consequences of population change. Max hours: 3 Credits.

Semester Hours: 3 to 3

PBHL 2990 - Topics in Public Health

An in-depth study of selected social science perspectives/theories and their applications to population health. Topics will vary from semester to semester, with a particular emphasis on current, salient population health problems. Max hours: 6 Credits. **Semester Hours:** 3 to 3

PBHL 3001 - Introduction to Epidemiology

Introduces the basic concepts of public health and epidemiology, including assessment of disease in the community, the study of causation and association of disease with lifestyle and environmental risk factors, as well as related special topics. We recommend coursework in college algebra or higher as preparation for this class. We recommend coursework in college algebra or higher as preparation for this class. We have found that students who take this class before completing their math requirements are at a distinct disadvantage in this course, which is math-intensive. Therefore a grade of C or higher in MATH 1110 or equivalent is strongly recommended. PBHL 2000 is also strongly recommended. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PBHL 3002 - Ethnicity, Health and Social Justice

Surveys core issues contributing to racial or ethnic minority differences in health status. Historical and contemporary U.S. health and social policy, including the areas of environmental health, sexual and reproductive health, children and immigrants, are examined. Cross-listed with ETST 3002. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 3010 - Human Sexuality and Public Health

The focus of this course is on human sexuality using a public health lens, examining a number of sexual health issues and their relationship to individual, familial, organizational, and social-level influences. Additionally, we will focus on identifying both primary prevention and intervention approaches to reducing sexual risk factors and increasing healthy behaviors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 3021 - Fundamentals of Health Promotion

Provides an overview of the field of health promotion, including an introduction to key theories and methods, as well as exposure to the breadth of programs and diversity of settings through several case studies. Includes attention to health behaviors as contributors to current public health problems and community-based approaches to health promotion in addressing them. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 3030 - Health Policy

Health policies may have a profound effect on quality of life. Accessibility, cost, quality of health care; safety of food, water, and environment; the right to make decisions about our health; these issues are vitally tied to health policies. This course provides a framework for understanding the social, political and economic dimensions of health policy. Prereq: PBHL 2000 is recommended. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 3031 - Health, Human Biology and Behavior

Introduces the multi-factorial nature of human health and well-being. Considers the influences of biology (genetics), behavior, environment, culture and social determinants, and health policy on the nature of disease and health problems from an integrated perspective. Max hours: 3 Credits.

Semester Hours: 3 to 3

PBHL 3041 - Health, Culture and Society

Examines health and illness for individuals, families, and societies from multiple international perspectives, focused on topics such as traditional vs. Western medicine, characteristics of healers and therapeutic relationships, and stigmatized segments of society and their health status.

Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 3050 - Decision Making

This course discusses current research on decision making/behavioral economics, as well as its application to individual well-being and public policy. You will gain insights on how and why people can be irrational in their daily decisions. Cross-listed with ECON 3050 and PSYC 3050.

Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 3051 - Mental Illness and Society

This course takes a social and public health--as opposed to medical, biological or psychiatric--approach to understanding mental disorder and society. Course addresses historical definitions of mental illness, social patterns of mental disorder and treatment and experience of mental illness patients, focusing on the U.S. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 3070 - Perspectives in Global Health

Avian flu, disaster relief, aging populations and primary health care are key issues in a world where diseases cross borders rapidly, but health care resources may not. Examines improvements in global health, growing inequalities and social justice in health. Prereq: PBHL 2000, is recommended. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 3071 - Global Topics In Sexual and Reproductive Health

Surveys trends and determinants of sexual and reproductive health around the globe and in the United States. Examines the social and behavioral determinants of sexual and reproductive health and the influence of policy. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 3200 - Human Migration: Nomads, Sojourners, and Settlers

Explores the relationship between human migration, voluntary and forced, and social organization and culture in the modern world. Case studies include pastoralists, foragers, refugees, immigrants, sojourners, and settlers and their impact on health, culture, identity, ethnicity, tradition and nationality. Cross-listed with ANTH 3200. Max hours: 3 Credits.

Semester Hours: 3 to 3

PBHL 3440 - Medical Sociology

This course covers key issues in population health and emphasizes how sociological perspectives both challenge and augment biomedical perspectives on health and health care. We also discuss the social causes and consequences of race/ethnic, sex, and socioeconomic disparities in health.

Cross-listed with SOCY 3440. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 3939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

PBHL 4020 - Global Health: Comparative Public Health Systems

Within a limited period of time, middle and low income countries have experienced dramatic changes that affect the length and quality of peoples' lives. The health indicators for each country reflect a rich and meaningful context within interacting systems of economic, social, cultural patterns, and environmental and social justice. Analysis and contrast of public health indicators such as the millennium development goals develop an understanding of the complexity against a background of change. Prereq: Upper division and/or graduate standing. Cross-listed with URPL 6349. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 4031 - Ethnographic Research In Public Health

Qualitative, ethnographic tools for practical applications in public health, including methods of direct observation, informant interviews, focus groups, structured ethnographic methods, rapid assessment and participatory action research. Basic analytic strategies, including review of computer software, coding and data display techniques. Cross-listed with HBSC 5031. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 4040 - Social Determinants of Health

This course explores social inequalities in physical and mental health, the illness experience, the healing professions, health policy, relations between providers and patients, and the structure, access to, and financing of health care organizations, with some cross-national discussions. Prereq: upper-division standing and PBHL 2000 is recommended. Cross-listed with HBSC 5040, and SOCY 4040/5040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 4060 - Evolutionary Medicine

Evolutionary medicine is a relatively new approach for understanding patterns of human health and disease. In this course, students will learn how human evolutionary history has shaped our susceptibility and resistance to both chronic and infectious diseases. Prereq: ANTH 1303. Cross-listed with HBSC 5060, ANTH 4060 and 5060. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 4070 - Health Disparities

The purpose of this seminar is to provide students with an understanding of how historical, psychosocial, environmental, and to some degree, biological and genetic factors contribute to inequality in health and health care. Course Prerequisites: PBHL 4040; PBHL 3001; PBHL 2051
Max hours: 6 Credits. **Semester Hours:** 3 to 3

PBHL 4080 - Global Health Practice

A travel-study course that provides students the opportunity to work on global health issues in the context of a supervised internship experience. In addition to a formal internship placement or directed research opportunity, students attend formal lectures and participate in seminars devoted to addressing those health issues most relevant to the country in which the course is being taught. Prereq: HBSC/ANTH 4010/5014, HBSC/ANTH 4020/5020, HLTH 6070 or equivalent. Cross-listed with ANTH 4080/5080, HBSC 5080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 4090 - Political Economy of Drugs

Psychotropic drugs, both legal and illicit, are a predominant part of our everyday lives. This course examines their use and meaning within cultures, and the social, political and economic issues that surround their production, use and misuse. Prereq: Introductory course in Cultural Anthropology. Cross-listed with ANTH 4090/5090, and HBSC 5090. Max hours: 3 Credits.
Semester Hours: 3 to 3

PBHL 4099 - Capstone Experience in Public Health

Offers students the opportunity to integrate, synthesize and apply concepts learned throughout the core curriculum of the public health major to real-world issues. The course involves extensive writing and small group presentations on the epidemiological, global, social, environmental, and policy dimensions of current problems in public health. Prereq: PBHL 2000 is required in addition to completion of (or concurrent registration in the last of) the 6 core courses in the public health major. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 4110 - Public Health Perspectives On Family Violence

Public health views family violence from a prevention perspective. Our exploration of child abuse, intimate partner violence, and other forms of family violence will complement other disciplinary approaches by focusing heavily on the community and social factors that contribute to abusive relationships. Theories of power and coercion and approaches to researching these issues will be analyzed and discussed through our exploration of the various forms of family violence. Prereq: Advanced undergraduate standing. Cross-listed with HBSC 5110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 4200 - The Global HIV/AIDS Epidemic

Provides a foundation for a critical analysis of HIV/AIDS in global context, concerning topics such as disease, the body, ethnicity/race, gender, sexuality, risk, addiction, power, and culture together with a set of ethnographic texts that explore the epidemic's impact. Cross-listed with HBSC 4200/5200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 4620 - Health Risk Communication

Acquaints students with contemporary theory, research, and practice in health risk communication. Cross-listed with HBSC 5620, COMM 4620/5620, ENVS 5620. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 4840 - Independent Study

This course requires active independent learning based upon a written curricular outline and agreement with faculty in Public Health who supervise the student's work throughout the semester. Permission of instructor required. Max hours: 4 Credits. **Semester Hours:** 1 to 4

PBHL 4995 - Travel Study

A flexible format that permits courses to be taught in various areas of the world. Prereq: Upper division undergraduate standing and permission of instructor. Max hours: 12 Credits. **Semester Hours:** 3 to 9

PBHL 4999 - Topics In Public Health

An in-depth study of selected social science perspectives/theories and their applications to population health. Topics will vary from semester to semester, with a particular emphasis on current, salient population health problems. Prereq: Junior or senior standing or permission of instructor. Cross-listed with HBSC 5999. Max hours: 12 Credits. **Semester Hours:** 0 to 4

Recording Arts

MSRA 5000 - Introduction to Graduate Studies

Surveys existing literature and research in science, technology, and pedagogy of recording arts. Extensive use of available resources in library, electronic and print, trade and scientific publications are explored. Use of computer applications for research and publication are developed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5001 - MSRA Research Seminar

In preparation for their thesis/portfolio, students learn research techniques by: applying skills from MSRA 5000, learning research design, performing research, interpreting results, and writing. Students will discover opportunities to add to the body of audio literature and recording techniques. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5004 - Topics in Media Forensics

Students learn theory and application through topical subjects designed to enhance theoretical and practical training in the analysis of forensic media. Emphasis will be placed on emerging technologies, methodological developments, and strengthening fundamental skills. These courses are repeatable for credit. Max hours: 5 Credits. **Semester Hours:** 1 to 3

MSRA 5014 - Research Practices in Media Forensics

An introduction to practical research techniques and forensic science periodicals provides students with a foundation for projects and reports in subsequent classes and for the research thesis. Library resources, research design, writing styles, and information technology will be discussed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5054 - Experiential Lab

Students will understand laboratory procedures and the application of A/V technology in the field and in analysis through professional conferences and site visits to crime labs and government agencies. Students will respond to experiences regarding presentation, demonstration, and discussion components. Max hours: 5 Credits. **Semester Hours:** 1 to 1

MSRA 5114 - Foundations in Media Forensics

Students learn the foundational processes integral to forensic audio, video, and image analysis demonstrating knowledge through reading responses and documentation of procedures and methodology used in assigned projects. Topics include: media recording technology, analog/digital theory, multimedia compression, and equipment characterization. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5124 - Forensic Science and Litigation

Critical analysis of legal precedent and court proceedings reveal to students the correlation between science and law in the litigation of forensic evidence. Assigned reading and research papers regarding evidence admissibility and scientific methodology will prepare students for evidence examination. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5134 - Computer Forensics

Students explore computer forensics through guided projects and group discussion. An overview of computer hardware/software and characterization of storage media and file types will be covered through mock evidence examination documenting the search, seizure, and acquisition of forensic media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5144 - MATLAB Foundations

An introduction to MATLAB workflow and its use in Media Forensics will be explored. Students will learn how to build program commands in scripts for signal analysis and to display graphical representations of data and statistics. Max hours: 2 Credits. **Semester Hours:** 2 to 2

MSRA 5214 - Forensic Audio Analysis

Students learn concepts through the application of techniques related to audio enhancement, digital media authentication, acoustic analysis, and automatic speaker recognition. The acquisition and analysis of digital evidence applying reliable methods prepares students for forensic audio analysis in the laboratory. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5224 - Forensic Video and Image Analysis

Students learn concepts through the application of techniques related to forensic video collection and image enhancement, authentication, photogrammetry, and comparison. The acquisition and analysis of digital evidence applying reliable methods prepares students for working on forensic imagery in the laboratory. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5244 - Mobile Phone Forensics

Students learn concepts regarding the proper handling of mobile phones to ensure evidence integrity and approaches to address the ever-changing field. Students are prepared for the acquisition and analysis of forensic media on personal devices through exercises and group projects. Max hours: 1 Credit. **Semester Hours:** 1 to 1

MSRA 5254 - MATLAB for Forensic Audio Analysis

Advanced application of MATLAB for the forensic analysis of audio will be presented including file access, FFT and waveform plotting, and signal detection. Through the exploration of correlation and using mean quadratic difference students will be prepared for media authentication. Max hours: 1 Credit. **Semester Hours:** 1 to 1

MSRA 5264 - MATLAB for Forensic Video and Image Analysis

Advanced application of MATLAB for the forensic analysis of images will be presented covering image processing and analysis techniques. Through exploring analyses such as Photo Response Non-Uniformity and the BI-Dimensional DFT, students are prepared for image authenticity examinations. Max hours: 1 Credit. **Semester Hours:** 1 to 1

MSRA 5314 - Report Writing and Court Testimony

Students are prepared for expert witness testimony through the analysis of mock evidence, complimentary report preparation, and subsequent mock trial. This capstone experience will demonstrate a student's technical writing and presentation skills and exercise the creation of demonstrative materials. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5500 - Topics in Professional Audio

Selected topical subjects to include live or studio sound recording, sound reinforcement, new technologies or practices in the audio industry. Max hours: 9 Credits. **Semester Hours:** 1 to 1

MSRA 5505 - Audio Post Production I

Reviews all aspects of audio synchronized with picture, including music, sound effects, narration, and dialog replacement. Topics studied with respect to film, video and multi-media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5510 - Topics in Recording Arts

Selected topical subjects to include live or studio sound recording, sound reinforcement, new technologies or practices in the audio industry. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5530 - Live Sound Reinforcement

This course focuses on the basic elements of sound reinforcement: acoustics, equalization, equipment and mixing techniques. The major emphasis is the production of the final sonic product. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5550 - Audio Production III

Advanced studies in sound recording and reinforcement, aesthetics and techniques of multi-track analog and digital recording and stereo imaging. Team lab recording projects. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5560 - Mastering & Advanced Digital Audio

A study and practice of the art of mastering. Topics covered include: history, monitoring, signal flow, metering, jitter, audio restoration, limiting, creating a CD pre-master, & mastering for new media. Students will get practical experience mastering their own projects. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5575 - Graduate Surround Sound

This lecture-lab course deals with surround sound in film, digital TV and DVD's. Topics include monitoring, microphone techniques, recording, mixing, mastering, delivery formats and psychoacoustics. Students work on two lab projects in the semester. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5576 - Surround Sound II

Students will work on advanced surround sound projects and study mixing aesthetics, high-definition technology and authoring. Students will have advanced knowledge of these topics and produce professional, competitive material for their demo. Prereq: MSRA 5550, 5575 and 5505, or permission of instructor. Max hours: 4 Credits. **Semester Hours:** 4 to 4

MSRA 5580 - Graduate Audio Seminar I

Faculty and majors of the music engineering program assemble to discuss and demonstrate issues of artistic and technical applications of recording technology. Student projects, faculty, and guest lectures provide topical focus. Max hours: 6 Credits. **Semester Hours:** 3 to 3

MSRA 5581 - Graduate Audio Seminar II

Capstone project based course in which students complete professional quality projects in music production and/or post production. Students refine their engineering skills and develop new skills required for integration in the music industry such as portfolio design and resume development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5590 - Graduate Audio Production

Deals with advanced audio skills for music recording, including technical and artistic considerations. This is a required course for the MSRA degree. Max hours: 4 Credits. **Semester Hours:** 3 to 3

MSRA 5600 - Topics in Music

Various topics relating to the study of music performance, music technology and music business. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MSRA 5605 - Audio Post Production II

Students will learn advanced Pro Tools techniques by designing, conceptualizing, and completing sound for a student film project. This interdisciplinary course prepares students for working relationships between Recording Arts, Film and Video areas and an entry level job in post production. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5820 - Digital Music Techniques

Studies the general principles and applications of digital music technology, emphasizing the function and operation of specific computer software. Topics include digital audio workstations, MIDI sequencers, digital signal processing programs, and distribution on optical discs and computer-based mediums. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5840 - Independent Study for MSRA

Allows graduate students to pursue in-depth study of an audio-related topic, to be discussed with and approved by the Graduate Advisor. A final report or other tangible results will be determined on a case- by-case basis. Max hours: 3 Credits. **Semester Hours:** 1 to 3

MSRA 6214 - Forensic Audio Analysis

Students learn concepts through the application of techniques related to audio enhancement, digital media authentication, acoustic analysis, and automatic speaker recognition. The acquisition and analysis of digital evidence applying reliable methods prepares students for forensic audio analysis in the laboratory. Coreq: MSRA 6254 and admittance to Certification in Forensic Audio Analysis Program required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 6224 - Forensic Video and Image Analysis

Students learn concepts through the application of techniques related to forensic video collection and image enhancement, authentication, photogrammetry, and comparison. The acquisition and analysis of digital evidence applying reliable methods prepares students for working on forensic imagery in the laboratory. Coreq: MSRA 6264 and admittance to Certification in Forensic Video and Image Analysis Program required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 6254 - MATLAB for Forensic Audio Analysis

Advanced application of MATLAB for the forensic analysis of audio will be presented including file access, FFT and waveform plotting, and signal detection. Through the exploration of correlation and using mean quadratic difference students will be prepared for media authentication. Coreq: MSRA 6214 and admittance to Certification in Forensic Audio Analysis Program required. Max hours: 1 Credit. **Semester Hours:** 1 to 1

MSRA 6264 - MATLAB for Forensic Video and Image Analysis

Advanced application of MATLAB for the forensic analysis of images will be presented covering image processing and analysis techniques. Through exploring analyses such as Photo Response Non-Uniformity and the Bi-Dimensional DFT, students are prepared for image authenticity examinations. Coreq: MSRA 6224 and admittance to Certification in Forensic Video and Image Analysis Program required. Max hours: 1 Credit. **Semester Hours:** 1 to 1

MSRA 6510 - Graduate Audio Studies Pedagogy

Surveys available resources for audio education. Interdisciplinary materials in physics, acoustics, engineering, music, broadcast, medicine, psychology, multi-media, theater, and film or video are reviewed. Emphasis on design and development of new methods and materials are pursued. (MSRA graduate students only.) Prereq: MUSC 5000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 6550 - Sound Design

Deals with designing sound for live theater, film, video, television, theme parks, games and soundscapes. Focuses on using technology to achieve specific esthetic aspects of audio production. This is accomplished through lectures, listening assignments, research and lab practice. (For graduate students only.) Max hours: 4 Credits. **Semester Hours:** 4 to 4

MSRA 6950 - Thesis in Professional Audio

With the guidance of a thesis advisor, each candidate for the MSRA degree select an approved topic for scholarly review, research and publication. The approved materials are evaluated for written and oral defense. Prereq: MUSC 5000, 5590, 6510, 6580, 6530. Max hours: 4 Credits. **Semester Hours:** 4 to 4

MSRA 6951 - Professional Audio Portfolio Thesis

With the guidance of a portfolio advisor, each candidate for the MSRA degree produce specified documentation and audio materials that reflect the career intentions of the candidate. A completed "Show kit" or professional "Demo" of the candidate's specialty are produced. The approved materials are evaluated for written, audio and oral defense. Max hours: 4 Credits. **Semester Hours:** 4 to 4

MSRA 6954 - Research Thesis in Media Forensics

Students work closely with their thesis advisor in selecting a topic for original research and scientific publication. This capstone project creates an area of specialty for MSRA-MF degree candidates. Approved materials are evaluated through report submission and oral defense. Max hours: 4 Credits. **Semester Hours:** 4 to 4

Religious Studies

RLST 1610 - Introduction to Religious Studies

Religion is a complex phenomenon which involves social norms, beliefs and fears, and overarching world view. Religious experiences are among the most profound an individual can have. The course examines religious phenomena from various perspectives, including philosophical, historical, psychological, anthropological, political, sociological, the symbolic and ritual. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-AH3 **Semester Hours:** 3 to 3

RLST 2660 - World Religions

Provides an introduction to the basic beliefs and concepts of the world's great religious traditions. Covers the history, development, belief patterns, and institutional forms of the world's religions, including Judaism, Zoroastrianism, Christianity, Islam, Hinduism, Buddhism, Confucianism, Taoism and Shintoism. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-AH3 **Semester Hours:** 3 to 3

RLST 2680 - The American Indian Experience

Surveys the relationships between Indian and non-Indian peoples, particularly in the context of the unique interaction between tribes and the federal government. Cross-listed with ETST 2606. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 2700 - The Bible as Literature

Introduces students to biblical literature. Selections from the various genres of writing in Hebrew (history, wisdom, prophecy, literature) are read and discussed, as well as representative sections from the New Testament, including the gospels and the writings of Paul. Cross-listed with ENGL 2520. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 3000 - Judaism, Christianity and Islam: Affinity and Difference

Judaism, Christianity and Islam have much in common, beginning with their common patriarch Abraham. But there are also elements in each that are unrecognizable from the perspectives of the other two. This course will trace the relationships among the Children of Abraham across history and in today's turbulent world. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 3060 - History of Early Christianity

History of the rise of Christianity and the decline of paganism in the Roman Empire from the birth of Jesus of Nazareth to ca. 500 A.D. Special emphasis on social, historical, legal, and cultural context of Christianity's rise and paganism's decline. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 3080 - Reformation Europe

Between the early 16th and the middle 17th centuries, Europe was torn by explosive ideological conflicts, resulting in religious upheaval, political revolution, and civil and international wars, but also underwent important experiments in representative government and economic controls. Cross-listed with HIST 4022, 5022. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 3100 - Islamic Politics and Culture

Comprehensive, in-depth study of Islam and Muslims. Islam is viewed as a "way of life" with social, economic, psychological, spiritual, and political implications. Among topics to be examined are: women in Islam, Jihad, fundamentalism, Islamic movements, Islam and the West. Cross-listed with PSCI 4165. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 3300 - Shamanic Traditions

Explores shamanic religious traditions across the world. This form of religion, involving spiritism, animism, trance states, and "mind power," is the oldest and most widespread religion in world history. Cross-list ETST 3300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 3400 - Asian Philosophies and Religions

We in the Western world encounter a vastly different world, a radically different "universe of meaning," when we examine the traditions of the East. Even what we tacitly assume to be "real" is claimed by the Hindus and Buddhists of India to be a grand illusion. The world of China is, again, very different from India. An examination of Tibetan and Japanese religious forms will conclude our study of Asian thought. Cross-listed with PHIL 3666. Max hours: 3 Credits.

Semester Hours: 3 to 3

RLST 3500 - Religions of India

Examines the transcendentalist philosophy of India, which rests at the foundation of the great Eastern religious traditions of Hinduism and Buddhism. The Indian ideas of God, the soul, time, the nature of the universe, and its ultimate goal are examined. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 3660 - Chinese Philosophy and Culture

China is a fascinating world with its own characteristic orientation to philosophical questions. Chinese thinkers produced the "Flowering of a Hundred Schools of Thought" in the Axial Age, the same period of time in which philosophy was coming to birth in ancient Greece. Covers some of the Chinese schools, including Confucianism, Taoism, Mohism, Legalism, Chinese "Logic," and the later schools of Neo-Confucianism, Neo-Taoism and Chinese Buddhism. Cross-listed with PHIL 3981. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 3720 - Religious Narratives

Investigates the language and structure of religious discourse in Western literature. Welcomes interdisciplinary and comparative perspectives with a focus on cultural constructions of the sacred. Cross-listed with ENGL 3520. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 3740 - Biblical Traditions: Old Testament

Investigates the history and nature of the Biblical text. Follows the tradition of critical scholarship beginning in the Enlightenment era and continued down to the present day, sometimes entitled "Secular Humanism." Topics include theories of authorship of the Torah, its general nature and content; the historical books of the Bible, the Prophets, and the Wisdom Literature. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 3760 - Biblical Studies: New Testament

Examines the books of the New Testament from a scholarly, historical-critical perspective, which views it as a historically and culturally conditioned text, reflecting the beliefs and attitudes of the authors who produced it. The course covers the canonical gospels, letters, and other writings of the New Testament. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 3770 - Archaeological Discoveries Relating to the Bible

Examines the revolutionary impact of archaeology on Biblical Studies. Among these discoveries are Egyptian, Mesopotamian, and Canaanite texts, the Dead Sea Scrolls, and the Gnostic texts. Through these investigations, the Bible will be placed in its appropriate historical, literary and cultural context. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4000 - Religion and Cultural Diversity

Religion is one of the key elements which creates multiculturalism. This course explores issues in religion and religious identity in contemporary America, including Native American spiritual traditions, Jewish-American traditions, Muslim-American traditions, Asian-American traditions, the African-American Pentecostal movement, and the growth of the Black Muslim movement. Attention is also given to the question of gender issues, as the traditional model for gender roles was formulated, in part, from a religious basis. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4010 - Comparative Religious Systems

A cross-cultural analysis of religious belief and behavior. Emphasis is placed on religions found among non-Western cultural groups and includes consideration of how major religions of the world are manifested on local levels. Cross-listed with ANTH 4130, 5130, RLST 5010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4020 - Sociology of Religion

An intensive review and analysis of the fundamental tenets of religion as a social institution, with emphasis on present-day religious cults, their beliefs and activities in society. Prereq: SOCY 1001 or permission on instructor. Cross-listed with RLST 5020 and SOCY 4610, 5610. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4040 - Psychology of Religion

Examines the theories developed by some of the great names in the field of psychology and their approaches to religion. Questions addressed include why people become religious, how religion functions in their lives, religious experience and assessment of the validity of religious claims. Key theorists studied include: William James, Sigmund Freud, Carl G. Jung, Abraham Maslow and Erich Fromm. Cross-listed with RLST 5040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4060 - Philosophy of Religion

Nature of religion and methods of studying it. Cross-listed with HUMN 5600, PHIL 4600, 5600, RLST 5060, and SSCI 5600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4070 - Western Religious Thought

Focuses on philosophers and theologians who have contributed to the evolution of the three great religious traditions of the West: Judaism, Christianity and Islam. Targets thinkers from three periods: the ancient or formative era, the medieval era, and the contemporary era. Note: Specific philosophers chosen may vary in different semesters. Cross-listed with PHIL 4710. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4080 - Eastern Religious Thought

Parallels the course in Western religious thought. The great religious traditions of the East, including Hinduism, Buddhism, Confucianism, and Taoism, are examined as they are presented in the writings of key philosophical representatives of each tradition. Cross-listed with PHIL 4720. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4100 - Special Topics in Religion

This special topics course allows for a variety of subjects to be explored in different semesters, including such issues as the nature of religious experience, communication with the divine, specific historical themes and events in religion. Max hours: 9 Credits. **Semester Hours:** 3 to 3

RLST 4160 - Mysticism

Explores the mystical strains within the world's great religious traditions. Jewish, Christian, and Islamic mystics did not always express the same beliefs and attitudes as mainstream adherents. When mystics are placed side-by-side, amazing similarities appear. One cannot always tell whether a given mystical statement is Hindu, Jewish, Sufi, or Christian. This class examines these mystical traditions, East and West. Cross-listed with RLST 5160. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4260 - Kosmos: Theories of the Universe

A course in philosophical cosmology using material from the sciences, history and philosophy. The goal is to illuminate our present theories concerning the nature of the universe and the place of life within it. Cross-listed with PHIL 3420. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4300 - Myth and Symbol

Approaches the field of classical Greek mythology and religion from the perspective of Jungian archetypal theory. The deities of the ancient Greeks are presented as archetypal patterns with universal correlates elsewhere in world religions. A foundation in C. G. Jung's archetypal theory will be offered to ground the course material. Cross-listed with RLST 5300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4320 - Spirituality in the Modern World

Examines the issue of spiritual currents in the modern world. Joseph Campbell claimed that Western culture long ago lost an active sense of the sacred and that the traditional religions have not been the spiritual center for the vast majority of moderns for centuries. This class looks at the modern spiritual awakening in Shamanism, Eastern thought, the New Age movement, the men's movement, paganism and goddess religion, and the revival of traditional religious forms in recent decades. Prereq: RLST 4300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4340 - The Hero's Journey

The myth of the hero's journey serves as a metaphor for the vicissitudes life puts each of us through. The hero or her represents the ego-self who undertakes the journey--a grand adventure into the realm of the unknown--to seek the treasure. He or she is greatly transformed by the process, ultimately into the great self, who wins the boon to share with all humanity. Versions of the story are found all over the world, such as in the sagas of Gilgamesh, Odysseus, Psyche, King Arthur, Dorothy of Oz, and Luke Skywalker from a galaxy far, far, away. Cross listed with ENGL 3530. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4360 - Freudian and Jungian Perspectives in Dream Analysis

Focuses on the phenomenon of dreams in a way that differs distinctly from the traditional approach to the subject in the field of psychology. Throughout history, dreams have been regarded as prophetic, as the voice of the gods. These "spiritual" approaches to dreams are examined, as well as some major theorists on dreams, especially the work of Sigmund Freud and C. G. Jung. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4400 - Differing Concepts of God

God, gods, and goddesses have been imagined in many different modes, forms, aspects, and guises throughout human history. This course investigates Paleolithic models of God, the Great Goddess of the Neolithic era, the gods of mythological traditions, Biblical God, the abstract God of the philosophers, the God of the pantheists, the deists, and the God of the mystics. Cross-listed with RLST 5400, PHIL 4650 and 5655. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4420 - Goddess Traditions

Explores the many forms which goddesses have assumed through history, including the Neolithic Great Mother and her heiresses in the ancient Mediterranean cultures, such as: Isis, Ishtar, Demeter, Hecate, Aphrodite, Artemis, Athena and others, and their parallels in India. Goddess traditions have encompassed a full spectrum from virgins to Great Mothers to dark underworld goddesses of death and destruction. Cross-listed with RLST 5420 and WGST 4420/5420. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4440 - Concepts of the Soul

Asks the questions: What is the nature of the human being? What makes us "human?" Do humans have a "soul?" What is its nature? Is it different from the "spirit?" What is its ultimate fate? Examines the various theories put forward by philosophers of both Eastern and Western traditions. Cross-listed with RLST 5440 and PHIL 4470, 5470. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4460 - Death and Concepts of Afterlife

Examines how the major religious traditions approach the issue of death. Where the Egyptians were fascinated by death, their Mesopotamian and Hebrew neighbors saw no kind of experience continuing after death. Concepts of the Final Judgment Day and the end of the world follow in Zoroastrianism, Christianity, and Islam, while Indian religions developed a sophisticated theory of reincarnation and the "art of dying." Finally, we will turn to Chinese belief in ancestral spirits. Cross-listed with RLST 5460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4480 - Perspectives on Good and Evil

Examines the "problem of evil" as formulated in the philosophical tradition. Presents classical formulation of the problem, traditional solutions, and classical critiques of each answer. Considers perspectives of various religious orientations, which deal differently with the question of suffering. Cross-list PHIL 4480/5480, RLST 5480. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4500 - Religion and Politics

Exploration of: (1) theoretical perspectives on the relationship between religion and politics; (2) causes of and justifications for the historical development of the Western separation of "church and state;" (3) contemporary responses to and analyses of this separation; and (4) several current debates about public policy in America that reveal tensions between these two spheres. Cross-listed with PSCI 4057, 5057 and RLST 5500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4710 - Women and Religion

A sociological exploration of the contemporary roles of women in religion. Course examines American and world religious groups with an eye to women's involvement. Considers how women have changed these traditions as they take on leadership roles and discusses the tensions that arise within these traditions as a result of their expanded participation. Cross-listed with HUMN 5710, SSCI 4710/5710, WGST 4710/5710, RLST 5710. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4730 - Whores and Saints: Medieval Women

Studies how women are presented in texts, as well as works by women. Investigates the roles open to women and societal attitudes toward women, who were considered seductresses, saints, scholars and warriors in the middle ages. Prereq: Nine hours of literature courses or instructor permission. Cross-listed with ENGL 4510/5510, RLST 5730 and WGST 4510/5510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4840 - Independent Study: RLST

Various topics in religious studies pursued in independent research. Max hours: 3 Credits. **Semester Hours:** 1 to 3

RLST 5010 - Comparative Religious Systems

A cross-cultural analysis of religious belief and behavior. Emphasis is placed on religions found among non-Western cultural groups and includes consideration of how major religions of the world are manifested on local levels. Cross-listed with ANTH 4130, 5130, RLST 4010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5020 - Sociology of Religion

An intensive review and analysis of the fundamental tenets of religion as a social institution, with emphasis on present-day religious cults, their beliefs and activities in society. Cross-listed with RLST 4020 and SOCY 4610, 5610. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5040 - Psychology of Religion

Examines the theories developed by some of the great names in the field of psychology and their approaches to religion. Questions addressed include why people become religious, how religion functions in their lives, religious experience and assessment of the validity of religious claims. Key theorists studied include: William James, Sigmund Freud, Carl G. Jung, Abraham Maslow and Erich Fromm. Cross-listed with RLST 4040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5060 - Philosophy of Religion

Nature of religion and methods of studying it. Cross-listed with HUMN 5600, PHIL 4600, 5600, RLST 4060, and SSCI 5600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5160 - Mysticism

Explores the mystical strains within the world's great religious traditions. Jewish, Christian, and Islamic mystics did not always express the same beliefs and attitudes as mainstream adherents. When mystics are placed side-by-side, amazing similarities appear. One cannot always tell whether a given mystical statement is Hindu, Jewish, Sufi, or Christian. This class examines these mystical traditions, East and West. Cross-listed with RLST 4160. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5300 - Myth and Symbol

Approaches the field of classical Greek mythology and religion from the perspective of Jungian archetypal theory. The deities of the ancient Greeks are presented as archetypal patterns with universal correlates elsewhere in world religions. A foundation in C. G. Jung's archetypal theory will be offered to ground the course material. Cross-listed with RLST 4300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5400 - Differing Concepts of God

God, gods, and goddesses have been imagined in many different modes, forms, aspects, and guises throughout human history. This course investigates Paleolithic models of God, the Great Goddess of the Neolithic era, the gods of mythological traditions, Biblical God, the abstract God of the philosophers, the God of the pantheists, the deists, and the God of the mystics. Cross-listed with RLST 4400, PHIL 4650 and 5655. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5420 - Goddess Traditions

Explores the many forms which goddesses have assumed through history, including the Neolithic Great Mother and her heiresses in the ancient Mediterranean cultures, such as: Isis, Ishtar, Demeter, Hecate, Aphrodite, Artemis, Athena and others, and their parallels in India. Goddess traditions have encompassed a full spectrum from virgins to Great Mothers to dark underworld goddesses of death and destruction. Cross-listed with RLST 4420 and WGST 4420/5420. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5440 - Concepts of the Soul

Asks the questions: What is the nature of the human being? What makes us "human?" Do humans have a "soul?" What is its nature? Is it different from the "spirit?" What is its ultimate fate? Examines the various theories put forward by philosophers of both Eastern and Western traditions. Cross-listed with RLST 4440 and PHIL 4470, 5470. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5460 - Death and Concepts of Afterlife

Examines how the major religious traditions approach the issue of death. Where the Egyptians were fascinated by death, their Mesopotamian and Hebrew neighbors saw no kind of experience continuing after death. Concepts of the Final Judgment Day and the end of the world follow in Zoroastrianism, Christianity, and Islam, while Indian religions developed a sophisticated theory of reincarnation and the "art of dying." Finally, we will turn to Chinese belief in ancestral spirits. Cross-listed with RLST 4460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5480 - Perspectives on Good and Evil

Examines the "problem of evil" as formulated in the philosophical tradition. Presents classical formulation of the problem, traditional solutions, and classical critiques of each answer. Considers perspectives of various religious orientations, which deal differently with the question of suffering. Cross-list PHIL 4480/5480, RLST 4480. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5500 - Religion and Politics

Exploration of: (1) theoretical perspectives on the relationship between religion and politics; (2) causes of and justifications for the historical development of the Western separation of "church and state;" (3) contemporary responses to and analyses of this separation; and (4) several current debates about public policy in America that reveal tensions between these two spheres. Cross-listed with PSCI 4057, 5057 and RLST 4500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5710 - Women and Religion

A sociological exploration of the contemporary roles of women in religion. Course examines American and world religious groups with an eye to women's involvement. Considers how women have changed these traditions as they take on leadership roles and discusses the tensions that arise within these traditions as a result of their expanded participation. Cross-listed with HUMN 5710, SSCI 4710/5710, WGST 4710/5710, RLST 4710. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5730 - Whores and Saints: Medieval Women

Studies how women are presented in texts, as well as works by women. Investigates the roles open to women and societal attitudes toward women, who were considered seductresses, saints, scholars and warriors in the middle ages. Prereq: Nine hours of literature courses or instructor permission. Cross-listed with ENGL 4510/5510, RLST 4730 and WGST 4510/5510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Research & Eval Methods

RSEM 5000 - Orientation to Research and Measurement in Education

Provides an overview of the research process, various types of research, and major concepts and techniques in educational measurement. The emphasis is on: (1) critiquing educational research studies; and (2) critiquing tests and other measures used in educational research as well as for other assessment purposes. A limited coverage of statistics and evaluation is included. Max hours: 6 Credits. **Semester Hours:** 3 to 3

RSEM 5050 - Classroom Assessment

Provides teachers with a conceptual framework for developing new assessments of student learning and attitudes, and for evaluating and selecting assessment instruments developed by others. Techniques of performance assessment and the use of portfolios in assessment are emphasized. A variety of assessment purposes--and their particular uses in placement, grading, instructional planning, and accountability--considered. Students design and administer portfolios and performance assessments; in addition, they read articles from leaders in the field. Max hours: 6 Credits. **Semester Hours:** 3 to 3

RSEM 5080 - Research In Schools

Provides teachers with the competencies necessary for examining their professional experiences using formal and informal methods of inquiry. Teachers become more reflective practitioners who investigate questions that arise from their work in schools. The course also prepares teachers to critique published research in a thoughtful manner. The intended audience for the course is beginning and experienced P-12 teachers. Max hours: 6 Credits. **Semester Hours:** 3 to 3

RSEM 5100 - Basic Statistics

A first-level course on the use and interpretation of descriptive and inferential statistics. Topics covered include: frequency distributions, measures of central tendency and measures of variability; shapes of distributions; standard scores; scattergrams, correlation and regression; and t-tests. Max hours: 6 Credits. **Semester Hours:** 3 to 3

RSEM 5110 - Introduction to Measurement

A first-level course that examines the nature and purpose of psychological measurement. Particular attention is paid to the concepts of reliability, validity, norms, interpretation of scores, response sets, fairness in testing, and norm-referenced vs. criterion-referenced interpretation of scores. A variety of instruments that are used to measure human attributes and behaviors are studied. Max hours: 6 Credits. **Semester Hours:** 3 to 3

RSEM 5120 - Introduction to Research Methods

Examines the purposes of research, the methods and designs of quantitative and qualitative research, and the processes involved in research studies. The methods of research examined include experimental designs, quasi-experimental designs, descriptive surveys, case studies, ethnographies and correlational designs. Designing a research study is a part of the course activities. Max hours: 6 Credits. **Semester Hours:** 3 to 3

RSEM 5350 - Workshop in Instrument Development

Provides an opportunity to learn the art and technology of developing different measures in education. Students develop an instrument of their own design. Topics vary. Max hours: 6 Credits. **Semester Hours:** 3 to 3

RSEM 5400 - Introduction to Evaluation of Programs and Persons

Models and methods of evaluating programs and persons in education and related fields, such as business and nursing, are examined. Emphasis is given to the topics of formative and summative evaluation, frameworks for program evaluation, teacher evaluation, merit pay, and the measurement and design problems associated with each topic. Max hours: 6 Credits. **Semester Hours:** 3 to 3

RSEM 5800 - Workshop: Topics in Research and Evaluation Methodology

Topics and credit hours vary from term to term. Often workshops address a current topic in research, evaluation, or measurement by considering its scholarly foundations and its application to schools and other educational settings. Max hours: 12 Credits. **Semester Hours:** 1 to 4

RSEM 5840 - Independent Study: RSEM

Max hours: 4 Credits. **Semester Hours:** 1 to 4

RSEM 5910 - Practicum in Research and Evaluation Methodology

Supervised work in projects that provide experience in data analysis, research, measurement, or evaluation. Requires a minimum of 75, 150, 225, or 300 clock hours under supervision (for 1, 2, 3, or 4 credit hours, respectively). Max hours: 8 Credits. **Semester Hours:** 1 to 4

RSEM 5920 - Readings in Educational Statistics

Max hours: 6 Credits. **Semester Hours:** 1 to 3

RSEM 5921 - Readings in Educational Research

Max hours: 6 Credits. **Semester Hours:** 1 to 3

RSEM 5923 - Readings in Educational Measurement

Max hours: 6 Credits. **Semester Hours:** 1 to 3

RSEM 5924 - Readings in Program Evaluation

Max hours: 6 Credits. **Semester Hours:** 1 to 3

RSEM 6050 - Seminar in Assessment Policy Issues

Three public policy issues involving educational assessment are analyzed. The policy issues selected vary to reflect current policy debates. Sample issues are school accountability, grading and report cards, performance-based graduation standards, classification of students as having special needs, merit pay for teachers, and retaining students in grade. Each analysis examines (a) policy history; (b) value assumptions and constituency interests; (c) validity of assessment procedures; and (d) consequences of policy alternatives. Prereq: RSEM 5050 or RSEM 5300 (or another introductory course in educational measurement or assessment.) Max hours: 6 Credits. **Semester Hours:** 3 to 3

RSEM 6100 - Methods of Qualitative Inquiry

Prepares graduate students to conduct field research employing qualitative methods and perspectives. Students become familiar with evolving theoretical and methodological perspectives in qualitative research drawn from anthropology, clinical psychology, sociology and education. Students apply techniques of qualitative data collections and analysis in a pilot investigation. Prereq: RSEM 5080 or RSEM 5200 or EDLI 7000 (or their equivalents as determined by the course instructor.) Max hours: 6 Credits. **Semester Hours:** 3 to 3

RSEM 6200 - Single Case Research Design for Education

This course provides an overview of Single Case research Design (SCRD) within educational settings. The course will describe single case designs (SCD), specify the types of questions that SCD's are designed to answer, discuss the internal and external validity of SCD's, outline SCD standards, and describe implementation of different SCR D's. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 7000 - Doctoral Seminar in Research Methods

Designed for students beginning doctoral work, explores conceptional and practical bases for doing and evaluating educational research. The chain of reasoning linking the conceptualization of a research problem, the posing of questions in a social process of inquiry, and the collection and interpretation of evidence is examined through the use of examples. Prereq: RSEM 5100 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 7010 - Educational Assessment And Measurement

This advanced course incorporates foundational knowledge and application of assessment and measurement tools in school settings. Foundational concepts are utilized to better understand student achievement and growth indicators, and inferences about school and educator effectiveness; survey measures are also addressed. Prereq: RSEM 5100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 7050 - Methods of Survey Research

Covers the purposes and methods of survey research. Topics included are: goals and uses of survey research, data collection methods, questionnaire and interview protocol design, reliability and validity of data collection methods, sampling, ways to reduce error in data collection and sampling, data analysis techniques commonly used in survey research studies, interpreting and reporting results, and ethical issues. Students design and conduct a survey as part of the course requirements. Prereq: RSEM 5100, 5200 or EDLI 7000 (or their equivalents, as determined by the course instructor). Max hours: 6 Credits. **Semester Hours:** 3 to 3

RSEM 7100 - Advanced Methods of Qualitative Inquiry

An advanced seminar directed at individuals who have completed an introductory course in methods of qualitative research. Topics included are qualitative data collection, data analysis, and writing about data. Students collect and analyze data. Prereq: RSEM 6100 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 7110 - Intermediate Statistics

Continuation of RSEM 5100, covering more advanced methods of analyzing data, with an emphasis on the use and interpretation of descriptive and inferential techniques. Topics covered are one-way and two-way analysis of variance; power; multiple comparisons; factorial designs and factorial ANOVA; partial correlation, multiple correlation and regression; analysis of covariance; and selected use of packaged statistical programs (SPSS). Prereq: RSEM 5100 or equivalent. Max hours: 6 Credits. **Semester Hours:** 3 to 3

RSEM 7120 - Advanced Methods in Quantitative Inquiry and Measurement

Covers advanced topics in quantitative design and analysis, including advanced measurement topics. Topics include: specific types of design used in experimental, quasi-experimental, correlational, and survey research; multivariate ANOVA, ANCOVA and MRC; factor and trend analyses; classical test theory; and IRT approaches. Students analyze their own data using techniques presented in the course. Prereq: RSEM 5080 or RSEM 5200 and RSEM 7110 or permission of instructor. Max hours: 6 Credits. **Semester Hours:** 3 to 3

RSEM 7150 - Mixed Methods Research

This seminar is directed at individuals who have completed both qualitative and quantitative research courses and are interested in combining these in the mixed-method approach. Focus will be on developing the skills and knowledge needed to formulate mixed-methodological research questions in which quantitative and qualitative data collection, analysis and interpretational techniques are utilized simultaneously or sequentially. Prereq: EDLI 7000, RSEM 7110 and 6100 or equivalents or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 7210 - Program Evaluation

This advanced course incorporates foundational knowledge and application of the topic of program evaluation as it applies to inquiry and decision making in schools and other educational settings. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 7240 - Patterned Inquiry for Educational Administrators

This seminar provides students with a conceptual and practical basis for conducting and evaluating educational research. Its focus is on the application of research to problems of administrative practice. The seminar is also intended to prepare students for dissertation research. Prereq: RSEM 7110. Max hours: 12 Credits. **Semester Hours:** 1 to 6

RSEM 7500 - Special Topics: Research and Evaluation Methods

Specific topics vary from semester to semester. Max hours: 12 Credits. **Semester Hours:** 1 to 6

Risk Management

RISK 1000 - RISK Intro to Risk Management and Insurance Careers

This course introduces students to the many and varied career opportunities in the risk management and insurance industry via visiting industry professionals and on site industry visits. The course meets 1 hour each week. Cross-listed with FNCE 1000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 3809 - Introduction to Risk Management

This course introduces students to the fundamentals of risk and risk management for businesses and individuals. Corporate risk management techniques covered range from insurance to enterprise risk management. Personal risks discussed range from unemployment to retirement. Insurance carrier operations are also considered. Cross-listed with FNCE 3809. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 3949 - Experiential Learning in RMI Industry

This course connects students to risk management service providers through the Risk Management and Insurance (RMI) Program. The students will intern with a specific provider. The RMI program and faculty will supervise and monitor tasks and assignments, and coordinate with the providers to maximize the learning experience. Cross-listed with FNCE 3949. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 4129 - Practical Enterprise Risk Management

Enterprise RM involves identifying the risks and opportunities faced by a firm, assessing them, developing and implementing a plan to address them, and then monitoring progress. Students will learn the basics of ERM while working with risk management professionals to develop and present such a plan to an ongoing business. Cross-listed with RISK 6129 and FNCE 4129/6129. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 4409 - Employee Benefits and Workforce Risk Management

The course surveys an array of popular employee benefit programs to attract, protect, and retain valued employees. It also focusses on risk management programs that invest in human capital and address the downside risks of employing a workforce. Cross-listed with RISK 6409 and MGMT 4460/6760. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 4509 - Global Risk Management

This course is designed to study how risk is transferred globally. The course will include travel to London, which is the home to many of the world's largest insurers and reinsurers. While in London, we will visit and have presentations from insurance brokers, companies, Lloyds of London, and reinsurers. Cross-listed with RISK 6509 and FNCE 4509/6509. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 4809 - Property & Casualty Insurance

Students learn the fundamentals and uses of personal and commercial property and casualty insurance, including cost and pricing issues. Insurance company financial management and current trends in the insurance industry are also explored. Cross-listed with FNCE 4809. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 4909 - Corporate Risk Management

This course provides an overview of the corporate risk management process. It considers the ways companies identify their risk exposures, the tools used to measure and mitigate those exposures including the latest developments in alternative risk transfer, and ultimately, how risk management adds value to the firm. Cross-listed with FNCE 4909/6909 and RISK 6909. Max hours: 3 Credits. **Semester Hours:** 0 to 0

RISK 6129 - Practical Enterprise Risk Management

Enterprise RM involves identifying the risks and opportunities faced by a firm, assessing them, developing and implementing a plan to address them, and then monitoring progress. Students will learn the basics of ERM while working with risk management professionals to develop and present such a plan to an ongoing business. Cross-listed with RISK 4129 and FNCE 4129/6129. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 6509 - Global Risk Management

This course is designed to study how risk is transferred globally. The course will include travel to London, which is the home to many of the world's largest insurers and reinsurers. While in London, we will visit and have presentations from insurance brokers, companies, Lloyds of London, and reinsurers. Cross-listed with RISK 4509 and FNCE 4509/6509. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 6809 - Principles of Risk Management & Insurance

This course prepares students for advanced work in insurance and RM. The course first covers the nature of risk and risk fundamentals, insurer operations and insurance regulation. It then considers the principal techniques of managing risk exposures and the basis of decision making in management of business and personal risks. Cross-listed with FNCE 6809. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 6909 - Corporate Risk Management

This course provides an overview of the corporate risk management process. It considers the ways companies identify their risk exposures, the tools used to measure and mitigate those exposures including the latest developments in alternative risk transfer, and ultimately, how risk management adds value to the firm. Cross-listed with RISK 4909 and FNCE 4909/6909. Max hours: 3 Credits. **Semester Hours:** 3 to 3

School Library Program

SCHL 5020 - Collection Development

Principles and practices for developing information collections to meet user needs. Includes selection, evaluation and policy and procedure development for all materials, including print, electronic technologies and multimedia. Prereq: SCHL 5530. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCHL 5030 - Information Literacy and Reference

Teaching, assessment, and integration of information literacy skills and educational technology standards with subject content areas. Reference collection development, policies and procedures, and use of and reference tools, including electronic resources. Emphasis is placed on standards-based collaborative planning and instruction with classroom teachers. Prereq: SCHL 5530, 5110 and 5020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCHL 5040 - Information Storage and Utilization

Provides basic principles and practices of utilizing standard methods for organizing, accessing and storing information. Includes cataloging and classification in text-based and electronic systems. Max hours: 2 Credits. **Semester Hours:** 2 to 2

SCHL 5100 - School Libraries in the Digital Age

An introduction to the School Library profession, including its history, standards, organizations, and current trends. Course focuses on foundational principles and roles of school librarianship, as well as methods for developing a culturally responsive resource collection, both print and electronic. Max hours: 4 Credits. **Semester Hours:** 4 to 4

SCHL 5110 - Integrating Instructional Technology Practices in School Libraries

Analyze instructional technology use in school library settings. Discuss current trends and issues related to the use of technology within schools. Emphasis integrating instructional technology that focuses on student achievement and the students' ability to use technology resources that promote critical thinking skills, information evaluation and dissemination skills. Max hours: 2 Credits. **Semester Hours:** 2 to 2

SCHL 5160 - Managing School Library Programs

Case studies in the organization and administration of school library and instructional leadership of programs and projects. Topics include project management, personnel administration, budget development, management philosophies, copyright and intellectual freedom. Prereq: SCHL 5530, SCHL 5110, SCHL 5120, SCHL 5130 & SCHL 5140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCHL 5200 - Promoting Literature through the School Library

Approaches the school library as a resource to promote literacy and development in children and young adults. Topics include genres of literature, methods for advising students towards appropriate reading and media resources, and the promotion of multiple literacies - information, new media, and transliteracy. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCHL 5530 - Foundations of School Librarianship

This course is the first course in the School Library programs and provides an overview of school librarianship. The course is designed to develop an understanding of the history of school library programs, their current place in the public school system and society and their future. Max hours: 2 Credits. **Semester Hours:** 2 to 2

SCHL 5830 - School Library Workshop

Specific content and titles vary depending upon the particular school library skills addressed in the course. Max hours: 9 Credits. **Semester Hours:** 0.5 to 4

SCHL 5911 - School Library Field Experience-Elementary

Provides practical experience in the management of a school library program. Includes 90 hours in an elementary school library plus instruction within an online seminar for practicum coaching and field experience goals and instructional development. Prereq or Coreq: SCHL 5160. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCHL 5912 - School Library Field Experience-Secondary

Provides practical experience in the management of a school library program. Includes 90 hours in a secondary (7-12) school library plus instruction within an online seminar for practicum coaching and field experience goals and instructional development. Prereq or Coreq: SCHL 5160. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCHL 5913 - School Library Field Experience

Field experiences in selected K-12 school libraries that meet a high professional standard. The course serves as a capstone experience for endorsement and master's degree plans and helps induct students into the School Library profession by bridging theory and practice. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCHL 6720 - Research In Information And Learning Technologies

Analyze, evaluate and interpret published research conducted in library science. Provide an introduction to qualitative and quantitative data collection and data analysis measures. A school library practitioner-based action research project will be produced. Prereq: SCHL 5160. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCHL 6999 - Leadership and Practice in School Libraries

Designed to be the final class in the Master's in School Libraries Program, it is a reflective examination of the nature of contemporary leadership and practice in the field and provides a structure and forum for the successful completion of the comprehensive portfolio. Prereq: SCHL 5020, SCHL 5110, SCHL 5160 and SCHL 5530. Max hours: 3 Credits. **Semester Hours:** 3 to 3

School Psychology

SPSY 5600 - Behavior Analysis and Intervention

This course introduces knowledge and skills necessary for school psychologists to proactively address child problem behaviors. Content includes application of Positive Behavioral Support (PBS), functional behavior analysis and intervention, evaluation of behavior change. Relevant federal, state regulations are also addressed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 5800 - Workshop: Topics in School Psychology

Max hours: 15 Credits. **Semester Hours:** 1 to 6

SPSY 5840 - Independent Study: SPSY

Max hours: 9 Credits. **Semester Hours:** 1 to 4

SPSY 5900 - School-Based Multicultural Interventions

The course will foster students' understanding and appreciation of diversity and its applications for school psychology practice, educational contexts, and mental health policy. Students will learn to evaluate and implement school-based mental health and educational interventions with a multicultural lens. Prereq: SPSY 6410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 6000 - BrainSTARS: TBI-Strategies for Teams and Re-Educ

This interdisciplinary course provides a knowledge base in Traumatic Brain Injury (TBI) in children utilizing foundational learning experiences in sources of brain injury, various sequelae, interventions, educational modifications, IEP development, and resources for educators and families of children with TBI. Prereq: Admission to TBI Certification Program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 6020 - Consultation and Leadership in TBI

This interdisciplinary course focuses on consultation, teamwork and leadership strategies needed for providing family-centered, culturally competent, community-based services for children with traumatic brain injury and other disabilities and their families. Prereq: Admission to TBI Certification Program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 6040 - Applied Research in TBI for School Psychologists

This seminar focuses on the development of skills in conducting applied research with children and youth who have suffered a traumatic brain injury and addresses the need for school psychologists to develop and interpret research designs used for applied research. Prereq: Admission to TBI Certification Program. Max hours: 3 Credits. **Semester Hours:** 1 to 3

SPSY 6100 - School Psychology: Professional and Legal Foundations

This course covers topics related to the practice of school psychology, both past and present, including legal/ethical obligations/issues, accreditation, certification/licensure, culturally competent practice, roles/responsibilities, and evaluation and accountability. Observation in schools and related settings is required. Prereq: Admission to School Psychology Program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 6150 - Psychoeducational Assessment I

Focuses on assessment of cognitive ability, cognitive processes, and achievement in children and adolescents. Topics include selection, administration, and interpretation of ability and achievement tests; psychological report writing, and psychometric, historical, theoretical, and cultural issues in assessment. Test administration required. Prereq: RSEM 5300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 6160 - Psychoeducational Assessment II

Focuses on the assessment of adaptive behavior, personality, and social-emotional functioning in children and adolescents. Topics include selection, administration, and interpretation of these types of measures; cultural considerations in psychological assessment, psychological report writing, and developing interventions. Test administration required. Prereq: SPSY 6150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 6170 - Assessment and Intervention: Birth to 3

Course familiarizes students with the provision of psychological services to children birth to 3 years. The course includes coverage of relevant federal/state mandates, typical and atypical development, multicultural issues, and family-centered and consultative psychological intervention services. Test administration required. Prereq: SPSY 6150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 6200 - Risk, Resilience, and Prevention in School Mental Health

Examines sources of biological and social risk that prevent children from infancy through adolescence from reaching their full adult potential, the prevalence of these risk factors in North American communities, and the wellness models of intervention that ameliorate the effects of risk factors before problems manifest themselves and become disabling. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 6350 - School-Based Interventions: Children, Youth and Families

Provides theoretical and practice-oriented introduction to child therapy in schools. Weaves together skills and techniques essential to theory and implementation of psychotherapeutic techniques. Course activities compliment the systemic and group-based interventions examined in SPSY 6400. Prereq: RSEM 5300 Introduction to Measurement, CPCE 5010 Counseling Theories, and permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 6400 - School-Based Interventions: Groups, Classrooms and Systems

Provides students with advanced study of research on and techniques of classroom and small group interventions. Includes instruction on the evaluation of intervention effectiveness. Systemic, school-wide interventions are addressed. Prereq: RSEM 5100, RSEM 5300, SPSY 6350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 6410 - Psychoeducational Assessment of Culturally and Linguistically Diverse Students

Prepares students to provide psychoeducational assessments to children who are culturally and/or linguistically diverse. Content includes differentiation of language disorders versus language acquisition, and developing recommendations for accommodations and interventions to meet the unique psychoeducational needs of diverse children and youth. Prereq: SPSY 6150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 6420 - Crisis Prevention, Planning and Intervention

Introduces students to crisis theory, prevention research, and intervention strategies. The course is designed for school mental health professionals interested in developing advanced crisis counseling and intervention skills sufficient for use in school settings. The course emphasizes the importance of practical hands-on opportunities for skills development. Prereq: SPSY 6350 and CPCE 5100 (or equivalent) and experience required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 6450 - School-Based Consultation for Mental Health Professionals

A wide range of traditional or emerging consultation models emphasizing practical application of empirically-based approaches to advance the social or academic competence of students, classrooms, schools and districts. Hands-on experience supplement course content as students develop, refine, and practice their own eclectic consultation approach. Prereq: RSEM 5100, RSEM 5300 and SPSY 6350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 6500 - Identifying and Planning for the Mental Health Needs of Children and Adolescents

Provides students with advanced concentrated study of the etiology, diagnostic criteria, recommend intervention strategies, and diagnostic procedures appropriate for the identification of children's mental health needs. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 6550 - Academic Interventions in School Psychology

Provides training in knowledge and skills for the use of educational intervention practices in school psychology, including the development, implementation, and evaluation of academic interventions in the areas of reading, math, and written language; curriculum based measurement and progress monitoring. Prereq: SPSY 6150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 6695 - Rsrch Lab:Autism w/in Cltrly & Lngstcly Dvrse Ppltns

In this cross-disciplinary yearlong research lab, students will work individually or in groups to design, implement, and analyze research questions related to autism within culturally and linguistically diverse populations. Course topics will include autism identification, research methodology, analysis, and dissemination. Cross-listed with ECED 6695. Max hours: 9 Credits. **Semester Hours:** 1 to 2

SPSY 6911 - School Psychology Practicum

Supervised practice in providing comprehensive psychological services to children in grades preschool to 12. Students are placed in public schools or affiliated school-related agencies and supervised by practicing, licensed school psychologists. Prereq: SPSY 5600, SPSY 6100, SPSY 6150, SPSY 6160 and consent of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 6

SPSY 6915 - Practicum with Culturally and Linguistically Diverse Students

This school psychology practicum experience is focused on developing multicultural competencies with culturally and linguistically diverse students through either a cultural immersion experience in Mexico or a local practicum placement in a culturally and linguistically diverse setting. Max hours: 9 Credits. **Semester Hours:** 3 to 3

SPSY 6917 - Advanced Practicum in Psychological Assessment

Under faculty supervision provide psychological assessment services to clients in the UC Denver Student and Community Counseling Center. Prereq: SPSY 6150, SPSY 6160, and consent of the instructor. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPSY 6918 - Clinical Externship

Clinical experience under supervision of licensed, doctoral-level professionals. Students participate in assessment and intervention in a variety of settings. Note: All field placements must be approved by the SPSY Program Director in advance of registration. Prereq: SPSY 6911 and consent of instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 3

SPSY 6930 - School Psychology Internship

Supervised experience in the practice of school psychology with children and adolescents in a school or clinic setting. Prereq: SPSY 5900, SPSY 6410, SPSY 6911, SPSY 6200, SPSY 6350, SPSY 6400, SPSY 6450, SPSY 6500, SPED 5780 and instructor consent. Max hours: 6 Credits.

Semester Hours: 1 to 6

SPSY 6935 - Practicum in Evidence-Based Interventions: TBI

Practice implementing interventions with children and youth with a variety of behavioral, learning, and emotional problems related to traumatic brain injury. Includes special emphasis on identifying and implementing evidence-based interventions including the BrainSTARS curriculum and consultation methodology, under supervision. Prereq: Admission to BRI

Certification Program. Max hours: 3 Credits. **Semester Hours:** 1 to 3

Secondary Education

SECE 4050 - Introduction to Science Teaching and Learning

Focus on conceptual development, conceptual change, collaborative learning, students' conceptions of various topics in science, practical issues encountered in facilitating learning, managing the classroom, formative and summative assessment, and differentiating instruction in a collaborative environment. Seminar for Learning Assistants. Student must be serving as a Learning Assistant in the CU Denver LA program. Max hours: 2 Credits. **Semester Hours:** 2 to 2

SECE 5050 - Introduction to Science Teaching and Learning

Focus on conceptual development, conceptual change, collaborative learning, students' conceptions of various topics in science, practical issues encountered in facilitating learning, managing the classroom, formative and summative assessment, and differentiating instruction in a collaborative environment. Seminar for Learning Assistants. Student must be serving as a Learning Assistant in the CU Denver LA program. Max hours: 2 Credits. **Semester Hours:** 2 to 2

SECE 5060 - Improvement of Instruction

Designed to assist the educator in the systematic improvement of instruction. Emphasis is on emergent knowledge related to successful classroom practices, techniques of assessment, analysis and action related to the improvement of professional skills. Cross-listed with ELED 5060. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5200 - Classroom Management

Instructional management, physical management, and behavior management are studied as interactive components in the establishment and maintenance of an effective learning environment. Cross-listed with ELED 5200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5300 - Introductory Curriculum and Methods in Secondary Mathematics

Surveys secondary mathematics curriculum and methods for pre-service teachers. Topics include planning lessons, motivation, grading, constructing tests, problem solving, teaching aids, expository and discovery lessons, teaching concepts, procedures and problem solving. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5340 - Multicultural Science Education

This course examines literature in science education related to multicultural issues, topics will be framed by an understanding of equity in diverse, urban classrooms and how it informs curriculum and instruction. Cross-listed with ELED and ENVS 5340. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5350 - Issues and Problems in Science Education

Recent developments in theory, curriculum, methods, and materials in secondary science, examined for their contribution to the objectives of science education. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5360 - Physics Teaching and Learning

In this course, we will explore how people learn physics, and how physics is and can be taught. We will read literature in physics, physics education research, education, psychology, and cognitive science and apply it to your physics teaching. Prereq: 2 of the following PHYS 5101, 5102, 5103 or consent of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5365 - Physics Teaching as Research

In this course, you will research your teaching of physics, with the explicit goals of improving your teaching practice and improving student learning of physics. Prereq: 2 of the following PHYS 5101, 5102, or 5103 or consent of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5400 - Curriculum in Secondary Mathematics

Investigates curriculum in middle and high school mathematics, development, history and trends, and pertinent research. Participants construct and share curriculum relevant to their interest. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5401 - Assessment in Mathematics Education

Curriculum-based assessment covering nature of assessment and its relation to evaluation and grading; teacher-made assessments; validity and authentic assessment; techniques for assessing learning of mathematical concepts, procedures, and problem solving. Emphasis on assessment practices of mathematics teachers. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5410 - Advanced Methods and Strategies in Secondary Mathematics

An in-depth investigation of specific methods and strategies suitable for teaching mathematics for middle and senior high schools. Participants model and share various strategies, including the expository, collaborative discovery, laboratory, and Socratic methods. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5411 - Mathematics Education and Gender

Investigates gender-inclusive curriculum and teaching methods, equity and assessment, mathematical life histories, women in mathematics history, women's individual development and voice, single sex programs, and gender differences. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5417 - Structure of Rational Numbers

Focuses on pedagogical practices that use multiple solution strategies to examine the structure of rational numbers. The assigned problems engage elementary and secondary teachers in investigation of mathematical equivalence, properties, unitization, partitioning, ratios and proportionality. Prereq: Teaching license or permission of instructor. Cross-listed with ELED 5417. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5418 - Mathematical Modeling

Elementary and secondary teachers explore settings where mathematics is utilized in everyday activities. Teachers create mathematical models to describe events or situations in the world and use a variety of modeling strategies to solve problems. Prereq: Teacher licensure or permission of instructor. Cross-listed with ELED 5418. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5419 - Exploring the Structure of Geometry Using Technology

Develops elementary and secondary teachers' conceptual understanding of geometric properties theorems and axiomatic systems through dynamic computer software investigations. Using the software enhances and extends teachers' ability to solve complex problems and form deep understandings of abstract ideas. Prereq: teaching license or permission of instructor. Cross-listed with ELED 5419. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5420 - Teaching Mathematics to Low Achievers

Problems and characteristics of low achievers, motivation, attitudes, scaffolding with available materials, programs for low achievers, self-esteem, mathematics laboratory and activity approach to teaching mathematics. Appropriate for all grades. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5430 - Teaching Aids in Mathematics Education

Examination, production, and use of manipulative aids, audiovisual aids, and other materials for teaching mathematics. Open to elementary and secondary teachers. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5440 - Topics in Mathematics Education

An in-depth study of topics such as computers, testing, learning theory and mathematics laboratories. (May be repeated as topics vary.) Max hours: 6 Credits. **Semester Hours:** 3 to 3

SECE 5460 - Secondary Social Studies Methods and Curriculum Design

Recent developments in theory and materials in the social studies are examined, and present practices are analyzed for their contribution to general goals of social studies education. Appropriate for secondary teachers and elementary teachers with a specialization in social studies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5464 - Teaching About Ethnicity, Race and Prejudice

Designed to introduce the nature of racial and ethnic groups, prejudice, discrimination and ethnic violence. It also includes the teaching about these and related topics and deals with resolving problems of intergroup relations in schools and institutional settings. Cross-listed with ELED 5464. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5465 - Teaching Critical Issues in Social Studies: An Interdisciplinary Approach

An in-depth study of critical social issues related to global or international; ethnicity, race, gender and minorities; cross-cultural studies; and current societal problems. Requires an interdisciplinary approach and covers the structure of the social science disciplines. Prereq: A minimum of 24 semester hours in history and social sciences. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5480 - Museum Studies in Paleontology

A practical laboratory-based course covering aspects of museum studies related to paleontological collections. Students learn how to stabilize and prepare bones removed from fossil quarries; learn molding and casting techniques for bones and fossils; assist with the cataloging and curation of the collection; and participate in designing museum displays. Prereq: At least one science class. Cross-listed with GEOL 3415, ELED 5480. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5490 - Middle School Curriculum

Explores the unique curriculum requirements of transient youth. Topics to be addressed include team teaching, interdisciplinary curricula, flexible scheduling, basic skills development, guidance function, fine arts, practical arts, industrial arts, career education, teaching strategies and management techniques. Cross-listed with ELED 5490. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5500 - The Nature of Science

This course is a critical exploration of science and scientific knowledge using an epistemological approach to ask (and possibly answer) questions about sociological issues in science and implications for science research, teaching and learning. Cross-listed with ENVS 5500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5510 - Teacher Leadership: Theory to Reality

Working with colleagues in schools to make a difference as a team member and a change agent requires knowledge and skills that are "more than teachers, yet different from administrators" (Danielson, 2006). This course will provide teachers with skill building related to what it takes for teachers to improve schools. Cross-listed with ELED 5510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5520 - Teacher Leadership: Essential Knowledge

Teacher leaders need expertise about what constitutes a quality curriculum and how best to guide others to develop lessons with assessments that reflect essential standards. They use culturally responsive and differentiated teaching strategies to assure that learning occurs. Cross-listed with ELED 5520. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5530 - Teacher Leadership: Vital Skills

Teacher leaders need skills in collaboration, facilitation and coaching in order to work with colleagues in ways that will optimally impact student learning. This course will provide theory and practice in models of adult learning, professional development and communication. Cross-listed with ELED 5530. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5540 - Foundations of School Health Education

This course is an overview of the principles of behavior theory as they relate to health education in both theory and practice. The course will examine the characteristics of effective school-based health education programs. Issues of ethnicity, culture, and race as they relate to health will be examined throughout the course. Cross-listed with ELED 5540. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5550 - Curriculum Materials in Health Education

This course will support the application of behavior theory as it applies to specific health content knowledge and skills. Special attention will be given to the skills, instructional strategies, and techniques needed to develop a culturally responsive classroom to promote success for all learners. Cross-listed with ELED 5550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5560 - Health Education Teaching Practices

The course provides an overview of health education teaching and learning strategies for use in school settings. Action research will be introduced and utilized as a method to examine current teaching practices. Role-play, student assessment development, differentiation of instruction, and culturally responsive classroom practices will be examined. Cross-listed with ELED 5560. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5650 - Environmental Education

Theory and practice of conservation education, which include use of resource personnel and the study of curricular and instructional development. Field experiences are incorporated. Primarily oriented to elementary and junior high school. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5660 - Energy Education

Explores current energy problems. Students examine such topics as fuels from plants, fuels from wastes, fossil fuels, nuclear energy, wind energy, geothermal energy, solar energy and energy conservation. Included is a demonstration of available educational resources for grades K-12. The purpose of the course is to make technical aspects of energy accessible to the lay person. Cross-listed with ELED 5660. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5780 - Storytelling

Explores the history, function, philosophy, and techniques of storytelling. This class also includes collecting, selecting, preparing, developing, and delivering stories. Research and resources are emphasized. Cross-listed with ELED 5780. Max hours: 4 Credits. **Semester Hours:** 1 to 4

SECE 5800 - Curriculum Workshop for Secondary Teachers

Opportunity to construct curriculum relevant to teachers' interests. Topics and credit hours vary. Max hours: 36 Credits. **Semester Hours:** 0.5 to 4

SECE 5840 - Independent Study: SECE

Max hours: 9 Credits. **Semester Hours:** 1 to 4

SECE 5910 - Advanced Practicum in Teaching

This course is not to be used as independent study, but is to be used by students approved in advance by the director of teacher education. This course fulfills the student teaching requirement for students seeking a second endorsement. Prereq: Permission of instructor. Max hours: 18 Credits. **Semester Hours:** 1 to 4

SECE 5920 - Readings in Secondary Education

Max hours: 4 Credits. **Semester Hours:** 1 to 4

SECE 5930 - Internship in Secondary Education

Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 5950 - Master's Thesis

Max hours: 8 Credits. **Semester Hours:** 1 to 8

SECE 6100 - Seminar in Secondary Education

Students work on individual topics and report orally and in writing. Prereq: Permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 6110 - Science and Math Curriculum Studies

Students examine frameworks for curriculum design, discuss the psychological and philosophical foundations of curricula, and analyze the curriculum that they use in their own teaching. Students synthesize what teachers must do in order to effectively implement curricula. Prereq: Graduate student status. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 6120 - International Perspectives on the Curriculum

Considers schooling patterns in the U.S., the U.K., Japan, Australia, and several European countries, examining different approaches to curriculum issues in relation to social, historical, and economic factors. Prereq: FNDS 5500 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 6840 - Independent Study: SECE

Max hours: 4 Credits. **Semester Hours:** 1 to 4

SECE 6910 - Geology Field Study in Hawaii for Teachers

Integrated summer field study course in Hawaii with emphasis on science education. Topics include: structural geology/volcanism, marine biology or oceanography, botany, natural energy, astronomy and human interaction. Participants are involved in hands-on science activities utilizing the vast Hawaiian Island resources. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SECE 6950 - Master's Thesis

Max hours: 4 Credits. **Semester Hours:** 4 to 4

Social Justice

SJUS 2000 - Democratic Participation and Social Justice

Examines how well the United States, Colorado and Denver are doing in addressing issues of social justice, such as inequality and environmental degradation. Explores various modes of democratic participation -- electoral politics, community activism, and lifestyle changes -- in advancing social justice. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS1 **Semester Hours:** 3 to 3

SJUS 2010 - Social Justice: Theories, Narratives, and Technologies

How can citizens of a democracy address social justice issues? This course examines theoretical perspectives relevant to social justice, the narratives which express and question social order, and the technologies which alternately shape and reflect local, regional, and global cultures. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SJUS 3939 - Internship

Internship/experiential learning involving work in the community that is centered upon social justice and which includes a reflective component and some type of public dissemination. Prereq: Junior or senior standing and 3.0 GPA. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SJUS 4000 - Social Justice Capstone

Students design and carry out research projects that address important civic issues in collaboration with community partners and present their findings to the partners and academic community. This course also involves reflection on social justice means and goals. Prereq: Junior standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SJUS 4840 - Independent Study

Max hours: 3 Credits. **Semester Hours:** 3 to 3

Social Sciences

SSCI 4050 - Special Topics in Law Studies

These topics courses are concerned with specialized aspects of the study of law within the social sciences from various theoretical and research perspectives. These courses are interdisciplinary and serve as a forum for discussion specific to students interested in law studies. Max hours: 6 Credits. **Semester Hours:** 3 to 6

SSCI 4710 - Women and Religion

A sociological exploration of the contemporary roles of women in religion. Course examines American and world religious groups with an eye to women's involvement. Considers how women have changed these traditions as they take on leadership roles and discusses the tensions that arise within these traditions as a result of their expanded participation. Cross-listed with HUMN 5710, SSCI 5710, WGST 4710/5710, RLST 4710/5710. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 4840 - Independent Study

Directed study based on a specific subfield of social sciences. Max hours: 6 Credits. **Semester Hours:** 1 to 3

SSCI 5000 - 19th Century Philosophy

Covers the systematic work of such German idealists as Hegel, Fichte, and Shelling, as well as responses to those systems by such authors as Marx, Kierkegaard, and Nietzsche. Prereq: PHIL 3002 or 3022. Cross-listed with PHIL 4000/5000 and HUMN 5000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5013 - Philosophical Problems in the Social Sciences and Humanities

Presents an overview of key theoretical issues currently emerging across academic disciplines. Examines questions about reality, knowledge, ethics that affect social research and writing in the humanities. Readings explore how contemporary philosophical and cultural discourses have altered theory and method. Assignments include influential theoretical pieces by key historical and contemporary thinkers, examples of application in social research, and interpretations of thought and affect in cultural contexts. Cross-listed with HUMN/PHIL 5013. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5020 - Elements of Social Thought

Introduces students to the disciplines that comprise the social sciences (classical anthropology, sociology, sociology of religion, philosophy of history, political theory, classical psychology, etc.). Provides necessary tools for interdisciplinary students to understand the social infrastructure of contemporary society. Cross-listed with HUMN 5020 and PHIL 5020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5023 - Research Perspectives in Social Science

Introduces interdisciplinary social research through a critical examination of various methodological approaches. Each student formulates a research proposal which includes a research question, a review of the literature, and methods of study. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5050 - Topics in Social Science

These topic seminars are concerned with specialized aspects of the social sciences from various theoretical and research perspectives. These courses are interdisciplinary and serve as a forum for discussion of individual projects and theses. Max hours: 3 Credits. **Semester Hours:** 1 to 3

SSCI 5101 - Pragmatism: Classical American Philosophy

The most significant philosophical tradition born in the United States is pragmatism. Examines several of the most important classical works of this tradition, the influence of thinkers who have helped pragmatism, and the contemporary relevance of this tradition. Figures who may be included in this course are: Emerson, Pierce, Royce, James, Dewey, Mead, Rorty. Prereq: An introductory course in philosophy. Cross-listed with PHIL 4101, 5101, HUMN 5101. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5242 - Bioethics

Examines some of the major moral issues confronting the nation's health care system. The class will search for solutions to such problems as financing health care for those unable to do so on their own, determining the extent of a patient's right to both refuse and demand certain types of medical treatment, and allocating scarce medical resources such as life-saving vital organs. The springboard for examining these issues will be the doctor or patient relationship framed by the moral principles of respect for persons and beneficence. Cross-listed with PHIL 4242, PHIL 5242, HUMN 5242. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5250 - Environmental Ethics

While human industry/technology creates enormous material prosperity, it can result in devastating environmental damage. This course analyzes the moral values, consequences and duties implied in relationships between human beings, animals and ecological systems, while seeking out new and ethical approaches. Cross-listed with PHIL 4250/5250 and HUMN 5250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5400 - Women and Violence

Analyzes the social, political, legal, and psychological aspects of violence against women and addresses: definitions of the problem, demographics, survivors, perpetrators, children who witness, bystanders, strategies and tactics of abuse and survival, along with strategies for prevention, intervention, treatment and social change. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5520 - The City Beautiful: Art, Architecture and Theory in Urban History

How did cities develop and what were the buildings that filled these spaces? Posing this question initially, this course takes a case-study approach to surveying the concerns confronting different cultures as they developed their urban environments sociologically, anthropologically, architecturally and spatially. Cross listed with HUMN 5520. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5530 - Social Construction of the Self

Investigates theories that address the construction of self and how that construction is constrained by culture, politics, society and historical moment. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5550 - Paris 1910: Art, Philosophy and Psychology

Traces the influences of philosophy, psychology, and art in the English, French, and German-speaking worlds in the early twentieth century. This intellectual history is extended to broader cultural and political contexts. Key period is between 1910 and 1968, when modernity's key aspirations and tensions became explicit. Cross-listed with HUMN 5550 and PHIL 5550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5600 - Philosophy of Religion

Nature of religion and methods of studying it. Cross-listed with HUMN 5600, PHIL 4600, 5600, RLST 4060, and 5060. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5650 - Reflections on Modernity

Explores modernity as a historical epoch and a theoretical space, looking at the commentaries and reflections of influential 20th century thinkers including Adorno, Arendt, Levinas, Merleau-Ponty, Habermas and Foucault. Examines how the theoretical inclinations of modernity were influenced by politics, art, literature and culture. Cross-listed with HUMN 5650 and PHIL 5650. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5710 - Women and Religion

A sociological exploration of the contemporary roles of women in religion. Course examines American and world religious groups with an eye to women's involvement. Considers how women have changed these traditions as they take on leadership roles and discusses the tensions that arise within these traditions as a result of their expanded participation. Cross-listed with HUMN 5710, SSCI 4710, WGST 4710/5710, RLST 4710/5710. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5720 - Sexuality, Gender and Their Visual Representation

Studies sexuality, gender and identity representation from classical antiquity through the present in the visual arts. Uses the literature of visibility, feminism, race and queer theory. Explores representations of femininity, masculinity and androgyny and their reinforcement and challenge to gender-identity norms. Cross-listed with HUMN 5720 and WGST 5720. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5750 - Philosophical Psychology

Explores debates about psyche and body, mind and world, self and others, and consciousness and nature. Examines the philosophical questions related to those debates that arise within theories of perception, affect and cognition offered by influential psychological models. Cross-listed with HUMN 5750, PHIL 5755. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5770 - Imperialism, Post-Colonial Theory, Visual Discourse

Western empires disseminate political, social, economic & cultural practices through complex interplay of cultural practices. Visual production is a complex site for meaning making within imperialism. Examines how visual discourses operated to create meaning for audiences, through focus on postcolonial critique. Cross-list HUMN 5770. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5830 - Grant Writing for Nonprofits

Designed to help current and future professionals in the nonprofit sector understand the social, political, and economic context and mechanics of pursuing grants, government contracts, and other funding for nonprofit organizations. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5833 - Existentialism

Examines one of the most influential movements in recent European thought, beginning with existentialism's 19th century roots, and continuing on to the existentialist philosophers of the 20th century. Figures covered may include Dostoyevsky, Kierkegaard, Nietzsche, Heidegger, Sartre and de Beauvoir. Cross-listed with PHIL 4833/5833 and HUMN 5833. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5840 - Independent Study: SSCI

Max hours: 9 Credits. **Semester Hours:** 1 to 3

SSCI 5920 - Philosophy of Media and Technology

A philosophical examination of interrelationships between contemporary media, technology, and their impacts upon character of contemporary life and values. Topics may include ethics, epistemology, democracy, advertising, media literacy and criticism. Cross-listed with PHIL 4920, 5920, HUMN 5920. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5933 - Philosophy of Eros

What does it mean to understand philosophy as an erotic activity? This question will be examined, first by studying Plato's dialogues—such as Lysis, Symposium and Republic—and then by reading texts from Sigmund Freud, Michael Foucault and others. Cross-listed with PHIL 4933, WGST 4933/5933 and HUMN 5933. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 6

SSCI 6010 - Methods and Theories of Feminism and Gender Studies

Provides graduate-level interdisciplinary study in historiography, methodologies and theories of women's, gender and sexuality studies and considers how culture is constructed around these categories. Cross-listed with WGST 6010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 6950 - Master's Thesis

Max hours: 8 Credits. **Semester Hours:** 1 to 8

SSCI 6960 - Master's Project or Report

Research which may be based on field work. Max hours: 9 Credits. **Semester Hours:** 1 to 6

Sociology

SOCY 1001 - Introduction to Sociology

A survey course in which the main concepts that define the sociological perspective are presented, and a picture of society is provided by examining major social institutions and forms of social organization within society. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS3 **Semester Hours:** 3 to 3

SOCY 1050 - Analysis of Modern Society

Examines various sociological views of modern society, including those of Lundberg, Mills, Riesman, Goffman, Sorokin, Cohen and others. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

SOCY 2001 - Inequalities in Social World

Introduces students to critical sociological perspectives on social inequality. Major sociological factors contributing to the production and reproduction of inequality in various social organizations and institutions are analyzed. Prereq: SOCY 1001 or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 2462 - Introduction to Social Psychology

Studies the development and functioning of persons, especially within a group context, and the dynamics of small groups. Emphasis is on import of symbols for human behavior, development of self-concepts, and the processes of competition and cooperation in group dynamics. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS3 **Semester Hours:** 3 to 3

SOCY 3001 - Urban Sociology

The city and urban society are examined in terms of social structure, residential and institutional patterning, process of interaction, demographic processes, and patterns of growth and change. Prereq: SOCY 1001 or permission of instructor. Cross-listed with ETST 3001. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3010 - Sociology of Human Sexuality

Increases the understanding of differences in views of sexuality, specifically the link between sex and reproduction and its role as the motivation for gender roles and sex acts. Explores the history of sexuality, cross-cultural studies and primate modeling. Cross-listed with WGST 3010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3020 - Race and Ethnicity in the U.S.

A sociological examination of race and ethnicity in contemporary U.S. society. Includes a focus on the nature and causes of prejudice and discrimination. Dominant-minority relations are examined, with an emphasis on current status of minority groups and issues. Prereq: Six hours of social science. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3030 - Social Change

Process of change in Western societies and its effects on the individual, communities, and economic and political institutions. Prereq: SOCY 1001 or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3040 - Drugs, Alcohol & Society

Explores our culture's relationship with drugs and alcohol from a sociological perspective, investigating all spheres of substance use: recreational, medicinal, instrumental & religious. Examines our long turbulent history with these chemicals, and the ways in which they have shaped our society. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3050 - Sociology of Education

Topics covered include school socialization, A.D.D. diagnoses and drugs, special education, effects of standardized testing, race, ethnicity, gender, poverty in schools, public policies and funding, teacher burnout, student aspirations, secondary education and local issues in education. Prereq: SOCY 1001 or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3080 - Sex and Gender

Causes and consequences of sex role differentiation at the individual, group and societal levels. Current issues related to changing norms and values concerning gender in modern society are examined. Cross-listed with WGST 3080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3111 - Research Methods

Design of social research. Application of statistical techniques and procedures to social phenomena. Prereq: SOCY 1001 or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3121 - Statistics

Quantitative techniques used in analyzing social phenomena. Prereq: MATH 1070 or permission of the instructor. Max hours: 4 Credits. **Semester Hours:** 4 to 4

SOCY 3150 - History of Sociological Theory

An analysis of the major contributions and determinants of earlier social analysts to present-day social thought and analysis of pertinent sociological issues. Prereq: Junior standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3160 - Contemporary Sociological Theory

The explication of various conceptual approaches to the problems of social order, societal functioning and integration, social conflict, and social structural change by the examination of the work of contemporary theorists. Prereq: SOCY 3150 or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3297 - Social History of Asian Americans

Introductory-level course surveys the social history of Asian American groups from the mid-19th century to the present. Examines immigration patterns, the development of communities, social and economic problems, and anti-Asian movements and activities. Cross-listed with ETST 3297. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3300 - Advanced Social Problems

Social problems are the subject of controversy, such as that surrounding controversy may swirl around definitions (e.g., the social net and the poverty line), around degree of seriousness, about "causes," and inevitably about solutions. Controversy also centers on the "proper" role of the social theorist and social scientist, observer only or activist as well? While other disciplines study social problems, they are the very heart of the sociology perspective, and the wellspring of sociological inquiry. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3440 - Medical Sociology

This course covers key issues in population health and emphasizes how sociological perspectives both challenge and augment biomedical perspectives on health and health care. We also discuss the social causes and consequences of race/ethnic, sex, and socioeconomic disparities in health. Cross-listed with PBHL 3440. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3460 - The Social Psychology of Intergroup Relations

Study of those aspects of human interaction which deal with individuals perceiving themselves, and/or being perceived by others, as members of a social category. Focuses on the dynamics of intergroup conflicts--how they arise, what course they may take, and how they might be resolved. Prereq: Six hours of sociology, psychology, or any combination of the two. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3490 - Criminology

Theories, nature and causes of crime as a social phenomenon. Processes of making laws, breaking laws, and reaction toward the breaking of laws. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3500 - Topics in Sociology

Special topics in sociology to be selected by the instructor. Note: Can be taken more than once when topics vary. Max hours: 9 Credits. **Semester Hours:** 1 to 3

SOCY 3560 - Death and Dying

Designed to examine the attitudes, customs, and institutions related to death and dying in contemporary American society. Several theoretical approaches from a sociological perspective are utilized, as well as historical and cross-cultural data. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3600 - Social Relations

The course has two aims: first, to improve the student's abilities to observe, analyze, and understand his own behavior and that of others in everyday interpersonal situations; and second, to improve his ability to see the small group as a social system. The student is expected to demonstrate his abilities by effective participation in his group as well as in periodic written analyses. Prereq: Junior standing or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3650 - Sociology of Music

Focuses on the meaning/use of music in society. Explores censorship, organization of the recording industry, sociocultural contexts in which music is produced/distributed/listened to and the relationship between music and technology along with musical applications and associations. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3700 - Sociology of the Family

The family as a social institution. Historical development and contemporary cross-cultural analysis, with emphasis on the contemporary American family. Cross-listed with WGST 3700. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3710 - Sociology of Global Issues

Social issues such as race relations, social inequality, urbanization, family dynamics and global competition are examined using different theoretical perspectives. Existing policies are used to study "private troubles" and "public issues" and the relationships among global, national and local levels. Prereq: SOCY 1001 or undergraduate advisor's permission. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3840 - Independent Study: SOCY

Max hours: 6 Credits. **Semester Hours:** 1 to 3

SOCY 3939 - Internship

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

SOCY 4040 - Social Determinants of Health

This course explores social inequalities in physical and mental health, the illness experience, the healing professions, health policy, relations between providers and patients, and the structure, access to, and financing of health care organizations, with some cross-national discussions. Prereq: Upper-division standing and PBHL 2000 is recommended. Cross-listed with SOCY 5040, PBHL 4040, HBSC 5040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4101 - Applied Statistics Using SAS and SPSS I

Teaches the practical statistical tools social scientists use to analyze real-world problems. Split into four modules, each taught by a different instructor. The first module introduces SAS and SPSS; modules 2-4 are problem-based and cover topics such as Anova, multivariate regression, and cluster analysis. Prereq: SOCY 3121 or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4102 - Applied Statistics Using SAS and SPSS II

Students use the skills they learned in the previous semester to analyze a social issue of their choosing and present their findings. Note: A continuation of SOCY 4101. In addition to lectures, weekly one-on-one meetings between faculty and students are required. Prereq: SOCY 4101. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4110 - Sociology of Health Care

Examines the health care institutions of the United States. Issues such as the rising cost, the effect of class, racial and gender inequality, the professionalization and monopolization of roles, the current restructuring, construction of illness and health, managed care, health care for profit and ethics of health care decisions. Cross-listed with SOCY 5110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4120 - Popular Culture and the American Family

A course in family sociology in which the ways the American family is portrayed in the mass media and popular culture are studied. Even though the historical evolution of this reciprocal relationship is not ignored, the focus is on today's relevant issues. Prereq: Junior standing or permission of the instructor. Cross-listed with SOCY 5120. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4220 - Population Change and Analysis

Concepts of population change, methods of analysis, and applications to contemporary social issues. Topics include age and sex distributions, fertility, mortality, and migration, and the social causes and consequences of these phenomena. Prereq: Junior standing or permission of the instructor. Cross-listed with SOCY 5220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4280 - Urban Social Space

The city simultaneously attracts and repulses us. It has openness and beauty; it is also cramped, crowded, and ugly. The city provides us with freedoms undreamed of in other times and places, yet it restricts our movements and activities. This course examines how different professionals have viewed the city, with particular attention to the spaces in the city. Both social and physical spaces are discussed. Prereq: SOCY 1001 or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4290 - Aging, Society and Social Policy

The role of the aged in today's society. Emphasizes interrelationships of the aged with the family, community, work, retirement and leisure. Prereq: Junior standing or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4340 - Juvenile Delinquency

Factors involved in delinquent behavior. Problems of adjustment of delinquents, and factors in treatment and post-treatment adjustment. Prereq: 6 hours of sociology or criminal justice or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4440 - Social Inequality

Investigates the distribution of wealth, income, social class and economic power in the United States with a focus on social institutions and factors that shape inequality. Prereq: Junior standing or permission of the instructor. Cross-listed with SOCY 5440. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4460 - Hate Groups and Group Violence

Social sciences help us understand the phenomena of hate groups and group violence and contribute toward their elimination. Examples are examined using theoretical perspectives on different levels of analysis and within different areas of research. Prereq: Junior standing or permission of the instructor. Cross-listed with SOCY 5680. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4475 - Self and Identity

A course in social psychology focusing on individuals in social interaction. Focuses on self-conception, identify presentation of self, and self and emotion management. Major theories and research in social psychology literature are examined. Prereq: Junior standing or permission of the instructor. Cross-listed with SOCY 5475. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4510 - Advanced Study of Social Change

Historical change of societies from one epoch to another (e.g., from feudalism to capitalism) and from one stage to another (e.g., competitive capitalism to monopoly capitalism), with focus on attendant social processes such as development of the working class, the rise of the corporation, the expanding role of the state, the irrationality of growth, and economic crises and imperialism. Prereq: SOCY 1001 or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4520 - Collective Behavior

Social, cultural, and psychological factors affecting behavior in unpredictable situations. An in-depth analysis of social change through such phenomena as riots, crowds, publics and social movements. Prereq: SOCY 1001 or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4610 - Sociology of Religion

An intensive review and analysis of the fundamental tenets of religion as a social institution, with emphasis on present-day religious cults, their beliefs and activities in society. Prereq: SOCY 1001 or permission of the instructor. Cross-listed with SOCY 5610, RLST 4020, 5020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4640 - Sociology of Childhood and Adolescence

An in-depth overview of the theories and research regarding the life course understanding of infancy, childhood and adolescence. Children's lives and cultures in relation to adults and their transition from childhood to adolescence are studied. Prereq: Junior standing or permission of the instructor. Cross-listed with SOCY 5640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4650 - Sociology of Adulthood and Aging

An in-depth overview of the theories and research using the life course understanding of adulthood and aging. Adult's lives, transition from adulthood to elderly status, and social policy issues are also studied. Prereq: Junior standing or permission of the instructor. Cross-listed with SOCY 5650. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4700 - Sociology of Law

Consideration of the formulation, interpretation, and legitimacy of legal rules within the context of social organization. The examination of a major social institution in modern society. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4770 - Advanced Topics in Sociology

Advanced study of special topics in sociology to be selected by the instructor. Note: May be repeated for credit when topics vary. Prereq: Junior standing or permission of the instructor. Cross-listed with SOCY 5770. Max hours: 9 Credits. **Semester Hours:** 3 to 3

SOCY 4780 - Violence in Relationships

Course focuses on the study of violence among individuals involved in intimate relationships; factors in society such as norms, laws and institutions that are related to creating violence among intimates; and social policies, prevention, intervention and treatment programs. Prereq: SOCY 1001, or a social science course. Cross-listed with SOCY 5780. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4831 - Senior Seminar

Seminar for senior sociology majors considering important concepts, issues, and problems in sociology. Prereq: Junior standing and SOCY 1001. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4840 - Independent Study: SOCY

Max hours: 12 Credits. **Semester Hours:** 1 to 3

SOCY 4910 - Research Practicum

Practical experiences for undergraduates in application of principles of research design and data processing to a social research problem selected by the instructor. Prereq: Permission of instructor required. Max hours: 3 Credits. **Semester Hours:** 1 to 3

SOCY 5000 - Professional Seminar: Sociological Inquiry

Orients new graduate students to key elements of graduate and professional levels of sociological inquiry. Topics include analyses of basic theoretical and epistemological issues, the history and contemporary development of the discipline, essential research programs and an introduction to faculty research. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5014 - Classical Sociological Theory

Examines the emergence and development of sociological ideas, concepts, and principles. Introduces students to the historical and social contexts in which theories of society are instituted. Particular attention is paid to the importance of and implication to contemporary sociology made by classical sociologists such as Durkheim, Marx, and Weber. Prereq: SOCY 4150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5015 - Contemporary Sociological Theory

The explication of various conceptual approaches to the problem of social order, societal functioning and integration, social conflict, and social structural change by the examination of the work of contemporary theorists. Note: Required for M.A. students in sociology. Prereq: Must have successfully completed an undergraduate course in contemporary sociological theory and SOCY 5014. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5024 - Seminar: Research Methods I

Problems and procedures in research design, data collection and processing. Note: Required for M.A. graduate students in sociology. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5040 - Social Determinants of Health

This course explores social inequalities in physical and mental health, the illness experience, the healing professions, health policy, relations between providers and patients, and the structure, access to, and financing of health care organizations, with some cross-national discussions. Prereq: Graduate standing. Cross-listed with SOCY 4040, PBHL 4040, HBSC 5040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5110 - Sociology of Health Care

Examines the health care institutions of the United States. Issues such as the rising cost, the effect of class, racial and gender inequality, the professionalization and monopolization of roles, the current restructuring, construction of illness and health, managed care, health care for profit and ethics of health care decisions. Cross-listed with SOCY 4110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5120 - Popular Culture and the American Family

A course in family sociology in which the ways American family is portrayed in the mass media and popular culture are studied. Even though the historical evolution of this reciprocal relationship is not ignored, the focus is on today's relevant issues. Cross-listed with SOCY 4120. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5183 - Seminar: Quantitative Data Analysis

A research-oriented seminar stressing the utilization of social data already collected in the test or generation of sociological theory. Note: Required for M.A. graduate students in sociology. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5220 - Population Change and Analysis

Concepts of population change, methods of analysis, and applications to contemporary social issues. Topics include age and sex distributions, fertility, mortality, and migration, and the social causes and consequences of these phenomena. Cross-listed with SOCY 4220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5430 - Societies in Transition

A description and analysis of changing social structures and social relationships as a response to technological innovation and change. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5440 - Social Inequality

Investigates the distribution of wealth, income, social class and economic power in the United States with a focus on social institutions and factors that shape inequality. Prereq: Junior standing or permission of the instructor. Cross-listed with SOCY 4440. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5475 - Self and Identity

A course in social psychology focusing on individuals in social interaction. Focuses on self-conception, identify presentation of self, and self and emotion management. Major theories and research in social psychology literature are examined. Cross-listed with SOCY 4475. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5480 - Graduate Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

SOCY 5500 - Graduate Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

SOCY 5550 - Seminar: Sociology of the Family

An intensive review and analysis of the family as a social institution. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5610 - Sociology of Religion

An intensive review and analysis of the fundamental tenets of religion as a social institution, with emphasis on present-day religious cults, their beliefs and activities in society. Cross-listed with SOCY 4610, RLST 4020, 5020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5640 - Sociology of Childhood and Adolescence

An in-depth overview of the theories and research regarding the life course understanding of infancy, childhood and adolescence. Children's lives and cultures in relation to adults and their transition from childhood to adolescence are studied. Cross-listed with SOCY 4640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5650 - Sociology of Adulthood and Aging

An in-depth overview of the theories and research using the life course understanding of adulthood and aging. Adult's lives, transition from adulthood to elderly status, and social policy issues are also studied. Cross-listed with SOCY 4650. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5660 - Seminar: Social Psychology

Sociological approaches to the study of the self, role theory, persons in situations, identifications, socialization, and other characteristics of persons in society. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5680 - Hate Groups and Group Violence

Social sciences help us understand the phenomena of hate groups and group violence and contribute toward their elimination. Examples are examined using theoretical perspectives on different levels of analysis and within different areas of research. Cross-listed with SOCY 4460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5690 - Crime and Inequality Over the Life Course

A life-course perspective on issues of inequality and crime. Studies transitions, trajectories and turning points as key features of the life course. Considers how life inequalities and criminal behavior are shaped by the timing of experiences, historical and geographic contexts, other people's lives, and human agency. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5750 - Seminar: Criminology

An intensive review and analysis of the literature and research dealing with sociology of crime in modern society. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5770 - Advanced Topics in Sociology

Advanced study of special topics in sociology to be selected by the instructor. Note: May be repeated for credit when topics vary. Cross-listed with SOCY 4770. Max hours: 9 Credits. **Semester Hours:** 3 to 3

SOCY 5780 - Violence in Relationships

Course focuses on the study of violence among individuals involved in intimate relationships; factors in society such as norms, laws and institutions that are related to creating violence among intimates; and social policies, prevention, intervention and treatment programs. Prereq: SOCY 1001, or a social science course. Cross-listed with SOCY 4780. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5840 - Independent Study: SOCY

Max hours: 3 Credits. **Semester Hours:** 1 to 3

SOCY 5910 - Research Practicum

Max hours: 3 Credits. **Semester Hours:** 1 to 3

SOCY 5920 - Guided Readings in Sociology

Max hours: 3 Credits. **Semester Hours:** 1 to 3

SOCY 5930 - Internship in Sociology

Max hours: 6 Credits. **Semester Hours:** 1 to 6

SOCY 5939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 6

SOCY 5955 - Master's Thesis

Max hours: 6 Credits. **Semester Hours:** 1 to 6

SOCY 5964 - Master's Report

Max hours: 6 Credits. **Semester Hours:** 1 to 3

Spanish

SPAN 1000 - Introduction to Cultures of the Spanish Speaking World

Introduces students to the Spanish-speaking cultures of Spain, Latin America, and the United States through a historical overview and a focus on contemporary politics and culture. Note: Taught in English. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-AH1 **Semester Hours:** 3 to 3

SPAN 1010 - Beginning Spanish I

Introduces basic Spanish pronunciation and grammar, useful vocabulary and idioms. Readings and class discussions relating to the Hispanic world. Note: Students may not enroll in any lower division (1000/2000) language skills course in which their level of proficiency exceeds that of the course. Students placing into a course through any means other than following the regular sequence must consult with an appropriate faculty member of the Dept. of Modern Languages prior to enrollment. Max hours: 5 Credits. **Semester Hours:** 5 to 5

SPAN 1011 - Intensive Spanish

SPAN 1011/1021 combines both semesters of the first year, and meets the needs of highly motivated students of the language and culture. Prereq: Students having studied Spanish previously should not enroll in SPAN1011/1021 without first consulting a department advisor. Cross-listed with SPAN 1021. Max hours: 5 Credits. **Semester Hours:** 5 to 5

SPAN 1020 - Beginning Spanish II

(Continuation of SPAN 1010.) Further development of listening, speaking, reading and writing skills. Note: Students may not enroll in any lower division (1000/2000) language skills course in which their level of proficiency exceeds that of the course. Students placing into a course through any means other than following the regular sequence must consult with an appropriate faculty member of the Dept. of Modern Languages prior to enrollment. Prereq: SPAN 1010 with grade of 'C' (2.0) or higher. Max hours: 5 Credits. **Semester Hours:** 5 to 5

SPAN 1021 - Intensive Spanish

SPAN 1011/1021 combines both semesters of the first year, and meets the needs of highly motivated students of the language and culture. Prereq: Students having studied Spanish previously should not enroll in SPAN 1011/1021 without first consulting a department advisor. Cross-listed with SPAN 1011. Max hours: 5 Credits. **Semester Hours:** 5 to 5

SPAN 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

SPAN 1995 - Travel Study

For students doing travel study in a Spanish-speaking country; register through the Office of International Education. Max hours: 15 Credits. **Semester Hours:** 1 to 15

SPAN 2110 - Second Year Spanish I

Continues the development of skills acquired in 1010 and 1020. Readings deal with Hispanic culture and current topics from Spain and Latin America. Development of informal oral and written expression. Note: Students may not enroll in any lower division (1000/2000) language skills course in which their level of proficiency exceeds that of the course. Students placing into a course through any means other than following the regular sequence must consult with an appropriate faculty member of the Dept. of Modern Languages prior to enrollment. Prereq: SPAN 1020 with a grade of 'C' (2.0) or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 2120 - Second Year Spanish II

Continues the development of skills acquired in SPAN 1010, 1020 and 2110, together with a review of grammar. Readings deal with Hispanic culture and literature. Development of informal oral and written expression. SPAN 2120 satisfies the fourth-semester language requirement at most graduate schools. Note: Students may not enroll in any lower division (1000/2000) language skills course in which their level of proficiency exceeds that of the course. Students placing into a course through any means other than following the regular sequence must consult with an appropriate faculty member of the Dept. of Modern Languages prior to enrollment. Prereq: SPAN 2110 with a grade of 'C' (2.0) or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 2125 - Spanish For Heritage Speakers I

Designed for native speakers with strong oral skills, but who need extra attention to writing, reading comprehension, grammatical knowledge and the vocabulary of formal Spanish. Complements and builds on the students' heritage language skills. Prereq: Native oral ability in Spanish. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 2126 - Spanish for Heritage Speakers II

Continuation of SPAN 2125, designed for native speakers with strong oral skills, but who need extra attention to writing and grammatical knowledge and the vocabulary of formal Spanish. Compliments and builds on the student's heritage language skills. Prereq: SPAN 2125 or placement; native oral ability in Spanish. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 2130 - Current Topics in the Spanish-Speaking World

A fourth-semester course (parallel to 2120) designed for students majoring or minoring in international affairs, but open to anyone wishing to continue the study of Spanish beyond 2110. Along with development of language skills and grammar review, class work involves contemporary topics in cultural, political, economic and social affairs. Prereq: SPAN 2110 with a grade of 'C' (2.0) or higher or placement exam. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: 15 hours of 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

SPAN 2995 - Travel Study

For students doing travel study in a Spanish-speaking country; register through the Office of International Education. Max hours: 15 Credits. **Semester Hours:** 1 to 15

SPAN 3010 - Spanish Composition I

Expansion and reinforcement of oral and written skills in Spanish at an advanced level, in a broad cultural context. Oral activities are individual and in groups. Topics are introduced through oral activities, and are then used for written assignments. Prereq: SPAN 2120 or 2130. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3020 - Spanish Composition II

(Continuation of SPAN 3010.) Development of oral and written skills in Spanish in preparation for taking other advanced courses. Topics of increasing complexity are selected from current publications in Spanish. Prereq: SPAN 3010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3030 - Spanish Oral Proficiency

This course is designed to help students acquire an "Intermediate High" level of proficiency in speaking and understanding spoken Spanish. Content-based instruction in small groups. Prereq: Spanish majors and minors only and at least one upper-division course in Spanish. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3050 - Advanced Spanish Grammar

A close study of the structure of the language and practice in its written use. Note: Recommended for those intending to teach Spanish at the secondary level. Prereq: Upper division standing in Spanish. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3060 - Hispanic Phonetics: Theory and Practice

Explores the phonetics of spoken Spanish throughout the world. Theoretical content: classification of all Spanish sounds and how they are affected and change according to their phonetic environment and region. Practical features: pronunciation and strategies teaching English speakers to pronounce Spanish. Prereq: SPAN 3010 or upper division standing in Spanish. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3101 - Introduction to the Study of Literature

The basic terms and skills needed to analyze both the themes and form of literary works, together with an introduction to research skills. All literary examples come from Hispanic literature. Note: SPAN 3252 is a prerequisite (previous or concurrent) to all other literature courses taught in Spanish. Prereq: SPAN 2120 or 2130 (or equivalent). Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3199 - Topics in Spanish Literature

Varying topics in Hispanic literature appropriate the 3000 level, not otherwise covered by regular courses. Note: Taught in Spanish for major and minor credit. May be taken more than once, provided that the topic is different each time. Prereq: SPAN 3252. Max hours: 9 Credits. **Semester Hours:** 3 to 3

SPAN 3212 - Spanish American Culture and Civilization

Surveys the social, political, economic, religious, literary, and artistic life of Spanish America from the conquest to the present. Note: Taught in Spanish for major and minor credit. Prereq: SPAN 2120 or 2130. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3213 - Contemporary Latin American Culture and Institutions

Introduction to contemporary Latin American culture and institutions, with emphasis on the social, economic and political institutions of Spanish-speaking countries. Prereq: SPAN 2120 or 2130. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3221 - Culture and Civilization of Spain I

From prehistoric times through Phoenician, Greek, Roman, and Visigothic eras to the Moorish invasion in 711; the Arab period; the Reconquest; the Catholic Kings; the Imperial Period; and the Inquisition. Prereq: Upper division standing in Spanish. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3222 - Culture and Civilization of Spain II

(Continuation of 3221.) Studies the social, intellectual, and artistic development of Spain from the time of the Bourbons (18th century) through the civil war of 1936, and the Franco regime to the restoration of democracy under Juan Carlos I and the present day. Prereq: Upper division standing in Spanish. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3223 - Contemporary Spanish Culture and Institutions

A study of contemporary Iberian culture, including an emphasis on modern business institutions and practices. This course can be applied to any Spanish major track but is specifically required for the International Language and Culture for the Professions track. Prereq: SPAN 2120 or 2130. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3225 - Special Topics In Hispanic Culture

Variable topics in advanced studies in Spanish and Latin American culture. Prereq: SPAN 2120 or 2130. Max hours: 9 Credits. **Semester Hours:** 3 to 3

SPAN 3230 - Ibero-American Cultures through Film

A study of the Ibero-American cultures through their most representative films. Films will be windows to access the complexities and the contradictions lived in Ibero-American countries regarding a set of contemporary issues, such as violence, linguistic diversity, religious beliefs, sexuality, politics, history, social class, and globalization. Prereq: SPAN 2120 or SPAN 2130, or consent of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3270 - Bilingual Communities: Spanish as a Language of Contact

Explores bilingualism by tracing the series of linguistic and ethnic contacts that converted Castilian from a Latin dialect to the language of the Spanish empire, the primary language of Latin America, and a fast-growing language in the United States. Prereq: SPAN 3010 for majors, or permission of instructor for non-majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3400 - Survey of Spanish Literature I

The most important works in the literature of Spain from the early Hispano-Arabic lyric poems through the golden age of the 17th century. Prereq or coreq: SPAN 3252. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3410 - Survey of Spanish Literature II

The most important works in the literature of Spain from the 18th century to the present. Prereq or coreq: SPAN 3252. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3510 - Survey of Spanish American Literature II

The most important works in the literature of Spanish America from the late 19th century to the present. Prereq or coreq: SPAN 3252. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3550 - Spanish American Short Story

The Spanish American short story from its beginnings in the romantic period of the 19th century to the present. Prereq or Coreq: SPAN 3252. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3700 - Spanish for International Business I

Development of proficiency in oral and written Spanish as used in business and industry throughout the Hispanic world, together with an increased awareness of social, economic, and political conditions affecting business transactions, particularly in long-term operations. Prereq: Upper division standing in Spanish. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3710 - Spanish for International Business II

(Continuation of SPAN 3700.) Further development of oral and written language proficiency, together with further examination of pertinent social, economic, and political conditions of the Hispanic world. Prereq: Upper division standing in Spanish; SPAN 3700 desirable. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3730 - Special Topics in Spanish for International Business

Variable topics not otherwise covered sufficiently in regular courses. Note: May be taken more than once, provided that the topic is different each time. Prereq: SPAN 3700. Max hours: 15 Credits. **Semester Hours:** 3 to 3

SPAN 3782 - Introduction to Translation I

The first course in a two-semester sequence that introduces the methodology and practice of written translation. Thorough analysis of source texts precedes translation into target language. Students must demonstrate third-year competence in Spanish and advanced writing skills in English. Prereq: Upper division standing in Spanish. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3792 - Introduction to Translation II

Second course in a two-semester sequence (see SPAN 3082). Prereq: SPAN 3082, upper division standing in Spanish, or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3840 - Independent Study: SPAN

Max hours: 6 Credits. **Semester Hours:** 1 to 3

SPAN 3939 - Internship

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Junior standing and 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

SPAN 3995 - Travel Study

For students doing travel study in a Spanish-speaking country; register through the Office of International Education. Max hours: 15 Credits. **Semester Hours:** 1 to 15

SPAN 4010 - History of the Spanish Language

Studies the history of the Spanish language, both internal and external, from the language's Latin roots to the present. Historical phonetics are emphasized, though all features of the language are discussed. Prereq for SPAN 4010: Upper division standing. Cross-listed with SPAN 5010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4020 - Spanish Sociolinguistics

Studies the Spanish language in its social context. In addition to specific regional linguistic features, social factors such as geography, social class, politics, race, gender, economics, education and history are discussed as determiners of the linguistic landscape. Prereq: SPAN 3060. Cross-listed with SPAN 5020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4060 - Dialects of the Spanish-Speaking World

Studies the geography of the Spanish language in those countries where it is spoken as a primary language. Includes a comparison of dialect features and a study of factors that contribute to the diversity of the Spanish language. Prereq: SPAN 3060. Cross-listed with SPAN 5060. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4070 - Spanish Applied Linguistics & Second Language Acquisition

This course is a survey of various areas of the field of linguistics in general (e.g. morphology, syntax, semantics, pragmatics, etc.) as well as specific aspects of the structure (and acquisition) of the Spanish language. Prereq: SPAN 3060 or 3070. Cross-listed with SPAN 5070. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4076 - Spanish in Colorado

A study of the Spanish language in its social context in Colorado and New Mexico. We will study historical factors as well as current social factors that contribute to the use of the Spanish language in this region. Prereq: SPAN 3060. Cross-listed with SPAN 5076. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4080 - Spanish in the United States

A study of the Spanish language in its social context as a language of the United States. In addition to studying bilingualism and language traits, factors such as race, gender, class, education, nationality, age, generation and language attitudes are considered. Prereq: SPAN 3060. Cross-listed with SPAN 5080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4099 - Special Topics in Linguistics

Varying topics in Hispanic language and literature not otherwise covered by regular courses. Note: May be taken more than once provided that the topics are different each time. Prereq: junior standing or higher. Cross-listed with SPAN 5099. Max hours: 9 Credits. **Semester Hours:** 3 to 3

SPAN 4110 - Contemporary Spanish Literature

Major works published since the Spanish Civil War, which ended in 1939. Prereq: SPAN 3252 and preferably at least one additional literature course. Cross-listed with SPAN 5110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4130 - Medieval Spanish Literature

Examines Spanish literature from the jarchas and the Cid through the Celestina in the context of the reconquest. Considers the construction of the Christian knight as a hero and the corresponding representations of women, Jews and Muslims. Prereq for SPAN 4130: SPAN 3252 and at least one additional literature course. Cross-listed with SPAN 5130. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4150 - Masterpieces of Spanish Literature

The most enduring works in the literature of Spain across the centuries. Prereq: SPAN 3252 and preferably at least one additional course in Hispanic literature. Cross-listed with SPAN 5150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4170 - Golden Age Drama

Spanish drama of the 16th and 17th centuries, the period of greatest dramatic productivity in the nation's history. Readings include selections from Lope de Vega, Tirso de Molina, Calderon de La Barca, and others. Prereq: junior standing or higher. Cross-listed with SPAN 5170. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4180 - Modernism

Examines the first real flowering of Spanish American literature, from about 1880 to 1910. The dominant genres of the period were the short story, the essay and lyric poetry. Readings come from Dario, Jose Enrique Rodo, Manuel Gutierrez Najera, Manuel Diaz Rodriquez and others. Prereq: junior standing or higher. Cross-listed with SPAN 5180. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4190 - Nineteenth-Century Spanish Novel

The Spanish novel in one of its most productive periods, beginning with romanticism and carrying through the realist and naturalist movements. Prereq: junior standing or higher. Cross-listed with SPAN 5190. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4300 - Generation of 1898

Spanish literature from around the turn of the century through the first third of the 20th century, reflecting the deep intellectual and cultural foment occasioned in part by Spain's loss of the Spanish-American War of 1898. Prereq: SPAN 3252 and preferably at least one additional literature course. Cross-listed with SPAN 5300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4320 - Interculturalism and Transnationalism in Modern Spain

Students will examine experiences of Spaniards living in different parts of the world and the circumstances of either foreigners or migrants living in Spain, through their visual and literary texts, film, photographs, documentaries and other products of current popular culture, such as contemporary television. Prereq: SPAN 3252 and one other Spanish/Spanish American literature course. Cross-listed with SPAN 5320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4330 - Modern Culture of Spain through Film and Narrative

Culture of modern Spain studied through Spanish film. The death of military dictator Francisco Franco opened the process for the recuperation of a usurped democratic, representational system that has become the basis of a cultural and economic resurgence. Taught in Spanish. Prereq: junior standing or higher. Cross-listed with SPAN 5330. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4340 - Race, Class, and Gender in Spanish Golden Age Literature

Explores works of various genres in relation to their social and political contexts in 16th and 17th century Spain, emphasizing the cultural attitudes toward race, class, and gender that inform them. Prereq: junior standing or higher. Cross-listed with SPAN 5340 and WGST 4540/5540. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4350 - Don Quijote

The complete Don Quijote in Spanish, focusing on its historical, social, and philosophic context, and its role in the emergence of the modern novel. Prereq: junior standing or higher. Cross-listed with SPAN 5350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4380 - Romanticism in Spain

The romantic movement in 19th century Spain through plays, poems, essays. Prereq: junior standing or higher. Cross-listed with SPAN 5380. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4399 - Special Topics: Spanish Peninsular Literature

Varying topics in Spanish Peninsular Literature not otherwise covered by regular courses. Note: May be taken more than once, provided that the topic is different each time. Prereq: SPAN 3101. Max hours: 6 hours. **Semester Hours:** 3 to 3

SPAN 4401 - Survey of Spanish-American Literature I: Pre-1898

The most important works in the literature of Spanish America from the Colonial Period to the Late 1911 Century. Prereq: SPAN 3101 or permission of the instructor. Cross-listed with SPAN 5401. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4411 - Contemporary Spanish-American Novel

The novel in Spanish America since the Second World War, the period in which the greatest number and quality of works has been produced. Prereq: junior standing or higher. Cross-listed with SPAN 5411. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4450 - Masterpieces of Spanish-American Literature

Focuses on a limited number of outstanding works in Spanish-American literature across the centuries. Prereq: junior standing or higher. Cross-listed with SPAN 5450. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4501 - Borges: An Introduction to His Labyrinths

The works of Jorge Luis Borges (short stories, essays, poetry, translations, essays anthologies, lectures) will be studied with the goals of teaching students to think globally as well as critically about literature and other cultures. Prereq: junior standing or higher. Cross-listed with SPAN 5501. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4512 - Contemporary Argentine Short Stories

The short stories by extraordinary Argentine writers, such as Jorge Luis Borges, Silvina Ocampo, Julio Cortazar, Griselda Gambaro, Adolfo Bioy Casares, and Manuel Muica Laineza, among others, will be studied with the goals of teaching students to think globally as well as critically about literature and other cultures. Prereq: junior standing or higher. Cross-listed with SPAN 5512. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4521 - Mexican Literature I: pre-Columbian and Colonial

Survey of Mexican literature and culture from pre-Columbian times to the colonial era. Prereq: junior standing or higher. Cross-listed with SPAN 5521. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4522 - Mexican Literature II: 19th to 21st Centuries

Survey of Mexican literature and culture from the early modern to contemporary literature. Prereq: junior standing or higher. Cross-listed with SPAN 5522. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4525 - Orientalisms In The Hispanic Tradition

Advanced studies of orientalism in the Hispanic tradition: the Hispano-Arabic cultural heritage in Early Medieval Spain and in contemporary Hispanic cultures, as well as the influence of other eastern religions and cultures, such as Judaism or Buddhism. Prereq: junior standing or higher. Cross-listed with SPAN 5525. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4541 - Unexpected Lives: Ibero-American Queer Cinema

Provocative films, by courageous Ibero-American filmmakers, on controversial topics (homosexuality, Lesbianism, bisexuality, transgender individuals, feminism, etc.) will be studied to teach students to think globally as well as critically about LGBTQ individuals in the context of Ibero-American cultures. Prereq: junior standing or higher. Cross-listed with SPAN 5541. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4550 - Garcia Marquez: Words of Magic

The works of Gabriel Garcia Marquez (stories, short novels, novels, newspaper articles, interviews, lectures) will be studied with the goals of teaching students to think globally as well as critically about literature and other cultures. Prereq: junior standing or higher. Cross-listed with SPAN 5550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4590 - Ibero-American Thought

The course examines philosophical works by essayists, literary critics, and cultural thinkers from Spanish-American countries and the Iberian Peninsula. Besides reading philosophical works in their original form, students will read scholarly commentaries to deepen their understanding of those works. Prereq: junior standing or higher. Cross-listed with SPAN 5590. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4599 - Special Topics: Latin American Literature

Varying topics in Latin American literature not otherwise covered by regular courses. Note: May be taken more than once, provided that the topic is different each time. Prereq: SPAN 3101. Max hours: 6 Credits. **Semester Hours:** 3 to 3

SPAN 4600 - Seminar in Spanish Creative Writing: Poetry and Short Fiction

A capstone writing course. Semester writing project will be collected poems and short stories. Prereq: junior standing or higher. Cross-listed with SPAN 5600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4840 - Independent Study: SPAN

Max hours: 12 Credits. **Semester Hours:** 1 to 3

SPAN 4970 - Special Topics in Literature

Varying topics in Hispanic literature not otherwise covered by regular courses. Note: May be taken more than once, provided that the topic is different each time. Prereq for SPAN 4970: SPAN 3252 and at least one additional course in Hispanic literature. Cross-listed with SPAN 5970. Max hours: 9 Credits. **Semester Hours:** 3 to 3

SPAN 5000 - Introduction to Graduate Studies in Spanish

Introduces critical methodologies and critical perspectives of practices of signification such as literature and film, among others, in the context of culture and history. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5010 - History of the Spanish Language

Studies the history of the Spanish language, both internal and external, from the language's Latin roots to the present. Historical phonetics are emphasized, though all features of the language are discussed. Prereq: Graduate standing in Spanish. Cross-listed with SPAN 4010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5020 - Spanish Sociolinguistics

Studies the Spanish language in its social context. In addition to specific regional linguistic features, social factors such as geography, social class, politics, race, gender, economics, education and history are discussed as determiners of the linguistic landscape. Prereq: Graduate standing in Spanish. Cross-listed with SPAN 4020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5060 - Dialects of the Spanish-Speaking World

Studies the geography of the Spanish language in those countries where it is spoken as a primary language. Includes a comparison of dialect features and a study of factors that contribute to the diversity of the Spanish language. Prereq: Graduate standing in Spanish. Cross-listed with SPAN 4060. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5070 - Spanish Applied Linguistics & Second Language Acquisition

This course is a survey of various areas of the field of linguistics in general (e.g. morphology, syntax, semantics, pragmatics, etc.) as well as specific aspects of the structure (and acquisition) of the Spanish language. Prereq: Graduate standing in Spanish. Cross-listed with SPAN 4070. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5076 - Spanish in Colorado

A study of the Spanish language in its social context in Colorado and New Mexico. We will study historical factors as well as current social factors that contribute to the use of the Spanish language in this region. Prereq: graduate standing in Spanish. Cross-listed with SPAN 4076. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5080 - Spanish in the United States

A study of the Spanish language in its social context as a language of the United States. In addition to studying bilingualism and language traits, factors such as race, gender, class, education, nationality, age, generation and language attitudes are considered. Prereq: Graduate standing in Spanish. Cross-listed with SPAN 4080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5099 - Special Topics in Linguistics

Varying topics in Hispanic language and literature not otherwise covered by regular courses. Note: May be taken more than once provided that the topics are different each time. Prereq: graduate standing. Cross-listed with SPAN 4099. Max hours: 9 Credits. **Semester Hours:** 3 to 3

SPAN 5110 - Contemporary Spanish Literature

Major works published since the Spanish Civil War, which ended in 1939. Prereq: Graduate standing in Spanish. Cross-listed with SPAN 4110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5130 - Medieval Spanish Literature

Examines Spanish literature from the jarchas and the Cid through the Celestina in the context of the reconquest. Considers the construction of the Christian knight as a hero and the corresponding representations of women, Jews and Muslims. Prereq for SPAN 5130: Graduate standing in Spanish. Cross-listed with SPAN 4130. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5150 - Masterpieces of Spanish Literature

The most enduring works in the literature of Spain across the centuries. Prereq: Graduate standing in Spanish. Cross-listed with SPAN 4150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5170 - Golden Age Drama

Spanish drama of the 16th and 17th centuries, the period of greatest dramatic productivity in the nation's history. Readings include selections from Lope de Vega, Tirso de Molina, Calderon de La Barca, and others. Prereq: graduate standing. Cross-listed with SPAN 4170. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5180 - Modernism

Examines the first real flowering of Spanish American literature, from about 1880 to 1910. The dominant genres of the period were the short story, the essay, and lyric poetry. Readings come from Dario, Jose Enrique Rodo, Manuel Gutierrez Najera, Manuel Diaz Rodriquez and others. Prereq: graduate standing. Cross-listed with SPAN 4180. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5190 - Nineteenth-Century Spanish Novel

The Spanish novel in one of its most productive periods, beginning with romanticism and carrying through the realist and naturalist movements. Prereq: graduate standing. Cross-listed with SPAN 4190. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5300 - Generation of 1898

Spanish literature from around the turn of the century through the first third of the 20th century, reflecting the deep intellectual and cultural foment occasioned in part by Spain's loss of the Spanish-American War of 1898. Prereq: Graduate standing in Spanish. Cross-listed with SPAN 4300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5320 - Interculturalism and Transnationalism in Modern Spain

Students will examine experiences of Spaniards living in different parts of the world and the circumstances of either foreigners or migrants living in Spain, through their visual and literary texts, film, photographs, documentaries and other products of current popular culture, such as contemporary television. Prereq: Graduate standing in Spanish. Cross-listed with SPAN 4320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5330 - Modern Culture of Spain through Film and Narrative

Culture of modern Spain studied through Spanish film. The death of military dictator Francisco Franco opened the process for the recuperation of a usurped democratic, representational system that has become the basis of a cultural and economic resurgence. Taught in Spanish. Prereq: graduate standing. Cross-listed with SPAN 4330. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5340 - Race, Class, and Gender in Spanish Golden Age Literature

Explores works of various genres in relation to their social and political contexts in 16th and 17th century Spain, emphasizing the cultural attitudes toward race, class, and gender that inform them. Prereq: graduate standing. Cross-listed with SPAN 4340 and WGST 4540/5540. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5350 - Don Quijote

The complete Don Quijote in Spanish, focusing on its historical, social, and philosophic context, and its role in the emergence of the modern novel. Prereq: graduate standing. Cross-listed with SPAN 4350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5380 - Romanticism in Spain

The romantic movement in 19th century Spain through plays, poems, essays. Prereq: graduate standing. Cross-listed with SPAN 4380. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5399 - Special Topics: Spanish Peninsular Literature

Varying topics in Spanish peninsular literature not otherwise covered by regular courses. Note: May be taken more than once, provided that the topic is different each time. Prereq: graduate standing. Max hours: 6 Credits. **Semester Hours:** 3 to 3

SPAN 5401 - Survey of Spanish-American Literature I: Pre-1898

The most important works in the literature of Spanish America from the Colonial Period to the Late 19th Century. Prereq: graduate standing. Cross-listed with SPAN 4401. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5411 - Contemporary Spanish-American Novel

The novel in Spanish America since the Second World War, the period in which the greatest number and quality of works has been produced. Prereq: graduate standing. Cross-listed with SPAN 4411. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5450 - Masterpieces of Spanish-American Literature

Focuses on a limited number of outstanding works in Spanish-American literature across the centuries. Prereq: graduate standing. Cross-listed with SPAN 4450. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5501 - Borges: An Introduction to His Labyrinths

The works of Jorge Luis Borges (short stories, essays, poetry, translations, essays anthologies, lectures) will be studied with the goals of teaching students to think globally as well as critically about literature and other cultures. Prereq: graduate standing. Cross-listed with SPAN 4501. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5512 - Contemporary Argentine Short Stories

The short stories by extraordinary Argentine writers, such as Jorge Luis Borges, Silvina Ocampo, Julio Cortazar, Griselda Gambaro, Adolfo Bioy Casares, and Manuel Muica Laineza, among others, will be studied with the goals of teaching students to think globally as well as critically about literature and other cultures. Prereq: graduate standing. Cross-listed with SPAN 4512. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5521 - Mexican Literature I: pre-Columbian and Colonial

Survey of Mexican literature and culture from pre-Columbian times to the colonial era. Prereq: graduate standing. Cross-listed with SPAN 4521. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5522 - Mexican Literature II: 19th to 21st Centuries

Survey of Mexican literature and culture from the early modern to contemporary literature. Prereq: graduate standing. Cross-listed with SPAN 4522. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5525 - Orientalisms In The Hispanic Traditions

Advanced studies of orientalism in the Hispanic tradition: the Hispano-Arabic cultural heritage in Early Medieval Spain and in contemporary Hispanic cultures, as well as the influence of other eastern religions and cultures, such as Judaism or Buddhism. Prereq: graduate standing. Cross-listed with SPAN 4525. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5541 - Unexpected Lives: Ibero-American Queer Cinema

Provocative films, by courageous Ibero-American filmmakers, on controversial topics (homosexuality, Lesbianism, bisexualism, transgender individuals, feminism, etc.) will be studied to teach students to think globally as well as critically about LGBTQ individuals in the context of Ibero-American cultures. Prereq: graduate standing. Cross-listed with SPAN 4541. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5550 - Garcia Marquez: Words of Magic

The works of Gabriel Garcia Marquez (stories, short novels, novels, newspaper articles, interviews, lectures) will be studied with the goals of teaching students to think globally as well as critically about literature and other cultures. Prereq: graduate standing. Cross-listed with SPAN 4550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5590 - Ibero-American Thought

The course examines philosophical works by essayists, literary critics, and cultural thinkers from Spanish-American countries and the Iberian Peninsula. Besides reading philosophical works in their original form, students will read scholarly commentaries to deepen their understanding of those works. Prereq: graduate standing. Cross-listed with SPAN 4590. Max hours: 3 Credits.

Semester Hours: 3 to 3

SPAN 5599 - Special Topics: Latin American Literature

Varying topics in Latin American literature not otherwise covered by regular courses. Note: May be taken more than once, provided that the topic is different each time. Prereq: graduate standing. Max hours: 6 hours. **Semester Hours:** 3 to 3

SPAN 5600 - Seminar in Spanish Creative Writing: Poetry and Short Fiction

A capstone writing course. Semester writing project will be collected poems and short stories. Prereq: graduate standing. Cross-listed with SPAN 4600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5840 - Independent Study: SPAN

Max hours: 3 Credits. **Semester Hours:** 1 to 3

SPAN 5939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 6

SPAN 5950 - Master's Thesis

This course is for students writing a master's thesis. It includes individual mentoring with one or more faculty members, individualized and library-based research. May also include field research. Students must consult with a faculty member before enrolling. Max hours: 6 Credits.

Semester Hours: 1 to 6

SPAN 5970 - Special Topics in Literature

Varying topics in Hispanic literature not otherwise covered by regular courses. Prereq: Graduate standing in Spanish. Cross-listed with SPAN 4970. Max hours: 9 Credits. **Semester Hours:** 3 to

3

Special Education

SPED 4010 - Instructional Strategies for Students with Special Needs

The content of this course extends three essential special education program areas: curriculum, instruction and assessment, to service provision for students with severe support needs. Cross-listed with SPED 5010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 4030 - Understanding Students in Urban Contexts

The purpose of this course is to develop a strong knowledge base about learners whose academic, social and behavioral needs present unique opportunities related to teaching and learning. Prereq: UEDU 4010 and UEDU 4020. Cross-listed with SPED 5030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 4140 - Assessment in Special Education

Using a variety of assessment tools, students will focus on the educational assessment methods and procedures used in decision making and program planning for students with exceptional learning needs and from culturally and linguistically diverse backgrounds. Cross-listed with SPED 5140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 4150 - Individualizing Instruction for Learners with Challenging Behaviors

Serves as an introduction to the knowledge, skills and dispositions necessary for teachers to proactively and systematically address student needs that underlie the presence of problem behaviors in schools and class rooms. Course content consists of specific strategies to promote social and communication skill development and introduction to functional behavior assessment and intervention, including guidelines for the role of general educators as specified in federal and state regulations. Prereq: SPED 5111 or 5112, IPTE 5120 or 5121. Cross-listed with SPED 5150. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4151 - Culturally Responsive Supports for Social and Emotional Development

Focuses on the development of competencies in consultation and collaboration. The overall purpose is to encourage the development of understanding and skills that enhance a teacher's ability to work and communicate effectively. Cross-listed with SPED 5151. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 4200 - Autism Spectrum Disorders

The purpose of this academy is to provide the paraeducator with information and skills to assist paraeducators in the instruction of students with autism. It gives factual information to dispel the many myths that abound in this field and emphasizes the relationship between communication and behavior. It prepares paraeducators to make and use visual supports, to structure tasks and the environment and to provide appropriate supports for social skills instruction. Max hours: 3 Credits. **Semester Hours:** 1 to 1

SPED 4300 - Collaborating In Schools and Communities

Focuses on the development of competencies in consultation and collaboration. The overall purpose is to encourage the development of understanding and skills that enhance a teacher's ability to work and communicate effectively. Cross-listed with SPED 5300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 4400 - Universal Design for Learning (UDL)

This course introduces Universal Design for Learning (UDL), an important educational philosophy and set of principles & techniques that focuses on strategies and tools to help ALL students by accommodating their differences in inclusive classroom settings. **Semester Hours:** 3 to 3

SPED 4500 - Transition and Secondary Issues in Special Education

This course provides the practitioner with an understanding of the special education transition process as specified by federal and state guidelines, as well as effective teaching and learning strategies for secondary youth with disabilities. Cross-listed with SPED 5500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 4600 - Special Education for School Professionals

Designed for school professionals to compare and contrast service delivery options and to understand special education laws and underlying assumptions of special education practices. Cross-listed with SPED 5600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 4710 - Significant Health Support Needs Academy

Intends to prepare paraeducators with knowledge and skills needed for working with children with significant health support needs. Consisting of seven modules of varying length, this 15 clock hour academy focuses on training both the health aid and the significant health support needs professional. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4720 - Significant Supports for Challenging Behavior Academy

This academy provides the paraeducator with the knowledge and skills needed for working with children who have significant behavior needs. The academy focuses on working with students who have challenging behaviors. The aim is to provide paraeducators with the basic understanding of behavior support and to provide them with the necessary skills to implement written behavior support plans. It is recommended that paraeducators complete the Behavior Management Academy prior to taking this course. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4730 - Significant Communication Support Needs Academy

This academy provides the paraeducator with the knowledge and skills needed for working with children who have significant behavior needs. The academy focuses on working with students who have challenging behaviors. Its aim is to provide paraeducators with a basic understanding of behavior support and to provide them with the necessary skills to implement written behavior support plans. It is recommended that paraeducators complete the Behavior Management Academy prior to taking this course. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4740 - Linguistically Responsive Special Education

This is an introductory course designed to provide an overview of instructional planning for culturally and linguistically diverse learners with and without disabilities. Cross-listed with SPED 5740. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4750 - Orientation to Special Education

This 15 clock hour academy is designed to provide a basic introduction to special education and the needs of students who have disabilities. It includes introductory material regarding legal and historical foundations of special education, human growth and development, the nature of disabilities, and an introduction to the basic human needs that must be addressed. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4780 - Literacy Intervention for Students with Disabilities

Provides the practitioner with an understanding of research-validated approaches, strategies, assessment tools and issues related to effective literacy instruction for students performing significantly below grade level. Cross-listed with SPED 5780. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 4800 - Orientation to Early Intervention Services

This academy provides Developmental Intervention Assistant (DI Assistant) an introduction to early intervention services under IDEA. Material regarding legal and historical foundations, human growth and development, and the nature of disabilities and their impact on infants and toddlers are introduced. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4805 - Fundamentals of the IFSP Process

This academy provides Developmental Intervention Assistants an overview of the Individualized Family Service Plan (IFSP). It clarifies their role in the implementation of IFSP and also knowledge about the evaluation and assessment components of the IFSP process. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4810 - Early Intervention Teamwork

This academy is designed for Developmental Intervention Assistants (DI Assistants) to work effectively in Early Intervention teams. Introductory materials regarding teamwork, delineation of DI Assistants 'and supervisors' roles and responsibilities as well as family centered practices are addressed. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4815 - Working with Families

This academy provides the Developmental Intervention Assistant with information and skills to create and support Family Centered Practices. Focus on the concept of family and the impact of disability on the family is woven throughout the course. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4820 - Instructional Strategies for Early Intervention

This academy assists the Developmental Intervention Assistant in examining the types of instructional strategies used in the Early Intervention programs. Focus is on building relationships, promoting engagement, and instructional support specifically in collecting data for the supervisor and IFSP team. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4825 - Promoting Social Emotional Development

This academy focuses on the importance of infant/toddlers' social emotional development and support. The CSEFEL Pyramid Model, adapted for this course, is a conceptual framework of evidence-based practices addressing the promotion of social emotional development in early intervention programs. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4830 - Health Support Needs in Early Intervention

This academy provides the DI Assistant with information and skills to support the health services related to the early intervention programs. Safety awareness and precautions are stressed as related to caring for infants/toddlers in their home and natural environments. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4835 - Language and Early Literacy Development

This academy is designed for Developmental Intervention Assistant (DI Assistant) to work effectively with families as they support the early language and literacy development of their infants and toddlers with communication challenges. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4840 - Communication Support Needs Early Intervention

This academy provides the Developmental Intervention Assistant with information and skills to learn characteristic language patterns for infants and toddlers. Focus on critical importance of child interactions as well as key intervention communication strategies for infants and toddlers. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4845 - Individualized Intervention Infants/Toddlers

This academy, adapted from CSEFEL, introduces Developmental Intervention Assistants (DI Assistants) to basic knowledge of infants/toddlers with challenging behaviors. It provides necessary skills to implement written behavior support plans based on the IFSP under the supervision of Early Intervention professionals. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4850 - Transition to Age 3

This academy assists the Developmental Intervention Assistant in learning the elements of transition from Part C to Part B including the difference between an IFSP and IEP. Focus on the cultural and transition issues for the toddler and the family. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4855 - Interpersonal Skills for DI Assistants

This academy provides the Developmental Intervention Assistant effective interpersonal skills necessary to work with Early Intervention teams. It addresses issues of diversity based on culture, experience, gender, etc. and examines the DI Assistants' roles in each aspect of the topics. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4860 - Personal Growth Development for DI Assistants

This academy provides the Developmental Intervention Assistant with information and skills to identify and expand personal growth and improvement skills working in Early Intervention programs. The course covers stress-management strategies and uses creativity and flexibility in dealing with problematic situations. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4865 - Instructional & Assistive Technology in EI

This academy assists the Developmental Intervention Assistants in examining various types of instructional and assistive technology used in early intervention programs. Focus is on technology used in the home and other natural environments to assist the infant/toddler and the family. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4870 - Autism Spectrum Disorder in Early Intervention

This academy provides Developmental Intervention Assistants with information to assist the Early Intervention Professionals to implement instructions for infants/toddlers identified with autism. It offers participants knowledge of structured tasks environmental adaptations, and appropriate social skills for the infant/toddler and family. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 4910 - Special Education Generalist Internship and Site Seminar I

Special education teacher candidates engage in systematic observation of, participation in, design of and reflection on inclusive curricular, instruction and management practices. Graduated learning activities for each internship and time requirements are specified in the School Internship handbook and the Special Education Guidelines. In partner school, the site coordinator and site professor are responsible for coaching, supervision and site seminars. In internship outside partner school settings, cooperating teachers, district coordinators and/or university professors work with teacher candidates in the classroom and in seminars. Prereq: Completion of special education core or permission of instructor and advisor. Admission into the IPTE Program. Cross-listed with SPED 5910. Max hours: 8 Credits. **Semester Hours:** 1 to 8

SPED 4915 - Practicum For Developmental Intervention Assistant

The Developmental Intervention Assistant will engage in systematic observation of, and participation in the delivery of early intervention services. Practicum Instructor will observe, coach and assess as per the performance criteria required for completing the DI Assistant portfolio. Prereq: SPED 4800, 4805, 4810, 4815, 4820, 4825, 4830, 4835, 4840, 4845, 4850, 4855, 4860, 4865, & 4870. Max hours: 9 Credits. **Semester Hours:** 2 to 2

SPED 4919 - CO-TOP Practicum

The paraeducator engage in systematic observation of, and participation in instruction of management practices. The learning activities for each practicum are specified in the CO-TOP Practicum handbook and information sheet. Cooperating teachers, district coordinators and/or university-based supervision observe paraeducators in the classroom. Prereq: Completion of CO-TOP academies or permission of the CO-TOP Coordinator. Max hours: 2 Credits. **Semester Hours:** 2 to 2

SPED 5010 - Instructional Strategies for Students with Special Needs

The content of this course extends three essential special education program areas: curriculum, instruction and assessment, to service provision for students with severe support needs. Cross-listed with SPED 4010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5030 - Understanding Students in Urban Contexts

The purpose of this course is to develop a strong knowledge base about learners whose academic, social and behavioral needs present unique opportunities related to teaching and learning. Prereq: UEDU 5010 and UEDU 5020. Cross-listed with SPED 4030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5050 - Assessment & Advocacy for Diverse Learners

The purpose of this course is to prepare teachers to gather and use assessment results within a strengths-based framework to advocate for appropriate programming, placement and instruction, and ongoing progress monitoring for students who are culturally and linguistically diverse. Cross-listed with CLDE 5050. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5120 - Negotiating The Special Education Teaching Process

This course explores both theoretical and practical aspects of educating students with special needs. Students will examine the nature of disability, the history and legal basis for special education programming in American schools, as well as contemporary law governing the education of persons with disabilities. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5130 - Speech/Language Characteristics of Students with Severe Communication Needs

Provides a basis for identification and description of speech and language dysfunctions of students with severe communication needs. Careful attention is given to the transdisciplinary nature of speech or language and its effects on cognitive, affective or motor functioning. Prereq: SPED 5600, 5010, and IPTE 5120 or permission of instructor. Max hours: 6 Credits. **Semester Hours:** 3 to 3

SPED 5140 - Advanced Assessment in Special Education

Using a variety of assessment tools, students will focus on the educational assessment methods and procedures used in decision making and program planning for students with exceptional learning needs and from culturally and linguistically diverse backgrounds. Cross-listed with SPED 4140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5151 - Culturally Responsive Supports for Social and Emotional Development

This course addresses a multitiered approach to reengineering educational environments from those that are deficit-driven to those that support success for all learners. Students are asked to shift the focus from reduction of challenging behavior to consider adoption of culturally responsive Positive Behavior Supports within a Response to Intervention model. Prereq: UEDU 4030/5030 if students are in the initial licensure program. Cross-listed with SPED 4151. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5160 - Medical/Physical Challenges of Students with Special Needs

Provides an overview of the medical, sensory, communicative, and physical issues for students with special needs. Specific competencies include: identifying, examining, evaluating, and organizing a set of community resources to meet a wide range of medical and/or physical challenges. Max hours: 2 Credits. **Semester Hours:** 1 to 1

SPED 5170 - Individualizing Instruction for Diverse Learners

Provides frameworks for understanding and choosing from an array of instructional strategies that can be incorporated into the instructional design, assessment and implementation processes that meet the needs of diverse learners, particularly students with disabilities and students learning English. Prereq: SPED 4111/5111 or SPED 4112/5112. Max hours: 1 Credit. **Semester Hours:** 1 to 1

SPED 5180 - Curriculum Planning for Students with Special Needs

Designed to give teachers a framework for providing functional learning experiences in the domains of education, community access, employment, independent living, and social/recreational skills of students in special education. Emphasis is placed on creating, implementing, and evaluating educational placements for subsequent environments. Prereq: SPED 5010, 5600, IPTE 5000, 5120 and EPSY 5240 or permission of instructor. Max hours: 6 Credits. **Semester Hours:** 3 to 3

SPED 5250 - Effective Practices for Young Children with Autism Spectrum Disorders

This course provides the learner with an understanding of ASD and provides information about evidence based practices and practical teaching strategies. It provides a 20 hour hands on practicum component that allows students to implement strategies learned in class under the supervision of the instructor. Prereq: Taking online Autism 101 www.pdacenter.org. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5260 - Effective Practices for Elementary Children with Autism Spectrum Disorders

The purpose of this course is to emphasize evidence-based practices and practical teaching strategies for the elementary education student with ASD. Developmentally appropriate practices with an emphasis on educational strategies, inclusion and working collaboratively with other professionals and families will be embedded in this course. Prereq: Taking online Autism 101 www.pdacenter.org. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5270 - Effective Practices for Teenagers/Young Adults with Autism Spectrum Disorder

The purpose of this course is to provide a thorough understanding of ASD and effective strategies/evidence-based practices for students, ages 13-21. Developmentally appropriate practices with an emphasis on educational strategies, inclusion, transition and working collaboratively with other professionals and families will be embedded in this course. Prereq: Taking online Autism 101 www.pdacenter.org. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5300 - Collaborating in Schools and Communities

Focuses on the development of competencies in consultation and collaboration. The overall purpose is to encourage the development of understanding and skills that enhance a teacher's ability to work and communicate effectively with school personnel, including paraprofessionals and parents. The goal of collaboration is to support and determine together the instructional scenarios that best meet the needs of students. Specific competencies include problem solving, conflict resolution, data collection or observation skills, conferencing, facilitating meetings, and interacting with others while respecting diverse discourses and multicultural backgrounds. Cross-listed with SPED 4300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5310 - Collaboration with Families

Provides the school professional with the knowledge, skills, and values that foster effective working relationships with parents and families of the students they serve. Max hours: 2 Credits. **Semester Hours:** 1 to 1

SPED 5400 - Seminar in Special Education

Designed to allow an opportunity for special educators to compare and contrast the service delivery, funding mechanisms, professional ethics, and underlying assumptions of special and regular education. Trends in the field of special education are examined through review of current research. Prereq: EPSY 5240, IPTE 5000, IPTE 5020, IPTE 5120, SPED 5112, SPED 5021, SPED 5140, SPED 5320, SPED 5600, or permission of instructor. Max hours: 6 Credits. **Semester Hours:** 3 to 3

SPED 5450 - Introduction to ABA and Terminology

This course will introduce the history and basics of ABA with a focus on its related terminology. In addition, ABA benefits will be discussed, and emphasis placed on ethical considerations required for practicing ABA as a board Certified Behavior Analyst. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5460 - ABA Practical Applications

This course will provide a framework for the natural science of behavior. It will provide students with a systematic approach to understanding and precisely describing the behavior of individuals, and its relationship to environmental determinants. Prereq: SPED 5450. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5470 - ABA Data

This course will introduce how to collect and interpret different types of data, and the importance of making data-driven decisions for behavior change procedures based on functional relationships. Prereq: SPED 5450, 5460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5480 - ABA Advanced Data and Behavioral Plans and Applications

Student will learn to use standard celeration charts and make data-driven decisions to write appropriate behavioral plans. They will also learn to use ABA strategies to enhance communication, to support individuals with ASD, and to benefit from systems supports. Prereq: SPED 5450, 5460, 5470. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5490 - Autism In Early Intervention

This course will provide students with the knowledge necessary to implement recommended, evidence-based practices with young children with autism. The course will provide information on the etiology of autism, diagnostic procedures, evidence-based practices, and how to support families who have a young child diagnosed on the spectrum. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5500 - Transition and Secondary Issues in Special Education

This course provides the practitioner with an understanding of the special education transition process as specified by federal and state guidelines, as well as effective teaching and learning strategies for secondary youth with disabilities. Cross-listed with SPED 4500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5530 - Language & Literacy Acquisition Div Lrn

This course investigates the relationship between language and literacy acquisition. In the context of first and second language acquisition across the lifespan, the course focuses on bilingual and second language development, and on the acquisition of literacy by young children. Cross-listed with CLDE 4030 and 5030. Prereq: SPED 5740. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5600 - Special Education for School Professionals

Designed for school professionals to compare and contrast service delivery options and to understand special education laws and underlying assumptions of special education practices. Through extensive study of original sources and current texts, students gain a comprehensive knowledge base for use in school applications. Readings and lectures are supplemented with direct observation of special education processes and instruction. Cross-listed with SPED 4600. Max hours: 6 Credits. **Semester Hours:** 3 to 3

SPED 5740 - Linguistically Responsive Special Education

This is an introductory course designed to provide an overview of instructional planning for culturally and linguistically diverse learners with and without disabilities. Cross-listed with SPED 4740 Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5780 - Literacy Intervention for Students with Disabilities

Provides the practitioner with an understanding of research-validated approaches, strategies, assessment tools and issues related to effective literacy instruction for students performing significantly below grade level. Practitioners can expect to be able to conduct thorough literacy assessments as well as be able to develop, implement, and evaluate individual reading and writing programs for individual students with the most challenging literacy needs. Prereq: SPED 5740, UEDU 5010, 5020, and 5030. Cross-listed with SPED 4780. Max hours: 3 Credits.

Semester Hours: 3 to 3

SPED 5800 - Workshop: Topics in Special Education

Max hours: 20 Credits. **Semester Hours:** 0.5 to 4

SPED 5840 - Independent Study: SPED

Max hours: 4 Credits. **Semester Hours:** 1 to 4

SPED 5918 - ABA Practicum

Supervised field experience with a Board Certified Behavior Analyst for time spent directly working with individuals who require behavioral programming. Students must complete 1000 hours to meet BCBA requirements and 670 hours for BCaBA requirements. 100 hours is equivalent to 1 credit. Max hours: 10 Credits. **Semester Hours:** 0.5 to 4

SPED 5919 - ABA Intensive Practicum

Supervised field experience with a Board Certified Behavior Analyst for time spent directly working with individuals who require behavioral support. Students must complete 750 hours to meet BCBA requirements and 500 hours for BCaBA requirements. 75 hours is equivalent to 1 credit. Max hours: 9 Credits. **Semester Hours:** 0.5 to 5

SPED 5930 - Special Education Generalist Internship and Site Seminar I

Special education teacher candidates engage in systematic observation of, participation in, design of and reflection on inclusive curricular, instruction and management practices. Graduated learning activities for each internship and time requirements are specified in the School Internship handbook and the Special Education Guidelines. In partner school, the site coordinator and site professor are responsible for coaching, supervision and site seminars. In internship outside partner school settings, cooperating teachers, district coordinators and/or university professors work with teacher candidates in the classroom and in seminars. Prereq: Completion of special education core or permission of instructor and advisor. Cross-listed with SPED 5931, 5932, 5933. Max hours: 2 Credits. **Semester Hours:** 2 to 2

SPED 5931 - Special Education Generalist Internship and Site Seminar II

Special education teacher candidates engage in systematic observation of, participation in, design of and reflection on inclusive curricular, instruction and management practices. Graduated learning activities for each internship and time requirements are specified in the School Internship handbook and the Special Education Guidelines. In partner school, the site coordinator and site professor are responsible for coaching, supervision and site seminars. In internship outside partner school settings, cooperating teachers, district coordinators and/or university professors work with teacher candidates in the classroom and in seminars. Prereq: SPED 5910. Cross-listed with SPED 5930, 5932, 5933. Max hours: 9 Credits. **Semester Hours:** 2 to 2

SPED 5932 - Special Education Generalist Internship and Site Seminar III

Special education teacher candidates engage in systematic observation of, participation in, design of and reflection on inclusive curricular, instruction and management practices. Graduated learning activities for each internship and time requirements are specified in the School Internship handbook and the Special Education Guidelines. In partner school, the site coordinator and site professor are responsible for coaching, supervision and site seminars. In internship outside partner school settings, cooperating teachers, district coordinators and/or university professors work with teacher candidates in the classroom and in seminars. Prereq: SPED 5910 and SPED 5911. Cross- listed with SPED 5930, 5931, 5933. Max hours: 9 Credits. **Semester Hours:** 2 to 2

SPED 5933 - Special Education Generalist Internship and Site Seminar IV

Special education teacher candidates engage in systematic observation of, participation in, design of and reflection on inclusive curricular, instruction and management practices. Graduated learning activities for each internship and time requirements are specified in the School Internship handbook and the Special Education Guidelines. In partner school, the site coordinator and site professor are responsible for coaching, supervision and site seminars. In internship outside partner school settings, cooperating teachers, district coordinators and/or university professors work with teachers, and candidates in the classroom and in seminars. Prereq: SPED 5910, SPED 5911, SPED 5912 or permission of instructor and/or advisor. Cross-listed with SPED 5930, 5931, 5932. Max hours: 9 Credits. **Semester Hours:** 3 to 8

SPED 6100 - Communication Development for Students with Severe to Profound Needs

An in-depth analysis of the development of communicative competence in students with severe or profound needs. Prereq: Completion of special education core or permission of instructor. Max hours: 6 Credits. **Semester Hours:** 3 to 3

SPED 6300 - Teaching Methods for Students with Severe Communication Needs

Offers training in defining and elaborating the needs of students identified as having severe communication needs. Students learn to expand and apply various theories of instruction. They will administer and interpret procedures for assessing speech and language skills. They will be able to plan for maintenance and generalization within the student's environment. Prereq: Permission of instructor. Max hours: 6 Credits. **Semester Hours:** 3 to 3

SPED 6950 - Master's Thesis

Max hours: 16 Credits. **Semester Hours:** 4 to 4

Sustainability

SUST 3010 - The Non-Sustainable Past

This is the first of a two-course sequence that assesses the interrelations among the historical, political, cultural, ecological, and economic aspects of contemporary environmental issues. SUST I focuses on the non-sustainable use of water, land, energy, manufactured goods, and food. Prereq: 1 Natural Science Core and 1 Social Science Core. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SUST 3011 - Toward a Sustainable Future

This is the second of a two-course sequence that examines the interrelations among the historical, political, cultural, ecological, and economic aspects of contemporary environmental issues. SUST II provides students with theoretical perspectives on sustainability through a series of current, problem-oriented case studies. Prereq: 1 Natural Science Core and 1 Social Science Core. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SUST 3840 - Independent Study

Prereq: permission of instructor required. Max hours: 12 Credits. **Semester Hours:** 1 to 3

SUST 3939 - Internship

This course will provide internships with agencies, businesses and programs involved in initiatives aimed at promoting a sustainable future. Internships could include work with concerns involved in addressing specific environmental issues or with projects aimed at raising awareness of issues related to sustainability. Prereq: SUST 3010, SUST 3011. Max hours: 3 Credits. **Semester Hours:** 1 to 3

SUST 4840 - Independent Study

Prereq: permission of instructor required. Max hours: 12 Credits. **Semester Hours:** 1 to 3

SUST 4960 - Capstone in Sustainability

As the culmination of the Sustainability Minor, this course examines current research practices in sustainability and sustainability-related fields. Students work in teams to complete a sustainability/sustainability-related research paper and poster and present it to the campus community. Note: Topics variable depending on region under study, student interest, and faculty specialty. Prereq: SUST 3011. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Teacher Education

TCED 482 - Wrkshp: Elem Sub Tchrs

Max hours: 3 Credits. **Semester Hours:** 3 to 3

TCED 1111 - Freshman Seminar

This is a special topics course and the specific content varies each time the course is offered. Max hours: 3 Credits. **Semester Hours:** 1 to 3

TCED 2400 - Issues in Chicano/a Education

A historical overview of segregation, landmark court cases, and immigration policy in the education of Chicanos/as in Colorado and nationally from 1900 to the present is offered. The intersection of these issues in the education of undocumented students is also examined. Cross-listed with ETST 2400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

TCED 4800 - Workshop: Teacher Education

This is a workshop course and the description varies each time the course is offered. Max hours: 18 Credits. **Semester Hours:** 0.5 to 4

TCED 5000 - Special Topics: Teacher Education

This is a workshop course and the description will vary each time the course is offered. Max hours: 9 Credits. **Semester Hours:** 0.5 to 4

Teaching, Learning, and Development

TLED 2000 - Technology for Educators

This course will focus on the wide range of technologies available to educators and prepare future teachers to integrate technology into their teaching curriculum, including assistive technologies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

TLED 2050 - Current Topics in Teaching, Learning & Development

Current topics that explore community and educational settings in Teaching, Learning and Development (TLED) to be selected by the instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 3

TLED 2840 - Independent Study in Teaching, Learning & Development

Max hours: 6 Credits. **Semester Hours:** 1 to 3

TLED 2910 - Service Learning in TLED

This course prepares our students to become responsible and resourceful citizens who partner with community organizations and work to serve a wide range of needs and issues within culturally and linguistically diverse environments. Max hours: 4 Credits. **Semester Hours:** 1 to 4

TLED 4050 - Special Topics in Teaching, Learning & Development

Advanced study of special topics that examine community and educational settings in Teaching, Learning and Development (TLED) to be selected by the instructor. Maybe repeated for credit. Max hours: 6 Credits. **Semester Hours:** 1 to 3

Theatre

THTR 1000 - Visual Culture

Study academic theories surrounding visual cultures related to Film, Theatre & Video relating to topics such as representation, spectatorship, and mass media by viewing, research, and analyzing. Creative projects, readings, and written responses will increase sensitivity to visuals usage. Cross-listed with FITV 1000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 1001 - Introduction to Theatre & Arts in the Community

Discussion, workshops, and lectures designed to discover, analyze, and evaluate all aspects of the theatre experience: writing, acting, directing, staging, history, theory and its relationship to film & video. Attending plays and field trips to several Denver-area theaters, and demonstrations. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-AH1 **Semester Hours:** 3 to 3

THTR 1110 - Production Design: Theatre, Film and Video

This design research class explores the creative skills, technical knowledge and scholarly engagement employed by production designers. The students will understand how design elements enhance a production and create a production design for a video, film or play. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 1220 - Acting Skills Module I

This course is the study in vocal and physical techniques for skill development for the actor in various media which provides a foundation for continued study and performance. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 1770 - Art Direction and Design Skills I

Students will study principles of theatre and film production design. They will do exercises in drawing, sketching, drafting, and rendering, with practical application towards theatre, film, and architectural design techniques. Upon completion, student will have a basic production design skills. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 1890 - Production Crafts I

Students introduced to practical applications of production tools stage equipment and construction vocabulary, through lectures and experiences in a variety of production settings. Students participate as crew members for both theatrical and film events thereby acquiring production skills. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 1891 - Production Crafts Lab

Students introduced to theoretical and practical applications of production tools, vocabulary, and experiences through working on projects and production crews in a variety of production settings. Students participate as crew members in lab for both theatrical and film events thereby acquiring production skills. Max hours: 4 Credits. **Semester Hours:** 1 to 1

THTR 1895 - Production Crafts II

Students introduced to practical applications of costume construction, design & vocabulary, through lectures and experiences in a variety of production settings. Students will construct, maintain, serve as crew members for both theatrical and film events thereby acquiring production skills. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 2220 - Acting: Performance for Film, Theatre, and TV

Provides the study, skill development and workshop experience for the actor in various media ? Including film, television, commercial and voice over work. Cross-listed with FITV 2220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 2375 - Design and Decoration Survey

A survey of the history of visual decoration and ornamentation from ancient civilizations through to contemporary art. Subjects will include the study of textiles, motifs, ornamentation, architecture, and furniture and of the influences that shaped the history of visual decoration. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 2380 - Costume History Survey

This course explores the history of Costume & Fashion from Ancient Greece through the present; includes an analysis of historical modes of production, and artistic creation in related cultures. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 2400 - Technical Drawing for Production

Students will study principles of technical drawing through lectures and projects. They will do exercises in sketching, orthographic projection and drafting, with practical application towards theatre, film, and architectural design techniques. Upon completion, student will have skills in technical drawing methods. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 2450 - Introduction to Performing Arts and Events Management

Offers students the ability to learn about stage managing events in the performing arts, in a non-pressure environment where leadership and organizational skills may develop and the student can gain a general understanding of the profession. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 2510 - Introduction to Oral Interpretation

Students will have required readings in a variety of text styles. They will choose perform scenes from those texts introducing them to the basic performance skills required for Stage and Screen acting. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 2531 - Acting for Non-Theatre Majors

Introductory acting course which focuses on the skills comprising the actor's art and their direct application to all disciplines of study outside of the theatre major. Students investigate interpersonal skills such as collaboration, communicating, risk-taking, listening, and creative problem solving. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 2560 - Topics in Theatre

Specialized topics in theater. Max hours: 12 Credits. **Semester Hours:** 1 to 6

THTR 2600 - Studio I: Dynamics of Content Creation

Investigates the process of creating performance texts for live, recorded and mixed presentation as well as the methods of selecting, transforming and pacing material for performance. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 2710 - Theatrical Design, Aesthetics, Production I

Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 2770 - Art Direction & Design Skills II

Students will study advanced presentation hand & computer techniques for through lectures and projects. They will develop skills in sketching, rendering, model building for theatre, film, and other designed environments (retail, rock concerts, worship, industrial productions, & restaurants). Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 2820 - Departmental Production

Participation in departmental production. Max hours: 4 Credits. **Semester Hours:** 1 to 1

THTR 2821 - Multi-Arts Performance

Participation in an integrated arts performance piece. Credit hours are determined by a faculty advisor and are dependent on the level of responsibility in the production. Max hours: 3 Credits. **Semester Hours:** 2 to 3

THTR 2822 - Affiliated Theatre Production

Participation in a production at an affiliated theatre in the Denver metro area. Credit hours are determined by a faculty advisor and are dependent on the level of responsibility in the production. Max hours: 2 Credits. **Semester Hours:** 1 to 2

THTR 2823 - Theatre Buffs Production

Participation in a Theatre Buffs production. Credit hours are determined by a faculty advisor and are dependent on the level of responsibility in the production. Max hours: 2 Credits. **Semester Hours:** 1 to 2

THTR 2824 - Theatre Practice: Management

Practicum component of the theatre emphasis requirement through participation in stage management, box office management, or public relations for an approved production. Credit hours are determined by a faculty advisor and are dependent on level of responsibility in the production. Max hours: 4 Credits. **Semester Hours:** 2 to 4

THTR 2840 - Independent Study: THTR

Prereq: Written permission of the supervising instructor. Max hours: 12 Credits. **Semester Hours:** 1 to 3

THTR 2890 - Production Crafts III

Students introduced to practical applications of prop construction, design & vocabulary, and scenic painting through work experiences in a variety of production settings. Students will construct, maintain, serve as crew members for both theatrical and film events, thereby acquiring production skills. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 2895 - Production Crafts IV

Students are introduced to practical applications of lighting & sound design as well as installation practices & vocabulary, through work experiences in a variety of production settings. Students serve as crew members for events, thereby acquiring production skills. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 2900 - Dramatic Writing for Stage and Screen

Students will read, analyze and write short dramatic scripts for stage and screen. Students will write, present & rewrite, with special emphasis on the demands of production: space, acting, staging conventions and techniques. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3010 - Stage and Production Management

This is a course that addresses aspects of planning and managing various theatrical events and live performances. Emphasizes maximum results, given the complexity of live performance and the resource pool. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3115 - Critical Perspectives on Performance

Students explore performance with particular histories, commitments, and processes. and read and discuss historical, theoretical, and critical perspectives, as well as see performances. Will make use of these ideas and experiences in the process of developing own performance projects. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3300 - Studio I: Dynamics of Content Creation

Students investigate the process of creating performance texts for live, recorded and mixed presentation. Through lectures and studio work the class will explore the methods of selecting, researching, transforming and scoring images, text and material for performance. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3500 - Elements of Directing

Students explore the director's analytical process, interpretative production choices, and rehearsal techniques that are fundamental to the director's work in theater, film and video productions. By using hands-on learning environment with a primary focus on the interpretation and staging scripts. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3520 - Acting/Directing Studio

This is a workshop course modeled on professional studios for Directors and Actors. Students study in vocal and physical techniques for skill development in a variety of scene work directed by members of the directing class. Prereq: THTR 2220. Coreq: THTR 3500 and 3610. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3530 - Acting: Character and Text

Fully prepared scene studies leading to advance work in characterization and text. Methods of discovering and utilizing the range of creative potential play scripts from the current production program are emphasized. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3531 - Theatre of Social Responsibility

Students study interactive theater based on selected social, political, or community concerns (peer pressure, gender identification and substance abuse). Students will create a performance piece on the selected topic. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3550 - World Theatre

Discussion, workshops and lectures designed to discover, analyze and evaluate the world theatre experience from countries outside of the United States. The course will explore theatre and its precedents in Asia, Africa, Eastern Europe and Latin America. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3560 - Topics in Theatre

Specialized topic in theater. Max hours: 9 Credits. **Semester Hours:** 1 to 3

THTR 3561 - Topics in Theatre: Honors in Humanities Cluster

Specific topics courses designed as cluster courses for the Honors in Humanities program. Titles rotate on a regular basis. Max hours: 9 Credits. **Semester Hours:** 1 to 3

THTR 3580 - Theatre for Children

Offered irregularly. Study of processes involved in creating substantial theatre for children, including an examination of various sources for dramatizing children's stories, fairy tales, poems, and existing scripts. Includes a full production of a children's play to be performed by members of the class before audiences of children. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3610 - Performance: Theory/History/Criticism I

Part one of two semester course sequence exploring questions of dramatic theory and dramaturgy in context of the development of Western Theater before 1850 and an analysis of historical modes of production, dramatic text and artistic creation in relation to contemporary theatrical practice. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3611 - Drama of Diversity

Investigates the creation and reinforcement of gender, ethnic, and racial stereotypes in theatre, film, and television in the United States. The course explores how popular images are created by writers, directors, and performers, and become "reality" for the audiences for which they are intended. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3620 - Performance: Theory/History/Criticism II

Performance: Theory/History/Criticism II: Part of 2 semester course sequence exploring Western theatre. Students will read plays, research documents from 1875 through the present and write papers on historical modes, production methods, dramatic theory of production, and dramatic text, in relation to contemporary theatrical practice. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3720 - Lighting Design

A practical introduction to the history, theory, practice and equipment for lighting performing arts productions. Course emphasizes textual analysis for lighting design, basic electricity, lighting equipment and control, safety practices and lighting graphics. Requirements include related experiences with departmental productions. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3725 - Arts in Action

Students study interactive theater based on selected social, political, or community concerns & will use their skills to create a performance piece. Students use various sources for dramatizing stories and will tour the production. Requires out of class time for performances. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3735 - Career Creation

This course consists of work sessions assisting students with portfolio and career path. Students will be required to explore related careers, do interviews and activities, assess their strengths and interests and produce professional portfolios in several possible employment areas. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3760 - Sound Design for the Theater

Sound design with practical application towards usage in the theatrical discipline. Includes studio techniques, live playback, script analysis, and recording techniques. Students will learn the various applications through work on class projects and performances. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3765 - Digital Visualization for Production

Digital 2d and 3D techniques, vocabulary and processes used specifically in the creation, visualization and implementation of pre and post-production design elements for the Performing Arts. Hardware and software technology explicit to the disciplines will be covered. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3770 - Production Design Studio I

Students will study design & presentation using design projects. Using skills in sketching, rendering, and model building they will turn out 5 project designs for Scenery, or Lighting or Costume Design or retail, rock concerts, worship, industrial productions, & restaurants). Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 3775 - Production Design Studio II

Students will design advanced projects. Using skills in sketching, rendering, and model building, they will turn out 2 complete projects, one each in their primary and secondary design (or tech areas). These projects overlap to mimic "real world design situations." Max hours: 3 Credits.

Semester Hours: 3 to 3

THTR 3840 - Independent Study: THTR

Prereq: Written permission of supervising instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 3

THTR 3995 - Travel Study Topics

Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 4090 - Senior Seminar & Project

A seminar integrating the development of four capstone projects (research, creative work, collaborative process and service/outreach) with a continuing forum focused on current issues in professional practice. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 4200 - Capstone: Theatre Practice

A seminar integrating the development of a production utilizing the combined talents of the senior class. Major production positions both on and off stage will be filled by as many students as possible area. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 4350 - Selected Studies in Theatre & Film

Course supplements the department's regular course offerings. Topics related to current productions and issues in Theatre or Film & community. Prereq: Must have 60 semester hours in THTR or permission of the instructor. Note: Open to both majors and non-majors. Can be taken more than once when topics vary. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 4530 - Acting: Character and Media

Provides skill development and workshop experience for the actor in media work-film, television, and video. Students will analyze and present scene work in both live and media performances utilizing feedback from class and instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 4560 - Topics in Theater

Various special interest topics in the study of production, theory, and analysis with an emphasis on theater. Max hours: 9 Credits. **Semester Hours:** 1 to 3

THTR 4570 - Creative Drama

Offered irregularly. Study of creativity, its role and application in dramatics, and the manner in which creative dramatics assists in the growth and development of children and youth. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 4580 - Theatre for Children

Offered irregularly. Study of the processes involved in creating designed and substantial theatre for children, including an examination of various sources for dramatizing children's stories, fairy tales, poems and existing scripts. Includes a full production of a children's play to be performed by members of the class before audiences of children. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 4611 - American Theatre History

Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 4730 - Advanced Scenic Design

Students will continue studies in graphic techniques, design styles and the integration of production design areas. Students will complete projects in scenic design for various production forms. Outcomes will include fully realized design projects with renderings, models and drafting. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 4760 - Topics in Design

A special topics investigating production design in traditional and non-traditional endeavors. Students will explore various design skills through projects and participation in departmental productions. Attendance and review of productions will be scheduled. Max hours: 9 Credits. **Semester Hours:** 3 to 3

THTR 4770 - Advanced Production Design Studio

Students will design a portfolio piece, professional quality project to be used in their BFA jury. This course provides a "Paper project" in contrast to Senior Capstone Project class which could be a group project with a number of variables. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 4820 - Theatre Practice

Advanced practicum in production work for an approved production. Credit hours are determined by faculty advisor and are dependent on the level of responsibility in the production. Max hours: 4 Credits. **Semester Hours:** 1 to 4

THTR 4840 - Independent Study: THTR

Max hours: 12 Credits. **Semester Hours:** 1 to 3

THTR 5530 - Acting: Character and Media

Provides skill development and workshop experience for the actor in media work - film, television, and video. Students will analyze and present scene work in both live and media performances utilizing feedback from class and instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 5550 - Playwriting: The Short Form

Writing workshop in one-act plays, with special emphasis on the demands of production: space, acting, staging conventions and techniques. Students will write and revise several one act play scripts. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 5560 - Topics in Theatre

Various special interest topics in the study of production, theory, and analysis with an emphasis on theater. Max hours: 9 Credits. **Semester Hours:** 1 to 3

THTR 5570 - Creative Drama

Offered irregularly. Study of creativity, its role and application in dramatics, and the manner in which creative dramatics assist in the growth and development of children and youth. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 5580 - Theatre for Children

Offered irregularly. Study of the processes involved in creating substantial theatre for children, including an examination of various sources for dramatizing children's stories, fairy tales, poems, and existing scripts. Includes a full production of a children's play to be performed by members of the class before audiences of children. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 5611 - American Theatre History

Offered irregularly. Investigates American theatres, methods of presentation, audiences, actors, acting, and economics from 1700 to the present, emphasizing contemporary practices and values as away of understanding and appreciating the place of theatre in this country as it has evolved and developed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 5840 - Independent Study: THTR

Max hours: 12 Credits. **Semester Hours:** 1 to 3

THTR 5939 - Internship

Max hours: 12 Credits. **Semester Hours:** 1 to 6

THTR 5995 - Travel Study

Max hours: 3 Credits. **Semester Hours:** 3 to 3

THTR 6840 - Independent Study: THTR

Max hours: 12 Credits. **Semester Hours:** 1 to 3

THTR 6950 - Master's Thesis

Max hours: 6 Credits. **Semester Hours:** 1 to 6

Theatre & Film General Courses

TFVP 1100 - Introduction to Theatre, Film, and Television

An introduction to dramatic and cinematic texts, styles and productions; students will research and analyze a play and develop it into a film script. They will present their understanding by storyboards and multi-media presentations, exams and written work. Max hours: 3 Credits.

Semester Hours: 3 to 3

TFVP 1110 - Production Design: Theatre, Film and Video

This design research class explores the creative skills, technical knowledge and scholarly engagement employed by production designers. The students will understand how design elements enhance a production and create a production design for a video, film or play. Max hours: 3 Credits. **Semester Hours:** 3 to 3

TFVP 1550 - Scriptwriting I

Each student conceptualizes, designs and creates short scripts for stage and screen. Instruction includes story development through first draft and rewrites, incorporation of critical feedback and the merger of image and idea to convey dramatic concepts. Max hours: 3 Credits. **Semester Hours:** 3 to 3

TFVP 3222 - Theatre, Film & Video Business

Students explore and evaluate business issues in film and theatre production such as finance, distribution, organization and legal issues through readings and projects. Students develop a solid business vocabulary and basis for work in these fields. Max hours: 3 Credits. **Semester Hours:** 3 to 3

TFVP 3620 - Acting Styles

This course explores various topics in performance for stage and screen. Students will fully prepare scene studies using various methods and techniques in acting. Each semester will focus on one approach giving students an in-depth basis for their work. Max hours: 9 Credits. **Semester Hours:** 3 to 3

TFVP 3730 - Scenery Design

Introduces the principles and practices of production design for the theatre and film. Emphasizes textual analysis, the aesthetic and practical elements of design, design development and graphics. Requirements include related experiences working departmental productions. Max hours: 3 Credits. **Semester Hours:** 3 to 3

TFVP 3740 - Costume Design

Introduces the principles and practices of costume design for theater and film productions. Students will focus on basic figure drawing, practical elements of design, design development and different costume rendering techniques through projects and productions. Max hours: 3 Credits. **Semester Hours:** 3 to 3

TFVP 3820 - Production Process

Part two of two-course sequence. Students will increase their experience by applying production skills and theories learned in Intro to Production Process in a practicum setting to support theatre and film production activities. Max hours: 3 Credits. **Semester Hours:** 3 to 3

TFVP 3860 - Applications Seminar

Course work is reflection on the intellectual competencies, artistic capabilities, and skill sets gained throughout student's theatre & film studies. Students will create projects and write a significant paper on specified topics regarding entertainment industry opportunities, to assist their career advancement. Max hours: 3 Credits. **Semester Hours:** 1 to 3

TFVP 3910 - BA Junior Project

This course consists of structured work and independent work sessions assisting students with portfolio and career path. Students will be required to work on planning an event, either in theatre or film and produce professional portfolio for faculty review. Max hours: 1 Credit.

Semester Hours: 1 to 1

TFVP 3939 - Internship

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Note: TFVP majors and minors only, or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 1 to 3

TFVP 4095 - Senior Thesis Project

The BFA thesis course involves the preparation, exhibition and critical faculty response to creative work and self-promotional materials as developed by graduating seniors on the BFA degree track. Max hours: 3 Credits. **Semester Hours:** 3 to 3

TFVP 4560 - Directors at Work

Through creation and participation on a premiere production of a devised, media, and/or mixed media, performance work in collaboration with faculty and guest professional artists, directing students will sharpen the application of skills and learn aesthetics and structure. Max hours: 3 Credits. **Semester Hours:** 3 to 3

TFVP 4570 - Directing Practicum

Directing Practicum is professional practice training through a mentored project-based assistantship with directors. During class students will be connected to and assist directors on film and theatre projects, working in small groups or one on one, to develop their skills. Max hours: 3 Credits. **Semester Hours:** 3 to 3

TFVP 4910 - BA Senior Project

This course consists of structured work and independent work sessions leading students to a portfolio and career path. Students will be required to research various career opportunities and produce a professional portfolio for faculty review. Max hours: 1 Credit. **Semester Hours:** 1 to 1

Univ Honors and Leadership

UNHL 1100 - Introduction to University Honors and Leadership

The UNHL program was developed with the goal of creating academics with leadership skills to communicate their ideas and strong leaders with the ability to think critically, analyze issues from alternate perspectives and develop and communicate plausible solutions that take into consideration all points of view; the ideal end result of the program would be intelligent, ethical leaders and scholars in multiple fields of endeavor. The three areas around which the course will revolve are: a) Oil, b) Robots, c) Penicillin. Each of these topics allows multiple facets of a university education in the old sense to be explored from philosophy, history and art to chemistry, physics and engineering. There will be multiple means of exploration for each of these topics, from lectures and in-class discussions to field trips and engagement activities; there

will be writing assignments in every phase that will focus on writing skills and writing for different audiences. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 2755 - UHL Seminar

Max hours: 4 Credits. **Semester Hours:** 1 to 1

UNHL 2840 - Independent Study

Max hours: 12 Credits. **Semester Hours:** 1 to 6

UNHL 2850 - Faculty-Mentored Research

UNHL student research conducted under the supervision of UC Denver faculty. Prereq: Permission of sponsoring faculty mentor and UNHL Director. Max hours: 6 Credits. **Semester Hours:** 1 to 6

UNHL 2870 - Intensive Spanish

Combines both semesters of second-year Spanish in an intensive course for UNHL students. Prereq: UNHL 1100, Spanish 1020 or equivalent. Students who have not completed Spanish 1020 are required to demonstrate first-year language proficiency through placement exam prior to enrolling in this course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Cumulative GPA of 3.0 or above and permission of UNHL Director/Associate Director. Max hours: 3 Credits. **Semester Hours:** 1 to 3

UNHL 3010 - Leadership Behavior: Historical and Contemporary Perspectives

This course will provide students with an opportunity to integrate historical and contemporary issues in the study of leadership behavior. The course is based on leadership research and writing that reveals the leader as facilitator, collaborator, servant, and follower. The course will provide students with an opportunity to reflect, discuss, and write on topics and questions related to leadership and followership behavior. Prereq: UNHL 1100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3100 - Ethics & Leadership: An Introduction

This one-semester ethics and leadership course will introduce students to the wide variety of some of the best leadership theories and their application to current ethical issues. Prereq: UNHL 1100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3110 - Leadership, Communication, and Conflict

Leaders spend a significant amount of time managing conflict. This course is designed to explore the practical and theoretical basis of conflict and communication, and seeks to examine critical leadership processes that lead to the increased likelihood of organizational survival through successful conflict management. Prereq: UNHL 1100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3120 - Leading For Change

Examination of the qualities and practices that make for effective change leadership. Case studies are used to focus on exemplary adaptive leaders from different sectors and cultures, examining the role they play in facilitating problem solving and change management. The role of emotional intelligence in the work of adaptive leadership is also emphasized. Prereq: UNHL 1100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3250 - Leadership and Sustainability

This course examines issues of sustainability and the leadership challenges associated with the creation of sustainable social structures. Topics covered include a wide range of sustainability concerns such as: global population and food scarcity, alternative fuels and energy systems, biological and human health, leadership and sustainability program development, and symbolic and media representations of sustainability. Prereq: UNHL 1100 and second- or third-year status in the UNHL program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3310 - Innovation, Cutting-Edge Knowledge, and Self-Guided Learning

The purpose of this course is to familiarize students with cutting-edge knowledge in major scientific and technological fields, against the background of cultural and artistic creativity, and to establish habits of lifelong, self-guided learning. To enhance this process, relevant faculty will be invited to speak about innovation in their field, both in class and during the planned panel discussion. Prereq: UNHL 1100 and second- or third-year status in the UNHL program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3501 - Love and Death in the Greek Classics

This course introduces students to classical Greek literature, focusing on love and death in Homeric epic, lyric poetry, tragic drama, the history and social science of Thucydides, the comedies of Aristophanes, and Plato's philosophical dialogues. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3502 - The History and Literature of Science in the 19th Century

This course will examine the literature of the 19th Century, the history of science in that period, and how those works and that history impact how we think about science today. Prereq: UNHL 1100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3503 - Ethics, Academic Integrity, and Social Responsibility

This course combines research and class discussions in such a way that theories, viewpoints, and practical proposals regarding ethics and its application to intellectual responsibility are understood in their own right as well as in relation to other human activities. One daunting task will be facing up to the challenge of how to use the increasingly powerful information tools provided by universities. In the last third of the semester, students will be asked to work in teams on projects dealing with current ethics controversies. Prereq: UNHL 1100; not open to students who have taken UNHL 3100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3520 - Ancient Human Environmental Impacts

This course is an exploration of the history of human engagement with their environment, focusing specifically on what ecological and archaeological data can tell us and how to best collect and conceptualize them. It will introduce students to key concepts in past human ecology to establish humanity's place in nature as well as examine a series of targeted case studies in order to trace how these relationships between humans and their ecosystems may have changed in scale and nature over time and in different contexts. Prereq: UNHL 1100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3610 - Neuroscience and Society

Science has provided tantalizing glimpses into the nature of humans and the groups in which they live. This course will explore these matters in a way that encourages critical analysis of the relationship between our brains and the world. In the process, we will focus on the scientific method itself and its standing in relation to faith, ideology, and sociopolitical attitudes. Prereq: UNHL 1100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3620 - Migration, Modernity, and Literacy

An examination of the causes, consequences, difficulties, and enduring problems of migration in contemporary global society. Political, legal, and educational problems of modernity and mass migration are analyzed. Course work includes social scientific research into historical and contemporary migration flows. Prereq: UNHL 1100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3625 - Food Justice: Urban Agriculture, Place, and Culture

Addresses systemic inequities in access to fresh and healthy food as illustrated by neighborhoods termed "Food deserts." Questions examined include how sustainable/ethical relationships can be established between growing food and creating community, developing consciousness of place, and affirming cultural food/agricultural traditions. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3630 - Migration and Development

The impact on societies across the globe of a record 214 million-plus migrants living outside of their countries of birth. An interdisciplinary overview of the historical roots, causes, and consequences in receiving and sending nations of contemporary international migration flows. Topics include brain gain and brain drain, gender differences, immigrant diasporas, remittances, acculturation, circular migration illegal immigrant flows, and transnational human trafficking. Focus on experiences in North America, Europe, the Middle East, and Southeast Asia. Students will have the opportunity to compare and contrast immigrant communities in the Denver region. Prereq: UNHL 1100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3810 - Understanding and Dealing with Uncertainty

This course discusses the concept of uncertainty from multiple perspectives. What is uncertainty? How does it relate to other notions such as ignorance or variation of risk? How do we deal with uncertainty? We will consider ideas from mathematics, science, philosophy, religion, law, and psychology, among other fields. Students will be required to develop their own ideas on uncertainty in written form and/or participate in group presentations. Prereq: UNHL 1100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3815 - Life in the Information Age

This course charts the contours, contradictions, and challenges of life in the Information Age. Adopting the perspective of technocapitalism, it explores how advances in communication technologies and changes in our economic system are altering our daily lives. Although radical change is always disruptive and disorienting, this course does not naively deny or pessimistically lament these changes. Rather, it chooses to focus on how persons can confront, address, adapt to, and excel in our rapidly changing world. Prereq: UNHL 1100 and second- or third-year status in the UNHL program. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3820 - The Economics of Life

Study of the economic approach to human behavior and its application to the analysis of markets and areas including politics, law, family life, and other social issues. Students will develop an understanding of how the economic approach differs from other approaches to analyzing these phenomena and for the possibilities and limitations of the economic approach. Prereq: UNHL 1100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3825 - Irish Music, Peace, Politics, and Popular Culture

This course explores traditional and contemporary music in Ireland, examines Irish politics and the peace process in the Republic and Northern Ireland, and considers ways in which various forms of Irish popular culture have represented Irishness and Irish identity. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3830 - Jazz in American Culture

This class will explore the influence of jazz music (and related forms like ragtime and the blues) on American culture more generally. Specific topics to be explored include the Post-Reconstruction Race Politics, the Delta and the Great Migration, New Orleans, and the Harlem renaissance. Important figures of African-American literature, and Jazz & the Blues music will also be presented. Students will examine a multitude of literary and musical experiences through novels, short works, biographies, and listening. Prereq: UNHL 1100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3835 - Evaluating Contemporary Cinema

This course focuses on the valuation of contemporary film in national and international contexts. Approaching film as an art form, students learn to critically examine and evaluate the formal aspects of cinema, including narrative, cinematography, mise-en-scene, editing, sound, etc. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3870 - History and Culture of Spanish-Speaking World

Study of the history, culture, politics, and social environment of Spain and/or the Spanish-speaking world. Topics determined by instructor. Prereq: UNHL 1100; UNHL 2870, SPAN 2120, or demonstration of second-year Spanish language proficiency through placement exam. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3910 - Ideology and Revolution

Was ideology invented in the 19th Century? Conservatism, Liberalism, Nationalism and Socialism were all invented in the short span of 1789 - 1870. In this course we read works of Edmund Burke, Karl Marx, J.S. Mill, and others who reacted to the French and Industrial Revolutions, hoping to repair the social fabric. Prereq: UNHL 1100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Cumulative GPA of 3.0 or above and permission of UNHL Director/Associate Director. Max hours: 3 Credits. **Semester Hours:** 1 to 3

UNHL 3995 - Global Study

UNHL Academic Honors track and Leadership Studies track. Travel study, with location and topics to be selected by the instructor. Prereq: UNHL 1100, 2755, and permission of the UNHL Director. Max hours: 12 Credits. **Semester Hours:** 1 to 4

UNHL 4410 - Biology and Politics

Exploration of the reciprocal relationship between biology and politics. Topics include the impact of genetics and biological development on behavior, how public policies impact human and animal biology and the ecology of the earth, and their impact of nature and nurture on racial and gender differences. Prereq: UNHL 1100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 4815 - The Science of Food

This course will introduce students to the science of food and how it relates to health, the human body, and manifestation of chronic disease (cancer, diabetes, and cardiovascular disease). Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 4840 - Independent Study

Max hours: 12 Credits. **Semester Hours:** 1 to 6

UNHL 4850 - Faculty-Mentored Research

UNHL student research conducted under the supervision of UC Denver faculty. Prereq: Permission of sponsoring faculty mentor and UNHL Director. Max hours: 6 Credits. **Semester Hours:** 1 to 6

UNHL 4991 - Senior Research Seminar I

Capstone experience for UNHL program. Students will work in teams on research projects of a multidisciplinary nature. Prereq: Fourth-year standing in the UNHL program or permission of the UNHL Director. Max hours: 2 Credits. **Semester Hours:** 2 to 2

UNHL 4992 - Senior Research Seminar II

Continuation of UNHL 4991. Students will work in teams on research projects of a multidisciplinary nature. Prereq: Fourth-year standing in the UNHL program or permission of the UNHL Director. Max hours: 2 Credits. **Semester Hours:** 2 to 2

Urban & Regional Planning

URPL 5000 - Planning History and Theory

This course offers a comprehensive review of the major historical and theoretical developments in planning; the human aspects of planning as a social, political, and community-oriented process; public engagement; social justice; planning leadership and advocacy; and the future of planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 5010 - Planning Methods

This course focuses on the most commonly applied quantitative and qualitative methods used in planning; data organization and management principles; and various ways to collect, analyze, and communicate data as a fundamental component of the planning process. Cross-listed with GEOG 4000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 5020 - Planning Law and Institutions

This course covers the legal basis for planning; the evolution of planning law through a comprehensive review of landmark court decisions; and the types and hierarchies of governments, their powers and relationships, and how planning operates within those governmental contexts. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 5030 - The Planning Profession

This course offers a comprehensive survey of the breadth and depth of the planning profession; different types of planners and the organizations that employ them; business aspects of planning; planning solicitation process; planning ethics; and professional/career development in planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 5040 - Natural and Built Environments

Examines the interface of the natural and social realms in cities. Topics include the environmental history of cities; the causes, environmental impacts and mitigation of sprawl; urban green infrastructure; and best practices in planning environmentally sustainable cities and suburbs. Cross-listed with GEOG 4000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 5050 - Urban Development

Explores the procedures, policies and politics of planning and real estate development. Topics include the relationship between planning goals and regulations; real estate development and finance; land division, entitlement, and regulation; site planning and development review; and public infrastructure. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 5060 - Planning Workshop

An introduction to the studio environment, this course provides students with experience and knowledge/skills development in physical planning and design, the planning process, plan making, and collaborative planning, plus introductory instruction in GIS, Adobe Creative Suite, and Google SketchUp. Max hours: 6 Credits. **Semester Hours:** 6 to 6

URPL 6000 - Planning Project Studio

This studio course requires student teams to complete a substantial planning project using a comprehensive set of knowledge/skills for real-world clients. Five focus area options offered annually: Healthy Communities, Urban Revitalization, Regional Sustainability, International Experience, and Summer in Colorado. Prereq: URPL 5070. Max hours: 6 Credits. **Semester Hours:** 6 to 6

URPL 6200 - Land Development Regulations

This course provides a comprehensive exploration of the various components of land development regulation, including preliminary plats; general/final development plans; zoning; PUDs; variances; site plan/development review; land use regulators; regulatory processes. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6205 - Plan Making

This course offers a broad overview of the various types of plans and the specific processes involved in their creation, including comprehensive plans; rural/small town plans; corridor plans; small area plans; campus/ institutional plans; special plans. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6210 - Planning Politics & Engagement

This course focuses on the politics involved in planning and the planner's role in engaging with the public. Topics include planning advocacy; public meetings; public engagement techniques; diverse publics; controversial planning topics; mediation; and negotiation. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6215 - Analyzing the Built Environment

This course explores various means and techniques used to analyze and characterize the built environment, including land division and development measures; urban morphology; and analyzing the spatial attributes of cities and regions at varying scales and perspectives. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6220 - Advanced Research Techniques

This course offers an in-depth look at a variety of research principles and techniques, including advanced qualitative and quantitative data collection; survey design; sampling; probability distributions; hypothesis testing; inferential statistics; other topics associated with scholarly research. Prereq: URPL 5040 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6249 - Project Management

Introduces the knowledge and skills of Project Management (PM) in a business environment. Emphasis will be on the entire project life cycle, the project management process groups and the knowledge areas as presented in the Project Management Body of Knowledge (PMBOK) from the Project Management Institute (PMI). Managerial aspects, quantitative tools, and traditional techniques of Project Management will be covered. A variety of projects will be examined. Note: Cannot receive credit for both DSCI 6820 and BUSN 6820. Cross-listed with DSCI 6820. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6250 - GIS Analysis

This course expands beyond the fundamentals of Geographic Information Systems to offer intensive instruction in GIS analysis and cartography; advanced GIS applications and tools; GIS integration with other applications and technologies; innovations in geo-spatial data collection, analysis, and presentation. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6255 - Emerging Planning Technologies

This course explores the rapid pace of innovation in planning-related technologies and offers a comprehensive review of the latest web-based and mobile applications, and new technologies used in virtual participation/engagement, data collection/visualization, social media/crowdsourcing, and geo-spatial data collection and analysis. Max hours: 3 Credits.

Semester Hours: 3 to 3

URPL 6260 - Advanced Geo-Spatial Methods

Advanced techniques in geographic information systems, including interpolation and geostatistics, 3D rendering, terrain and watershed analysis, spatial autocorrelation detection, site selection and prioritization, model building and automation, geodatabase design, network analysis, hydrology and watershed analysis, and public data integration. Prereq: An introductory GIS class is required before taking this class. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6300 - Planning Healthy Communities

A place-based approach to understanding the social, economic, environmental, and political factors that influence individual and community health, and health disparities. Covers policies, practices, data, and methods for healthy communities planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6305 - Healthy Community Assessments

This course focuses on defining, organizing, and conducting Health Impact Assessments, health measures, policies, best practices, and other types of studies and analyses related to the link between the built environment, public health, and healthy communities. Max hours: 3 Credits.

Semester Hours: 3 to 3

URPL 6310 - Community Food System Planning

Healthy communities require sustainable local and regional food systems. This course examines how communities can collaboratively develop and implement programs, processes and practices that help ensure food security and equitable access to healthy food options for all populations.

Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6349 - Global Health Studies II

Global Health Studies II: Comparative Health Systems. The course has three parts: (1) examines the social and cultural construction of sickness, systems of etiology cross culturally, the therapeutic encounter, varying roles of healer and patient, and the cultural basis of all healing systems; (2) considers health systems in the context of global health reform, and the history, organization, and roles of institutions of global health governance; and (3) considers the interrelationship of health, foreign policy and global security. Cross-listed with PBHL 4020.

Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6350 - Form and Formation of Cities

This course investigates the origins and types of human settlements; the history of cities and urbanization; urban morphology and the evolution of the built environment; urban form principles and theory; and types of urbanism. Cross-listed with URBN 6633. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6355 - Urban Redevelopment Strategies

This course focuses on the best practices and strategies used to help revitalize urban areas. Topics include urban infill development; TODs; adaptive reuse; historic preservation; design review; parking; public spaces; brownfield/grayfield redevelopment; culture/tourism; special districts; incentives/funding; and revitalization policies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6360 - Urban Infrastructure

This course provides a comprehensive exploration of transit planning, including transit planning fundamentals; transit routes and systems; transit modes and technologies; ridership modeling; scheduling; operations; funding; policies and regulation; relationship to land use; and facilities/design requirements. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6365 - Parks and Public Spaces

This course offers a focused look at the role of parks and public spaces in the development and activation of cities; their designs, qualities, and components; management /operations; funding; policies; equal access; role as community and economic development tool. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6397 - Design Policy/Regulation

Argues that a role of urban designers is to shape built environment through combination of physical intervention and policy development. Students review urban economic and real estate trends and assess zoning/land use regulations to understand impacts on built environment quality. Cross-listed with URBN 6642. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6398 - Design Process/Practice

Advances current practice by exploring innovative methods of design analysis, production, representation, and communication. Community participation and civic engagement are integral components of seminar, and students are introduced to business of urban design through contact with prominent urban design professionals. Cross-listed with URBN 6641. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6399 - Introduction to Sustainable Urban Infrastructure

Focuses on developing uniform vocabulary on sustainable infrastructure across science & technology, architecture & planning, public policy, and health & behavioral sciences. Students learn concepts, principles/pathways and evaluation techniques for promoting the diffusion of sustainable urban infrastructures. Cross-listed with CVEN 5460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6400 - Community Development

This course introduces community development, examining planners' and other stakeholders' roles in the field; key theories and practices; community dynamics; community-based organizations; asset-based development; social equity; and the influence of local physical and economic factors on community development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6405 - Urban Housing

This course examines housing trends and patterns; supply and demand factors; housing policies; housing challenges (e.g., inequitable distribution, special needs, segregation/discrimination, and homelessness); sociological, demographic, and economic considerations; and the roles of planners and the public and private sectors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6410 - Social Justice in Planning

This course investigates various social justice issues encountered in planning, including conflict resolution; advocacy; environmental justice; social equity; culture and diversity; disadvantaged populations; public engagement techniques; affordability; equal access; and policy impacts. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6449 - Urban Social Problems

Examines local government from the perspective of sociology and group dynamics. Course could include some or all of the following subjects: neighborhoods and community groups, class and race relations, community crime, social service issues, immigration, the underclass in American society, and related urban social problems. Cross-listed with PUAD 5628 and 7628. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6450 - Urban Economic Systems

This course offers an exploration into urban economic systems; local economies; urban economic development; urban market assessment; local job generation; local scenario planning; local taxes/spending; and urban fiscal/economic policies and impacts at the neighborhood and city scale. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6455 - Real Estate Development and Finance

The course offers a detailed analysis of the real estate development process, its relationship to the planning/design profession, and financial aspects of real estate development including measures of value, capitalization rates, capital budgeting, debt and equity markets and taxation. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6460 - Green Real Estate Development

This course offers an exploration into the principles, designs, policies, and best practices relating to sustainable real estate development. Topics include infill development; transit-oriented development; LEED-ND; green buildings; universal design; mixed-income projects; and net-zero developments, among others. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6499 - Preservation Theory and Practice

Philosophical questions in preservation practice; balancing significance in the environment with natural decay and demands for change. Policy issues as well as preservation and adaptation design. Cross-listed with HIPR 6010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6500 - Environmental Management

This course provides a comprehensive investigation of environmental management topics, including natural hazards/disasters and mitigation planning; ecosystems; air/water quality; natural area conservation and management; habitat protection; and environmental planning organizations and their management policies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6505 - Enviro. Policy & Regulation

This course focuses on the important field of environmental policy and regulation, including topics such as the National Environmental Policy Act (NEPA); environmental justice; environmental law; land use conflicts; contamination/remediation; environmental regulators; and regulatory policies and enforcement. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6510 - Energy/Natural Res. Planning

This course provides an overview of the issues associated with energy and natural resource planning. Topics include: energy policy; alternative energy development; water resources; extraction/mining; natural resource protection and regulation; resource management, policies, politics, and technologies. Cross-listed with GEOG 4260. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6515 - Sustainable Planning & Design

This course takes a comprehensive look at the principles of sustainable planning and design. Topics include: sustainability defined; measuring sustainability; sustainable planning/practices; sustainable design; LEED and other sustainability programs and organizations; environmental quality; sustainability advocacy. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6548 - Defining & Measuring Sustainability

Unique cross-disciplinary course that teaches students community engagement strategies to define sustainability goals. Life cycle assessment and material flow analysis tools used to measure environmental sustainability benchmarks. Fieldwork applies both tools to cities in Colorado. Cross-listed with CVEN 5461. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6549 - Environmental Impact Assessment

The objective of this course is to provide the foundation for understanding the environmental impact assessment process, its legal context, and the criteria and methods for procedural and substantive compliance. Prereq: URPL 5530 or permission of instructor. Cross-listed with GEOG 4220, 5220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6550 - Transportation Planning/Policy

This course examines policy issues in urban transportation planning: how transportation system design and political/institutional contexts shape transportation decision-making; major modes of urban transportation; and the social, environmental, economic, energy, and health impacts of transportation systems. Cross-listed with GEOG 4670. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6555 - Transportation and Land Use

Examines basic concepts/methods in contemporary land use and transportation planning, including travel demand forecasting, traffic impact analysis, travel behavior, active transportation; and examples of transportation/land use interaction such as the influence of built environments on travel and transit-oriented development. Cross-listed with GEOG 4630. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6560 - Transit Planning

This course provides a comprehensive exploration of transit planning, including transit planning fundamentals; transit routes and systems; transit modes and technologies; ridership modeling; scheduling; operations; funding; policies and regulation; relationship to land use; and facilities/design requirements. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6565 - Pedestrian & Bicycle Planning

This course provides a detailed focus on the unique planning issues and factors involved with bicycle and pedestrian modes of transportation, including pedestrian/bicycle planning fundamentals; routes and systems; facilities and design requirements; funding; maintenance and operations; policies; and best practices. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6600 - Regional Planning and Policy

This course explores the issues associated with planning and policymaking at the regional scale, including regional planning fundamentals; land use/transportation relationships; regional environmental constraints; regional cooperation and governance; regional institutions (COGs/MPOs); and regional scenario planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6605 - Regional Economic Systems

This course offers a comprehensive investigation into regional economic systems; metropolitan economies; regional economic development; regional market assessment; job generation; taxes/spending; and fiscal/economic policies and impacts at the metropolitan, regional, and statewide scale. Cross-listed with GEOG 4400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6610 - Planning Sustainable Suburbs

This course takes a detailed look at the unique characteristics, issues, and challenges associated with planning and retrofitting automobile-oriented suburban communities and the opportunities for development of new communities using sustainable planning and design principles. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6615 - Small Town and Rural Planning

This course investigates the unique characteristics, issues, and challenges associated with planning in small and/or rural communities, including agricultural issues and farmland conservation; growth management; rural economic development; and small downtown revitalization strategies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6620 - Tourism and Resort Planning

This course investigates the unique aspects associated with planning and developing sustainable tourism infrastructure. Topics include: eco-tourism; historic tourism; cultural tourism; urban tourism; sports and recreation planning; regional tourism planning; and sustainable resort planning and development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6625 - Sustainable Tourism Planning

This course focuses on tourism impacts on fragile cultural and ecological environments; identifying and understanding these impacts; ways to mitigate using planning approaches and tools; and how to share these understandings to persuade the public to action. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6645 - Disaster/ClimateChangePlanning

Introduces students to concepts and debates that shape disaster and climate change studies. Features case studies of disaster and climatic issues affecting Colorado and the Rocky Mountain region. Looks specifically at how planning can reduce risk and increase local resilience. **Semester Hours:** 3 to 3

URPL 6650 - Planning in the Dev. World

This course explores the issues involved in planning in the developing world; challenges and solutions for complex development; health/community issues; social justice; cultural/technological issues; environmental justice; funding; infrastructure development; international development organizations. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6655 - Comparative International Planning

This course investigates the global dimensions of planning, including a survey of global planning issues; a comparative analysis of planning philosophies, policies, techniques and approaches used throughout the world; and international planning coordination and organizations. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6730 - International Studies Preparation

The course will prepare students to go to China, for 10-day International Summer School, 5-week China Summer Urban Design Joint Studio, 9-month Gensler Internship, and 1-year LA Dual Degree program. Topics include historic, geographic and cultural issues, and language lessons. Cross-listed with ARCH 6730, LDAR 6730, and URBN 6730. Max hours: 3 Credits. **Semester Hours:** 1 to 3

URPL 6800 - Special Topics: Urban and Regional Planning

Various topical concerns are offered in urban and regional planning, theory, concepts, methods, case studies and practice. Max hours: 9 Credits. **Semester Hours:** 3 to 3

URPL 6805 - Planning Internship

Designed to provide professional practice experience in urban and regional planning. The emphasis is on actual work experience in settings with client groups as the students assist them in determining solutions to their problems. Max hours: 6 Credits. **Semester Hours:** 3 to 3

URPL 6810 - Independent Study: URPL

Studies initiated by students or faculty and sponsored by a faculty member to investigate a special topic or problem related to urban and regional planning. Max hours: 6 Credits. **Semester Hours:** 1 to 3

URPL 6900 - Planning Capstone A

Planning Capstone A requires students to identify an independent study/small group project of their choosing and develop a detailed plan to complete the project. Prereq: Students must have completed 24 credits in the core curriculum. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6905 - Planning Capstone B

Planning Capstone B requires students to complete the independent study/group project proposed and planned during Planning Capstone A. Students will produce a final deliverable and the semester will conclude with a juried presentation. Prereq: URPL 6900. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6920 - Planning Thesis A

Spanning two semesters, Planning Thesis requires students to plan and complete a research thesis of their choice. Part A provides instruction for proper thesis research, analysis, and writing while students develop a detailed work plan and begin their research. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6925 - Planning Thesis B

Spanning two semesters, Planning Thesis requires students to plan and complete a research thesis of their choice. Part B includes the completion of the research and the thesis document, and presentation of the project to the student's thesis committee. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Urban Design

URBN 6610 - Urban Design Studio I

Introduces urban structure and morphology, presenting city as complex, ecological organism comprised of interrelated systems. Working on urban/metropolitan scale, students deconstruct city into series of infrastructural layers, then recompose and restructure it in a more integrated fashion. Max hours: 6 Credits. **Semester Hours:** 6 to 6

URBN 6611 - Urban Design Studio II

Advances understanding of tools, methods and practice of urban design. Operating on neighborhood scale, studio emphasizes proactive role designers play in shaping regulations. Students consider real estate development economics, aesthetic criteria, historic preservation, and methods of effective community participation. Max hours: 6 Credits. **Semester Hours:** 6 to 6

URBN 6612 - International Studio

Immerses students in rapidly urbanizing international location. Primary focus on complexities of approaching international design practice from foreign perspective. Studio operates within network of professionals involved in contemporary urbanization projects. Students develop complete project and consider politics, economics and regulation. Max hours: 6 Credits. **Semester Hours:** 6 to 6

URBN 6633 - Form and Formation of Cities

This course investigates the origins and types of human settlements; the history of cities and urbanization; urban morphology and the evolution of the built environment; urban form principles and theory; and types of urbanism. Cross-listed with URPL 6350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URBN 6640 - History of the City

Introduces students to the history of global cities through selected typologies. Explores similarities and differences among cities considered against the larger cultural, political and socio-economic envelope of which they are part. Provides awareness of origins, growth and evolution of urban form. Cross-listed with ARCH 6240. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URBN 6641 - Design Process/Practice

Advances current practice by exploring innovative methods of design analysis, production, representation, and communication. Community participation and civic engagement are integral components of seminar, and students are introduced to business of urban design through contact with prominent urban design professionals. Cross-listed with URPL 6398. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URBN 6642 - Design Policy/Regulation

Argues that a role of urban designers is to shape built environment through combination of physical intervention and policy development. Students review urban economic and real estate trends and assess zoning/land use regulations to understand impacts on built environment quality. Cross-listed with URPL 6397. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URBN 6643 - Graphics for Planners

Professional planners must be able to communicate their design concepts through graphical means. Students will learn to communicate with use of hand and technical drawings, color renderings, computer modeling and graphic layout design. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URBN 6644 - Sustainable Urbanism

This seminar explores the connections between ecology and urbanism. It will examine the multiple, interrelated ecological and social systems operating in the city. Students will explore innovative design processes and techniques that serve to create a higher quality of life and place with a particular emphasis on the effectiveness of sustainable design approaches at varying scales. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URBN 6645 - Global Design Practice

This seminar will educate students about critical issues related to practicing design in a global context. Course will examine diverse issues of design and planning practice from contracts, communication and culture to remote research, design opportunities and ethics. Prereq: URBN 6612. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URBN 6651 - Design Practice

Introduces students to the business of urban design through contact with prominent and innovative urban design professionals. Examines issues of design implementation; project management; communication, negotiation and facilitation; leadership; and finance. Restrictions: Restricted to ARUR-MUD majors in the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URBN 6652 - Design Seminar

Investigates topical issues in urban design, typically within the framework of a theme running through an entire course of study. Focus is on critical evaluation of theory, process and methods. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URBN 6686 - Special Topics: Urban Design

Various topical concerns are offered in urban design history, theory, elements, concepts, methods, implementation strategies, and other related areas. Max hours: 9 Credits. **Semester Hours:** 1 to 6

URBN 6730 - International Studies Preparation

The course will prepare students to go to China, for 10-day International Summer School, 5-week China Summer Urban Design Joint Studio, 9-month Gensler Internship, and 1-year LA Dual Degree program. Topics include historic, geographic and cultural issues, and language lessons. Cross-listed with ARCH 6730, LDAR 6730, and URPL 6730. Max hours: 3 Credits. **Semester Hours:** 1 to 3

URBN 6840 - Independent Study: URBN

Studies initiated by students or faculty and sponsored by a faculty member to investigate a special topic or problem related to urban design. Max hours: 3 Credits. **Semester Hours:** 1 to 3

URBN 6930 - Urban Design Internship

Designed to provide professional practice experience in urban design. Emphasis on actual work experience in settings with client groups as students assist them in determining solutions. Program directors approval required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Urban Teacher Education

UEDU 1930 - Intro To Urban Education

This course examines sociological issues concerning urban schools, communities and provides an overview of school culture, diversity and social realities in American schools. Students will critically examine education issues that affect their lives, their community and classrooms throughout the country. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 4000 - Elementary Literacy Instruction and Assessment

Designed to prepare teacher candidates to develop an appreciation, understanding, and application of literacy assessment and instruction in the elementary classroom. Teachers learn how to use the results of various types of assessment to create a reading and writing program that addresses the literacy needs of all children. The course assist teachers in learning how to integrate the teaching of reading and writing across content areas. Cross-listed with UEDU 5000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 4001 - Social Studies through Childrens' Literature & Writing

This course explores social studies through children's literature and writing instruction. Investigates best practices for literacy teachers to draw upon students' cultural and linguistic backgrounds, help students make connections between new information and previous knowledge and skills, and support students as they transfer new information to real-life contexts and environments. Prereq: UEDU 4000. Cross-listed with UEDU 5001. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 4002 - Math Instr & Assmt

Designed to prepare elementary teachers to teach mathematics in elementary school while applying the six principles of the National Council of Teachers of Mathematics (NCTM), (equity, curriculum, teaching, learning, assessment and technology) to the four areas of mathematical learning, (number sense, statistics and probability, geometry and measurement, and mathematical functions). Teachers explore ways to help all elementary students become flexible and resourceful problem solvers in mathematics. Cross-listed with 5002. Max hours: 2 Credits. **Semester Hours:** 2 to 2

UEDU 4003 - Teaching Elementary Mathematics

This course is intended to increase the mathematical and pedagogical understandings and competence of elementary teachers, focusing on instructional principles and practices. Cross-listed with UEDU 5003. Max hours: 2 Credits. **Semester Hours:** 2 to 2

UEDU 4004 - Elementary Science Methods

This course explores issues in elementary school science learning and teaching. Teacher candidates will develop knowledge of the nature of science and science content, engage in scientific inquiry, work to identify student conceptions, and plan and enact science instruction. Cross-listed with UEDU 5004. Max hours: 9 Credits. **Semester Hours:** 3 to 3

UEDU 4010 - Social Foundations and Cultural Diversity in Urban Education

This course focuses on the role of cultural diversity in the United States school system and what this means for educators oriented toward social justice. The intention of this course is to have teacher candidates engage in exploring the most salient issues surrounding education in the United States, developing an understanding of the complex relationships between schools and the larger society of which they are a part. This course closely examines important contemporary and historical societal issues such as race, social class, gender, ethnicity, sexual identity, politics, and dynamics of power and privilege. Cross-listed with UEDU 5010. Max hours: 3 Credits.

Semester Hours: 3 to 3

UEDU 4020 - Co-developing Culturally Responsive Classroom Communities

This course investigates how people learn and the implications of social and cultural learning for establishing engaging and culturally responsive learning communities. Through this course teacher candidates will better understand their roles in student learning and how their own cultural lenses impact their relationships with students and families, and influence student success in the classroom. Prereq: UEDU 4010 (or concurrent). Cross-listed with UEDU 5020.

Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 4040 - Exploring Diversity in Content and Pedagogy I

The purpose of this course is to explore multiple aspects of complex curriculum and instructional processes including: 1) standards-based instruction; 2) instructional design; and 3) formative & summative assessment, and 4) differentiation in curriculum and instruction so that meaningful instruction becomes accessible to all students. Prereq: UEDU 4010 and UEDU 4020. Cross-listed with 5040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 4050 - Exploring Diversity in Content and Pedagogy II

An essential feature of instructional and curriculum design, implementation, and evaluation is the ability of teachers to draw upon students' previous experience, help students make connections between new information and previous knowledge and skills, and support students to transfer new information to real-life contexts and environments. The purpose of this course is to explore multiple aspects of complex processes including: 1) standards-based instruction (e.g., the relationship between standards and curriculum); 2) instructional design including both direct and indirect instruction; and 3) assessment, including both selected response measures as well as performance and portfolio assessment; and 4) differentiation in curriculum and instruction so that meaningful instruction becomes accessible to all students. Prereq: IPTE 4006. Admission into the IPTE Program. Cross-listed with UEDU 5050. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 4100 - Secondary Literacy Instruction and Assessment

Provides knowledge and practice in using specific literacy methods to enhance students' content learning and literacy development in middle schools and high schools. Various methods of literacy assessment to guide instruction for students are emphasized. Instructional strategies for special populations, especially speakers of English as a second language, are also addressed.

Cross-listed with UEDU 5100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 4110 - Tchg Literacy in Eng Ed

Designed to meet both Colorado Literacy Council & Colorado Performance-Based Standards for prospective secondary English/LA teachers concerning Knowledge of Literacy, the course provides knowledge and practice using specific literacy methods to enhance students' literacy development in English/LA/reading classrooms. Cross-listed with UEDU 5110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 4200 - Theory and Methods of Teaching Secondary English

Focuses on teaching/learning theories and practical classroom strategies for teaching English Language Arts to adolescent learners in middle school, junior high school and high school classes. Cross-listed with LCRT 5200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 4201 - Adolescent Literature

Reading and evaluation of fiction and non-fiction appropriate for students in middle and senior high school. Emphasis is on modern literature written for students from a variety of ethnic backgrounds. Course is also appropriate for teachers working with adults to improve their reading. Prereq: Concurrent enrollment in an internship or permission of instructor required. Admission into the IPTE Program. Cross-listed with UEDU 5201 and LCRT 5201. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 4300 - Curriculum and Methods in Secondary Math

Fosters pedagogical content knowledge for teaching mathematics in middle and high school classes. Promotes teaching consistent with the NCTM principles (Equity, Curriculum, Teaching, Learning, Assessment, and Technology), so ALL students become resourceful problem solvers in mathematics. Cross-listed with UEDU 5300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 4301 - Assessment In Math Education

Applied examination of traditional and alternative assessment techniques and practices in mathematics teaching. Focuses on questions/problems teachers can pose to probe students' mastery and understanding of standards-based mathematics, and what to look for in student responses to those probes. Prereq: Concurrent enrollment in an internship or permission of instructor. Cross-listed with UEDU 5301, SECE 5401, and ELED 5401. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 4400 - Theory and Pedagogy of Science Instruction

Examines current issues, strategies, materials, and technology related to the teaching and learning of science at the middle and secondary school levels. Science curriculum, teachers' pedagogical content knowledge, and research in science education are investigated. Cross-listed with UEDU 5400. Max hours: 9 Credits. **Semester Hours:** 3 to 3

UEDU 4401 - Inquiry Science Pedagogy and Practices

An in-depth study of inquiry science pedagogy and practices and how inquiry science supports standards-based education to make science accessible to ALL learners. The course provides a review of research on pedagogy and practices that support student understanding, problem solving and creativity through the use of inquiry science. Prereq: Concurrent enrollment in an internship or permission of instructor is required. Cross-listed with UEDU 5401. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 4464 - Methods of Teaching Social Studies

One of two courses on linguistically and culturally relevant social studies teaching. Course content includes geography, economics, civics. Cross-listed with UEDU 5464. Cross-listed with UEDU 5464. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 4465 - Methods of Teaching History

One of two courses on linguistically and culturally relevant history teaching. Cross-listed with UEDU 5465. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 4840 - Independent Study

Independent Study in Urban Community Teacher Education, Topic of study varies according to project. Max hours: 9 Credits. **Semester Hours:** 3 to 3

UEDU 4845 - Special Topics:

Course topics will vary depending on faculty and student interests. Max hours: 15 Credits. **Semester Hours:** 1 to 5

UEDU 4930 - Early Internship & Seminar

Teacher candidates considering pursuing teacher licensure in their undergraduate program engage in systematic observation of, participation in, design of, and reflection on curricular, instructional, and management practices across the full range of educational programs within a school. Max hours: 2 Credits. **Semester Hours:** 2 to 2

UEDU 4931 - Internship & Lrng Comm I

Teacher candidates engage in systematic observation of, participation in, design of, and reflection on curricular, instructional, and management practices across the full range of educational programs within a school. Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the program handbook. Cross-listed with UEDU 5931. Max hours: 2 Credits. **Semester Hours:** 2 to 2

UEDU 4932 - Internship & Lrng Comm II

Teacher candidates engage in systematic observation of, participation in, design of, and reflection on curricular, instructional, and management practices across the full range of educational programs within a school. Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the program handbook. Prereq: UEDU 4931. Cross-listed with UEDU 5932. Max hours: 2 Credits. **Semester Hours:** 2 to 2

UEDU 4933 - Internship & Lrng Comm III

Teacher candidates engage in systematic observation of, participation in, design of, and reflection on curricular, instructional, and management practices across the full range of educational programs within a school. Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the program handbook. Prereq: UEDU 4931 and UEDU 4932. Cross-listed with UEDU 5933. Max hours: 6 Credits. **Semester Hours:** 6 to 6

UEDU 4934 - Extended Internship & Learning Community

Teacher candidates engage in systematic observation of, participation in, design of, and reflection on curricular, instructional, and management practices across the full range of educational programs within a school. Additionally, they participate in the activities of a professional learning community. Cross-listed with UEDU 5934. Max hours: 8 Credits. **Semester Hours:** 4 to 8

UEDU 5000 - Elementary Literacy Instruction and Assessment

Designed to prepare teacher candidates to develop an appreciation, understanding, and application of literacy assessment and instruction in the elementary classroom. Teachers learn how to use the results of various types of assessment to create a reading and writing program that addresses the literacy needs of all children. The course assist teachers in learning how to integrate the teaching of reading and writing across content areas. Cross-listed with UEDU 4000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5001 - Social Studies through Childrens' Literature & Writing

This course explores social studies through children's literature and writing instruction. Investigates best practices for literacy teachers to draw upon students' cultural and linguistic backgrounds, help students make connections between new information and previous knowledge and skills, and support students as they transfer new information to real-life contexts and environments. Prereq: UEDU 5000. Cross-listed with UEDU 4001. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5002 - Math Instr & Assmt

Designed to prepare elementary teachers to teach mathematics in elementary school while applying the six principles of the National Council of Teachers of Mathematics (NCTM), (equity, curriculum, teaching, learning, assessment and technology) to the four areas of mathematical learning, (number sense, statistics and probability, geometry and measurement, and mathematical functions). Teachers explore ways to help all elementary students become flexible and resourceful problem solvers in mathematics. Cross-listed with 4002. Max hours: 2 Credits.

Semester Hours: 2 to 2

UEDU 5003 - Teaching Elementary Mathematics

This course is intended to increase the mathematical and pedagogical understandings and competence of elementary teachers, focusing on instructional principles and practices. Cross-listed with UEDU 4003. Max hours: 2 Credits. **Semester Hours:** 2 to 2

UEDU 5004 - Elementary Science Methods

This course explores issues in elementary school science learning and teaching. Teacher candidates will develop knowledge of the nature of science and science content, engage in scientific inquiry, work to identify student conceptions, and plan and enact science instruction. Cross-listed with UEDU 4004. Max hours: 9 Credits. **Semester Hours:** 3 to 3

UEDU 5010 - Scl Fndts, Cltrl Dvrsty Urb Ed

This course focuses on the role of cultural diversity in the United States school system and what this means for educators oriented toward social justice. The intention of this course is to have teacher candidates engage in exploring the most salient issues surrounding education in the United States, developing an understanding of the complex relationships between schools and the larger society of which they are a part. This course closely examines important contemporary and historical societal issues such as race, social class, gender, ethnicity, sexual identity, politics, and dynamics of power and privilege. Cross-listed with UEDU 4010. Max hours: 3 Credits.

Semester Hours: 3 to 3

UEDU 5015 - TFA Professional Learning Communities

The Teach for America Professional Learning Communities are designed to be a resource and forum for content groups to collaborate on best practices in assessment, instruction, and data gathering. As truly purposeful communities, they exhibit five characteristics: a shared mission and vision, high levels of collective efficacy, strategic use of all available assets, outcomes that matter to all, and adherence to agreed-upon processes. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5020 - Co-developing Culturally Responsive Classroom Communities

This course investigates how people learn and the implications of social and cultural learning for establishing engaging and culturally responsive learning communities. Through this course teacher candidates will better understand their roles in student learning and how their own cultural lenses impact their relationships with students and families, and influence student success in the classroom. Prereq: UEDU 5010 (or concurrent). Cross-listed with UEDU 4020.

Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5040 - Exploring Diversity in Content and Pedagogy I

The purpose of this course is to explore multiple aspects of complex curriculum and instructional processes including: 1) standards-based instruction; 2) instructional design; and 3) formative & summative assessment, and 4) differentiation in curriculum and instruction so that meaningful instruction becomes accessible to all students. Prereq: UEDU 5010 and UEDU 5020. Cross-listed with 4040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5050 - Exploring Diversity in Content and Pedagogy II

An essential feature of instructional and curriculum design, implementation, and evaluation is the ability of teachers to draw upon students' previous experience, help students make connections between new information and previous knowledge and skills, and support students to transfer new information to real-life contexts and environments. The purpose of this course is to explore multiple aspects of complex processes including: 1) standards-based instruction (e.g., the relationship between standards and curriculum); 2) instructional design including both direct and indirect instruction; and 3) assessment, including both selected response measures as well as performance and portfolio assessment; and 4) differentiation in curriculum and instruction so that meaningful instruction becomes accessible to all students. Prereq: IPTE 5006/4006. Cross-listed with UEDU 4050. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5060 - Motivation and Engagement in Curriculum and Learning

This course focuses on the Six Cs of motivation and engagement; the framework designed to reach these students who are not complaint learners. This course allows teachers to think deeply about their role in motivating and engaging students and allows participants to apply the research to their individual classrooms. The classes incorporate the M.E. (motivation and engagement) Framework into each lesson. Teachers will gain a deep understanding of motivation and engagement through modeling, research, and a "transfer" of knowledge. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5070 - Curriculum Theories in Urban Education

Topics in this course include: curriculum theory; the debate on the purpose of curriculum; multicultural education; critical race theory; social class and school improvement; the intended and unintended consequences of school accountability, reform and closures; teacher retention; and teacher burnout. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5100 - Secondary Literacy Instruction and Assessment

Provides knowledge and practice in using specific literacy methods to enhance students' content learning and literacy development in middle schools and high schools. Various methods of literacy assessment to guide instruction for students are emphasized. Instructional strategies for special populations, especially speakers of English as a second language, are also addressed. Cross-listed with UEDU 4100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5110 - Tchg Literacy in Eng Ed

Designed to meet both Colorado Literacy Council & Colorado Performance-Based Standards for prospective secondary English/LA teachers concerning Knowledge of Literacy, the course provides knowledge and practice using specific literacy methods to enhance students' literacy development in English/LA/reading classrooms. Cross-listed with UEDU 4110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5200 - Theory and Methods of Teaching Secondary English

Focuses on teaching/learning theories and practical classroom strategies for teaching English Language Arts to adolescent learners in middle school, junior high school and high school classes. Cross-listed with LCRT 5200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5201 - Adolescent Literature

Reading and evaluation of fiction and non-fiction appropriate for students in middle and senior high school. Emphasis is on modern literature written for students from a variety of ethnic backgrounds. Course is also appropriate for teachers working with adults to improve their reading. Prereq: Concurrent enrollment in an internship or permission of instructor required. Cross-listed with UEDU 4201 and LCRT 5201. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5300 - Curriculum and Methods in Secondary Math

Fosters pedagogical content knowledge for teaching mathematics in middle and high school classes. Promotes teaching consistent with the NCTM principles (Equity, Curriculum, Teaching, Learning, Assessment, and Technology), so ALL students become resourceful problem solvers in mathematics. Cross-listed with UEDU 4300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5301 - Assessment In Math Education

Applied examination of traditional and alternative assessment techniques and practices in mathematics teaching. Focuses on questions/problems teachers can pose to probe students' mastery and understanding of standards-based mathematics, and what to look for in student responses to those probes. Prereq: Concurrent enrollment in an internship or permission of instructor. Cross-listed with UEDU 4301, SECE 5401, and ELED 5401. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5400 - Theory and Pedagogy of Science Instruction

Examines current issues, strategies, materials, and technology related to the teaching and learning of science at the middle and secondary school levels. Science curriculum, teachers' pedagogical content knowledge, and research in science education are investigated. Cross-listed with UEDU 4400. Max hours: 9 Credits. **Semester Hours:** 3 to 3

UEDU 5401 - Inquiry Science Pedagogy and Practices

An in-depth study of inquiry science pedagogy and practices and how inquiry science supports standards-based education to make science accessible to ALL learners. The course provides a review of research on pedagogy and practices that support student understanding, problem solving and creativity through the use of inquiry science. Prereq: Concurrent enrollment in an internship or permission of instructor is required. Cross-listed with UEDU 4401. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5464 - Methods Teachg Social Studies

One of two courses on linguistically and culturally relevant social studies teaching. Course content includes geography, economics, civics. Cross-listed with UEDU 4464. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5465 - Methods of Teaching History

One of two courses on linguistically and culturally relevant history teaching. Cross-listed with UEDU 4465. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5500 - Integrating Academic, Social, and Emotional Learning

This course offers principles and practices for teachers to: 1) cultivate and sustain their own authentic and intentional teaching practice; 2) support their students' social, emotional, and academic development; 3) collaborate with colleagues to foster positive school culture. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5510 - Creating Empowering Classrooms

This course will focus primarily on integrating themes of social justice and culturally responsive teaching into the classroom. The objectives will be to know the self as a teacher, to know his/her students and to know the socio-political-historical-economic context of social justice. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5520 - Mindful and Creative Thinking and Learning

This course addresses the role of art, group work, and physical surroundings in the development of mindful and creative thinking and learning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5700 - Foundations of Global Education & 21st Century Learning

Explore challenges and opportunities of global citizenship. Articulate framework for 21st Century Learner. Examine influence of social and political movements, including colonization, on the development of communities and cultures. Explore connections and intersections of local and global issues and systems. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5705 - Global Experiential Learning

Develop global competency skills. Research problems or opportunities of global significance using 21st century skills. Engage in learning communities to reflect, analyze and communicate international educational experiences. Design global education teaching and learning or compare education perspectives. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5710 - Global Education Capstone Project

Propose a culminating project that allows integration of previous coursework and travel experience to translate into practice. Collaborate to develop a product that will be of use in a work setting, school, or classroom. Present and defend the capstone project. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5810 - Stdnt-Drvn Actn Rsrch

This is a two-semester course in which participating teachers will learn how to implement Critical Civic Inquiry (CCI) in their schools. CCI is a model of student-driven action research aimed at improving student voice in schools and facilitating student empowerment. Teachers will be supported through workshops, readings, peer discussions, and teaching observations. Max hours: 6 Credits. **Semester Hours:** 6 to 6

UEDU 5840 - Independent Study

Independent Study in Urban Community Teacher Education, Topic of study varies according to project. Max hours: 9 Credits. **Semester Hours:** 3 to 3

UEDU 5845 - Special Topics:

Course topics will vary depending on faculty and student interests. Max hours: 15 Credits. **Semester Hours:** 1 to 5

UEDU 5931 - Internship & Lrng Comm I

Teacher candidates engage in systematic observation of, participation in, design of, and reflection on curricular, instructional, and management practices across the full range of educational programs within a school. Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the program handbook. Cross-listed with UEDU 4931. Max hours: 2 Credits. **Semester Hours:** 2 to 2

UEDU 5932 - Internship & Lrng Comm II

Teacher candidates engage in systematic observation of, participation in, design of, and reflection on curricular, instructional, and management practices across the full range of educational programs within a school. Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the program handbook. Prereq: UEDU 5931. Cross-listed with UEDU 4932. Max hours: 2 Credits. **Semester Hours:** 2 to 2

UEDU 5933 - Internship & Lrng Comm III

Teacher candidates engage in systematic observation of, participation in, design of, and reflection on curricular, instructional, and management practices across the full range of educational programs within a school. Additionally, teacher candidates participate in the activities of a school community (the school, its classrooms and the community in which the school exists). Graduated learning activities for each internship and time requirements are specified in the program handbook. Prereq: UEDU 5931 and UEDU 5932. Cross-listed with UEDU 4933. Max hours: 8 Credits. **Semester Hours:** 8 to 8

UEDU 5934 - Extended Internship & Learning Community

Teacher candidates engage in systematic observation of, participation in, design of, and reflection on curricular, instructional, and management practices across the full range of educational programs within a school. Additionally, they participate in the activities of a professional learning community. Cross-listed with UEDU 4934. Max hours: 8 Credits. **Semester Hours:** 4 to 8

Women's Studies

WGST 1050 - Introduction to Women's and Gender Studies

This course provides an introduction to key concepts, themes and approaches to the interdisciplinary field of women's and gender studies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 1111 - Freshman Seminar

Max hours: 3 Credits. **Semester Hours:** 1 to 3

WGST 2900 - Smart Girl Leadership Training and Practicum

Provides leadership and mentoring training, and a practicum in which UCD students mentor teenagers in their community or school settings. Following completion of the training, students work as near-peer mentors and coaches with groups of teenage girls in the Denver community and apply the skills learned in their training. Max hours: 6 Credits. **Semester Hours:** 3 to 3

WGST 3010 - Sociology of Human Sexuality

Increases the understanding of differences in views of sexuality, specifically the link between sex and reproduction and its role as the motivation for gender roles and sex acts. Explores the history of sexuality, cross-cultural studies and primate modeling. Cross-listed with SOCY 3010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 3020 - Gender, Sexuality and Race in American Popular Culture

This course explores the impact of popular culture on the lived experience of diverse women and men in America. Students will examine how cultural media (including film, television, print ads, music & digital games) can both reproduce and challenge existing structural inequalities. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 3080 - Sex and Gender

Causes and consequences of sex role differentiation at the individual, group and societal levels. Current issues related to changing norms and values concerning gender in modern society are examined. Cross-listed with SOCY 3080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 3343 - Women in U.S. History

An analysis of women's place in society, in the work place, and in the political arena over the last 300 years. Cross-listed with HIST 3343. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 3450 - Twentieth Century Women Writers

Examines how women write about a specific theme, such as home, work, family, the "other," as well as how women's writing may differ from men's. Theme and genre vary. Cross-listed with ENGL 3450. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 3700 - Sociology of the Family

The family as a social institution. Historical development and contemporary cross-cultural analysis, with emphasis on the contemporary American family. Cross-listed with SOCY 3700. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 3840 - Independent Study: WGST

Max hours: 6 Credits. **Semester Hours:** 1 to 3

WGST 3939 - Internship

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Junior standing and 2.75 GPA. Max hours: 9 Credits. **Semester Hours:** 1 to 3

WGST 4215 - Women's Rights, Human Rights: Global Perspectives

Explores the global feminist movement's campaign to "engender" human rights. Examination of women's human-rights issues and the critique of this campaign as representing cultural imperialism. Prereq: 6 hours of political science or permission of instructor. Cross-listed with PSCI 4215. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 4230 - Women in the West

Focuses on ways in which women, from the mid-19th century through the mid-20th century, of different races, classes, and ethnic background, have interacted and been active participants in the development of the western states. Cross-listed with HIST 4230, HIST 5230 and WGST 5230. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 4248 - Gender, Globalization and Development

Analyzes the effects of globalization on the gendered processes of international development and strategies to empower women to achieve gender justice across race, class and national divisions. Cross-listed with PSCI 4248/5245 and WGST 5248. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 4303 - Sex and Gender in Modern Britain

Examines modern British history by focusing on sex and gender as central aspects in people's lives. Considers the ways gender shapes the realms of politics, economics, society and culture in Britain from the 18th century to the present. Cross-listed with HIST 4303/5303 and WGST 5303. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 4306 - Survey of Feminist Thought

Examines changes and continuities in feminist thought from the 18th century to the present, using historical and literary materials. Explores the ways that women's characteristics, experiences, and capabilities have been understood and challenged. Cross-listed with ENGL 4306, 5306, HIST 4306, 5306, WGST 5306. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 4307 - History of Sexuality

Explores the relationships between gender and norms, sexual practice, and ideas about sexuality in Europe and the United States. Examines how sex and sexuality have changed over time and how those changes relate to social, cultural, political and economic history. Cross-listed with HIST 4307/5307 and WGST 5307. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 4345 - Gender, Science, and Medicine: 1600 to the Present

Examines the ways science and medicine have both shaped and been shaped by ideas about gender. Pays particular attention to the relationship between scientific/medical ideas about the sexes and the social organization of gender. Cross-listed with HIST 4345/5345 and WGST 5345. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 4420 - Goddess Traditions

Explores the many forms which goddesses have assumed through history, including the Neolithic Great Mother and her heiresses in the ancient Mediterranean cultures, such as: Isis, Ishtar, Demeter, Hecate, Aphrodite, Artemis, Athena and others, and their parallels in India. Goddess traditions have encompassed a full spectrum from virgins to Great Mothers to dark underworld goddesses of death and destruction. Cross-listed with RLST 4420/5420 and WGST 5420. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 4510 - Whores and Saints: Medieval Women

Studies how women are presented in texts, as well as works by women. Investigates the roles open to women and societal attitudes toward women, who were considered seductresses, saints, scholars and warriors in the middle ages. Prereq: Nine hours of literature courses or instructor permission. Cross-listed with ENGL 4510/5510, RLST 4730/5730 and WGST 5510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 4511 - French Women Writers

Designed to explore writings by French and Francophone women from the Middle Ages to the present. Addresses the question of what it means to be a woman and want to write. The selections include a wide variety of genres: autobiographical writings, stories, poems, manifestos, letters, political and historical documents. Prereq: FREN 3112 or FREN 3122 plus one other 3000-level French course or permission of instructor. Cross-listed with FREN 4510/5510 and WGST 5511. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 4540 - Race, Class, and Gender in Spanish Golden Age Literature

Explores works of various genres in relation to their social and political contexts in 16th and 17th century Spain, emphasizing the cultural attitudes toward race, class, and gender that inform them. Prereq: junior standing or higher. Cross-listed with SPAN 4340/5340 and WGST 5540. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 4555 - International Women's Resistance

Examines local and international struggles of women to build peace and justice by resisting systems of inequality such as colonialism, racism, patriarchy, globalization, and religious intolerance. Cross-listed with PSCI 4555/5555, ETST 4555 and WGST 5555. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 4564 - Gender and Politics

Analysis of the political experience of women and of strategies for change. Emphasis on the U.S. Cross-listed with PSCI 4564. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 4710 - Women and Religion

A sociological exploration of the contemporary roles of women in religion. Course examines American and world religious groups with an eye to women's involvement. Considers how women have changed these traditions as they take on leadership roles and discusses the tensions that arise within these traditions as a result of their expanded participation. Cross-listed with HUMN 5710, SSCI 4710/5710, WGST 5710, RLST 4710/5710. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 4827 - Women and the Law

Examines the role of the courts in the development of public policy toward women; how the legal system affects the economic power, family roles, safety and political participation of women. Cross-listed with PSCI 4827 and ETST 4827. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 4840 - Independent Study

Prereq: permission of instructor. Max hours: 12 Credits. **Semester Hours:** 1 to 3

WGST 4933 - Philosophy of Eros

What does it mean to understand philosophy as an erotic activity? This question will be examined, first by studying Plato's dialogues—such as *Lysis*, *Symposium* and *Republic*—and then by reading texts from Sigmund Freud, Michael Foucault and others. Cross-listed with PHIL 4933/5933, WGST 5933, SSCI 5933 and HUMN 5933. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5230 - Women in the West

Focuses on ways in which women, from the mid-19th century through the mid-20th century, of different races, classes, and ethnic background, have interacted and been active participants in the development of the Western states. Cross-listed with WGST 4230 and HIST 4230/5230. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5248 - Gender, Globalization and Development

Analyzes the effects of globalization on the gendered processes of international development and strategies to empower women to achieve gender justice across race, class and national divisions. Cross-listed with WGST 4248 and PSCI 4248/5245. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5303 - Sex and Gender in Modern Britain

Examines modern British history by focusing on sex and gender as central aspects in people's lives. Considers the ways gender shapes the realms of politics, economics, society and culture in Britain from the 18th century to present. Cross-listed with WGST 4303 and HIST 4303/5303. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5306 - Survey of Feminist Thought

Examines changes and continuities in feminist thought from the 18th century to the present, using historical and literary materials. Explores the ways that women's characteristics, experiences, and capabilities have been understood and challenged. Cross-listed with ENGL 4306, 5306, HIST 4306, 5306, WGST 4306. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5307 - History of Sexuality

Explores the relationships between gender and norms, sexual practice, and ideas about sexuality in Europe and the United States. Examines how sex and sexuality have changed over time and how those changes relate to social, cultural, political and economic history. Cross-listed with WGST 4307 and HIST 4307/5307. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5345 - Gender, Science and Medicine: 1600 to the Present

Examines the ways science and medicine have both shaped and been shaped by ideas about gender. Pays particular attention to the relationship between scientific/medical ideas about the sexes and the social organization of gender. Cross-listed with WGST 4345 and HIST 4345/5345. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5420 - Goddess Traditions

Explores the many forms which goddesses have assumed through history, including the Neolithic Great Mother and her heiresses in the ancient Mediterranean cultures, such as: Isis, Ishtar, Demeter, Hecate, Aphrodite, Artemis, Athena and others, and their parallels in India. Goddess traditions have encompassed a full spectrum from virgins to Great Mothers to dark underworld goddesses of death and destruction. Cross-listed with WGST 4420 and RLST 4420/5420. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5510 - Whores and Saints: Medieval Women

Studies how women are presented in texts, as well as works by women. Investigates the roles open to women and societal attitudes toward women, who were considered seductresses, saints, scholars and warriors in the middle ages. Prereq: Nine hours of literature courses or instructor permission. Cross-listed with WGST 4510, ENGL 4510/5510 and RLST 4730/5730. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5511 - French Women Writers

Designed to explore writings by French and Francophone women from the Middle Ages to the present. Addresses the question of what it means to be a woman and want to write. The selections include a wide variety of genres: autobiographical writings, stories, poems, manifestos, letters, political and historical documents. Prereq: FREN 3112 or 3122 plus one other 3000-level French course or permission of instructor. Cross-listed with WGST 4511 and FREN 4510/5510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5540 - Race, Class and Gender in Spanish Golden Age Literature

Explores works of various genres in relation to their social and political contexts in 16th and 17th century Spain, emphasizing the cultural attitudes toward race, class, and gender that inform them. Prereq: graduate standing. Cross-listed with WGST 4540 and SPAN 4340/5340. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5555 - International Women's Resistance

Examines local and international struggles of women to build peace and justice by resisting systems of inequality such as colonialism, racism, patriarchy, globalization, and religious intolerance. Cross-listed with WGST 4555, ETST 4555 and PSCI 4555/5555. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5710 - Women and Religion

A sociological exploration of the contemporary roles of women in religion. Course examines American and world religious groups with an eye to women's involvement. Considers how women have changed these traditions as they take on leadership roles and discusses the tensions that arise within these traditions as a result of their expanded participation. Cross-listed with HUMN 5710, SSCI 4710/5710, WGST 4710, RLST 4710/5710. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5720 - Sexuality, Gender and Their Visual Representations

Studies sexuality, gender and identity representation from classical antiquity through the present in the visual arts. Uses the literature of visibility, feminism, race and queer theory. Explores representations of femininity, masculinity and androgyny and their reinforcement and challenge to gender-identity norms. Cross-listed with HUMN 5720 and SSCI 5720. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5840 - Independent Study

Prereq: permission of instructor. Max hours: 12 Credits. **Semester Hours:** 1 to 3

WGST 5900 - Smart Girl Coaching Training and Practicum

Course provides training (lecture and role-playing) in coaching and mentoring which will be applied to support near-peer guides in delivering the Smart Girl curriculum in school settings. Following the completion of the training, students work as coaches for teams of near-peer mentors and groups of teenage girls in the Denver Community, and apply the skills learned in their training. Max hours: 6 Credits. **Semester Hours:** 3 to 3

WGST 5933 - Philosophy of Eros

What does it mean to understand philosophy as an erotic activity? This question will be examined, first by studying Plato's dialogues—such as Lysis, Symposium and Republic—and then by reading texts from Sigmund Freud, Michael Foucault and others. Cross-listed with PHIL 4933/5933, WGST 4933, SSCI 5933 and HUMN 5933. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 6010 - Methods and Theories of Feminism and Gender Studies

Provides graduate-level interdisciplinary study in historiography, methodologies and theories of women's, gender and sexuality studies and considers how culture is constructed around these categories. Cross-listed with SSCI 6010. Max hours: 3 Credits. **Semester Hours:** 3 to 3