

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. Max Hours displayed for each cross-listed class is the total number of hours allowed for all courses completed within a particular cross-listed group. *See below for more information on Max Hours.*

Gt - Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer as part of the gtPathways program.

Max Hours (in Course Description) – Total number of applicable credit hours that count toward a student's degree for a particular course or cross-listed group.

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

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 the interpretation of financial statements, with emphasis on asset and liability valuation problems and the determination of net income. Prereq: MATH 1070 or MATH 1110 or MATH 1080 or MATH 1130 or MATH 1401 or MATH 1120 with a grade of C- or higher. Restriction: Restricted to undergraduate students at a sophomore standing or higher. 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 higher. Restriction: Restricted to undergraduate students at a sophomore standing or higher. 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

A foundation course in financial accounting, this course provides an intensive analysis of generally accepted accounting principles, accounting theory and the construction and interrelation of financial statements for public corporations. Encourages critical thought and application of financial accounting standards to business transactions. A grade of C or higher is required in this course to proceed to the next level ACCT course or receive credit for the CPA license. Prereq: ACCT 2220 and DSCI/BANA 2010 both with a grade of 'C-' or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 3230 - Intermediate Financial Accounting II

Continuing the intensive coverage of financial accounting from ACCT 3220/ACCT 6031, this course covers concepts of financial accounting theory and generally accepted accounting principles not covered in 3220/6031. This typically includes detailed coverage of liabilities and equity, especially the topics of leases, deferred taxes, pensions and stock-options. A grade of C or higher is required in this course to proceed to the next level ACCT course or receive credit for the CPA license. Prereq: ACCT 3220, completed with a grade of a C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Cross-listed with ACCT 6032. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 3320 - Intermediate Cost Accounting

Cost accounting links financial and managerial accounting and emphasizes communication between accountants and managers. Topics include managerial uses of cost data for decision making, analysis of activities and cost behavior, the role of accounting in planning and control, and computer-assisted decision modelling. A grade of C or higher is required in this course to proceed to the next level ACCT course or receive credit for the CPA license. Prereq: ACCT 2220 and DSCI/BANA 2010 both with a grade of 'C-' or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Cross-listed with ACCT 6070. 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. To enroll in an internship, students must work with the Experiential Learning Center on campus and have a 2.40 GPA or higher. 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 Information Systems

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 with a grade of C or higher and ISMG 2050 with a grade of 'C-' or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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. Note: A grade of C or higher must be earned to receive credit for the CPA license. Prereq: ACCT 3230 or ACCT 6030 or ACCT 6032 each with a grade of C or higher, or department consent. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Cross-listed with ACCT 6024. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 4280 - Accounting Ethics

This course examines the ethical responsibilities of accounting professionals from a personal and professional perspective, including examples of ethical dilemmas accounting professionals confront. The course utilizes various authoritative codes of conduct, professional standards and applied ethical theory as ethical guidance for auditors, accountants, tax professionals, and accounting management. A variety of case studies are employed to give students practice in developing a decision making approach in dealing with difficult ethical scenarios. Prereq ACCT 4620. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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. Restricted to undergraduate Business majors with junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 4410 - Fundamentals of Federal Income Tax

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. Note: A grade of C or higher must be earned to receive credit for the CPA license. Prereq: ACCT 3220 with a C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Cross-listed with ACCT 6140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 4420 - Taxation of Business Entities

A federal tax course stressing tax planning issues affecting corporations (both C corporations and S corporations) and partnerships. Note: A grade of C or higher must be earned to receive credit for the CPA license. Note: Students cannot receive credit for both ACCT 4420 and ACCT 6150. Cross listed with ACCT 6150. Prereq: ACCT 2220 with a C- or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 4442 - Accounting: Professional Research and Communications

This course provides students with a structured approach to researching and communicating practice-oriented financial accounting, auditing, and tax-related issues. After completing this course, students should be able to effectively: (1) Communicate (both oral and written) solutions to practice-oriented financial accounting, auditing, and tax-related issues. (2) Navigate through U.S. and international accounting, auditing, and tax authorities. (3) Conduct systematic research for all types of accounting-related problems then reach and communicate efficient conclusions using a variety of

techniques. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Prereq: ACCT 4620 and ACCT 4410 both with a grade of C or higher. Cross-listed with ACCT 6442. 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. Restricted to undergraduate Business majors with junior standing or higher. 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 higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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. Note: A grade of C or higher must be earned to receive credit for the CPA license. A grade of B or higher must be earned if planning to take 6025 in the future. Prereq: ACCT 3220 and 4054 with a grade of C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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. Prereq: ACCT 4620 with a grade of C (2.0) or higher. Note: A grade of C or higher must be earned to receive credit for the CPA license. Note: Students cannot receive credit for both ACCT 4625 and ACCT 6025. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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. Cross-listed with ACCT 6510, ISMG 4780, and ISMG 6510. Prereq: Completion of ACCT 2200, ACCT 2220 and ACCT 3054 with a grade of 'C' or better (strictly enforced). Restricted to undergraduate Business majors with junior standing or higher. 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. Note: A grade of C or higher must be earned to receive credit for the CPA license. Prereq: ACCT 3220 with a C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Cross-listed with ACCT 6080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 4840 - Independent Study

Restricted to undergraduate Business majors with junior standing or higher. Max hours: 8 Credits. **Semester Hours:** 1 to 8

ACCT 4900 - Professional Certification in Accounting

This course will prepare students for the Uniform Certified Public Accountant Examination, including the Auditing and Attestation (AUD), Business Environment and Concepts (BEC), Financial Accounting and Reporting (FAR), and Regulation (REG) sections. Topical coverage will include a balance of most-tested topics, difficult topics, and exposure to topics not addressed in required accounting degree courses. Note: there will be a materials fee of \$1,100 for this course. All materials will continue to be

available until successful passage of the CPA Exam. Note: Undergraduate Accounting students typically perform better in this class when taking it during the final semester prior to graduation. Restriction: Restricted to Undergraduate and MS Accounting students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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. Restricted to undergraduate Business majors with junior standing or higher. 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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. Note: A grade of C or higher must be earned to receive credit for the CPA license. Prereq: ACCT 6030 or ACCT 6031 or department consent. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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 ACCT 6030 or ACCT 6032 each with a grade of C or higher, or department consent. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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. Prereq: ACCT 6020 or department consent. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Students cannot receive credit for both ACCT 4625 and ACCT 6025. Note: A grade of C or higher must be earned to receive credit for the CPA license. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6031 - Intermediate Financial Accounting I

This course is designed to provide students with a comprehensive review and understanding of financial accounting principles, procedures, and financial statements as well as the measurement of income and assets. Skills related to problem solving, analytical thinking, and writing will also be developed. NOTE: Students who have taken ACCT 3220 (or equivalent) may not receive credit for ACCT 6031. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6032 - Intermediate Financial Accounting II

Continuing the intensive coverage of financial accounting from ACCT 3220/ACCT 6031, this course covers concepts of financial accounting theory and generally accepted accounting principles not covered in 3220/6031. This typically includes detailed

coverage of liabilities and equity, especially the topics of leases, deferred taxes, pensions and stock-options. Note: A grade of C or higher must be earned to receive credit for the CPA license. NOTE: Students who have taken ACCT 3230 (or equivalent) may not receive credit for ACCT 6032. Prereq: ACCT 6031 with a grade of C or higher. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Cross-listed with ACCT 3230. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits.
Semester Hours: 3 to 3

ACCT 6054 - Accounting Information Systems

The design and analysis of accounting information systems, with special emphasis on computers and computer programming, and the role of accounting in the role of accounting in the management process. Note: A grade of C or higher must be earned to receive credit for the CPA license. Prereq: ACCT 6031 or BUSN 6550 or department consent. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Cross-listed with ACCT 4054 (previously ACCT 3054) Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6070 - Intermediate Cost Accounting

Cost accounting links financial and managerial accounting and emphasizes communication between accountants and managers. Topics include managerial uses of cost data for decision making, analysis of activities and cost behavior, the role of accounting in planning and control, and computer-assisted decision modelling Note: A grade of C or higher must be earned to receive credit for the CPA license. Note: STUDENTS WHO HAVE TAKEN ACCT 3320 (or equivalent) MAY NOT TAKE THIS COURSE. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Cross-listed with ACCT 3320. 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. Note: A grade of C or higher must be earned to receive credit for the CPA license. Prereq: ACCT 3220 or BUSN 6550 or ACCT 6031 each with a C or higher, or department consent. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Cross-listed with ACCT 4800. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6140 - Fundamentals of Federal Income Tax

Provisions and procedures of federal income tax laws and requirements affecting individuals and business organizations, including problems of tax planning and compliance. Note: A grade of C or higher must be earned to receive credit for the CPA license. Note: Students cannot receive credit for both ACCT 4410 and 6140. Cross-listed with ACCT 4410. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6150 - Taxation of Business Entities

A federal tax course stressing tax planning issues affecting corporations (both C corporations and S corporations) and partnerships. Note: A grade of C or higher must be earned to receive credit for the CPA license. Note: Students cannot receive credit for both ACCT 4420 and ACCT 6150. Cross-listed with ACCT 4420. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6220 - Controllership: Financial Strategy and Controls

This course is designed to provide a comprehensive understanding of the wide ranging responsibilities of the Controller, including the timely and accurate preparation of the periodic financial statements, maintenance of an adequate records system, a comprehensive set of internal controls and budgets in order to manage and mitigate risk, how to enhance the accuracy of the company's reported financial results and ensure compliance with GAAP or IFRS. Topics also include techniques for cash forecasting, controlling and administering budgets, and developing effective long-range plans. Prereq: ACCT 6030 or ACCT 6032 or department consent. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6225 - Controllership: Managerial Strategy and Benefits Analy

This course is designed to provide a comprehensive understanding of the wide ranging responsibilities of the Controller from a managerial and tax accounting perspective. Topics include establishing a cost accounting system, planning and control of manufacturing costs, business and strategic planning, mergers and acquisitions and a variety of tax related issues such as employment tax, employee vs. contractor, and choice of entity. The course will also include a discussion of benefits analysis, stock based compensation, ISO, NQSO and 83b elections. Prereq: ACCT 6220 with a grade of C or higher. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6230 - Advanced Topics in Mergers and Acquisitions

Mergers and acquisitions are often a key component of organizational strategy for growth and competitive advantage; yet empirical studies indicate many of these transactions fail to meet their intended objectives. This course prepares accounting students as financial leaders to positively influence the achievement of planned synergies and acculturation for more successful M&A transactions. Integrating perspectives from accounting and organizational development, course topics include transaction valuation, contingent consideration, and asset impairment testing to organizational systems theory and post-transaction integration. Prereq: Grade of C (2.0) or higher in ACCT 6020 or ACCT 4620 and ACCT 6070. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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. Note: A grade of C or higher must be earned to receive credit for the CPA license. Co-req: ACCT 6032 or department consent. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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. Note: A grade of C or higher

must be earned to receive credit for the CPA license. Prereq: ACCT 6070 or department consent. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6280 - Accounting Ethics

This course examines the ethical responsibilities of accounting professionals from a personal and professional perspective, including examples of ethical dilemmas accounting professionals confront. The course utilizes various authoritative codes of conduct, professional standards and applied ethical theory as ethical guidance for auditors, accountants, tax professionals, and accounting management. A variety of case studies are employed to give students practice in developing a decision making approach in dealing with difficult ethical scenarios. Prereq: ACCT 6031 or BUSN 6550. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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). Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. Restriction: Restricted to

graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6320 - White Collar and Financial Crimes

Course provides an opportunity to examine criminal activity perpetrated by individuals and/or organizations in a position of trust. White collar and financial crimes are qualitatively different from street crimes or violent crimes, yet they are highly destructive. Cover: types of crime, social impact, prevention, detection, regulating etc. Prereq: BUSN 6550 with a C or higher. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6330 - Fraud Auditing

This course provides an introduction to and guidance for creation of an effective fraud audit program in core business systems. The fraud audit is designed specifically to detect potential fraud and is vastly different than the traditional audit. Fraud auditing focuses on proven fraud methodology that allows auditors to discover fraud versus investigating it. The course: • Explains how to create a fraud audit program • Shows auditors how to locate fraud through the use of data mining • Focuses on proven methodology for detecting fraudulent transactions • Explores fraud discovery within specific corporate F&A functions, such as disbursement, procurement, payroll, revenue misstatement, inventory, journal entries, and management override. Prereq: ACCT 6020. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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 ACCT 6031 or department consent. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6360 - Fraud Examination

This course examines the theories and methods of the full spectrum of fraud examination including prevention, detection, investigation, and adjudication. In this course, students will explore the significant differences between fraud examination and auditing, going beyond detection into the investigative and adjudication process. Prereq: ACCT 6020 or department consent. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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. Prereq: ACCT 6031. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. The course addresses introductory corporate tax issues found in Subchapter C of the Internal Revenue Code including defining a "corporation" for federal income tax purposes, tax consequences associated with the formation of a corporation, taxation of corporate operations (including an analysis of the differences that exist between earnings and profits, dividend distributions and taxable income), corporate redemption transactions, partial liquidations, complete liquidations and the acquisition, sale and disposition of corporate entities in transactions governed by Section 336(e) and 338 of the Internal Revenue Code. 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: Grade of C (2.0) or higher in ACCT 6140 or ACCT 4410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6420 - Estate and Gift Taxation and Fiduciary Income

Introduction to estate and gift taxation and fiduciary income taxation for estates and trusts. Prereq: Grade of C (2.0) or higher in ACCT 6140 or ACCT 4410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6430 - International Taxation

International taxation focuses on the U.S. taxation of cross-border transactions. A review of the Internal Revenue Code's basic international tax rules is covered, including residency rules, sourcing of income and expenses, taxation of in-bound transactions (FDAP and effectively connected income rules), overview of U.S. model tax treaty provisions, anti-deferral regimes, and foreign tax credits. Students are often required to study the tax regimes of another country to compare and contrast foreign tax laws to U.S. laws. A brief review of interest-charge domestic international sales corporations is often covered. Prereq: Grade of C (2.0) or higher in ACCT 6140 or ACCT 4410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6440 - Tax Practice and Procedures

A study of the organization, policies, and procedures of federal and state taxing authorities. Coreq: ACCT 6140 or ACCT 4410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6442 - Accounting: Professional Research and Communications

This course provides students with a structured approach to researching and communicating practice-oriented financial accounting, auditing, and tax-related issues. After completing this course, students should be able to effectively: (1) Communicate (both oral and written) solutions to practice-oriented financial accounting, auditing, and tax-related issues. (2) Navigate through U.S. and international accounting, auditing, and tax authorities. (3) Conduct systematic research for all types of accounting-related problems then reach and communicate efficient conclusions using a variety of techniques. Prereq: ACCT 6030 or ACCT 6032 or ACCT 3230 each with a grade of C or higher, or department consent. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Cross-listed with ACCT 4442. Max hours: **Semester Hours:** 3 to 3

ACCT 6450 - Research Problems In Taxation

This course provides a study of various methodologies used in tax research and tax planning, together with a study of some aspects of tax administration and tax practice, of the legislative procedures regarding proposed revisions of the current tax law, and of the administrative rules and tax penalties applicable to accountants, lawyers, and tax return preparers in practicing before the Internal Revenue Service and providing tax return advice and preparation. In particular, this course explores techniques (with an emphasis on electronic/on-line techniques) for locating and researching judicial cases, statutory legislative histories, and administrative materials promulgated by the Internal Revenue Service applicable to tax-related issues and problems. Note: This class is rarely offered. Coreq: ACCT 4410 or ACCT 6140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6460 - Advance Topics in Taxation

Course will focus on a variety of advanced tax topics for closely held businesses and individuals. Format: Lectures by expert tax professionals and questions/discussion on various topics with emphasis on current issues and trends. Prereq: Grade of C (2.0) or higher in ACCT 6140 or ACCT 4410. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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: Grade of C (2.0) or higher in ACCT 6140 or ACCT 4410. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6500 - Advanced Corporate Taxation

A study of the statutory and judicial tax rules and problems relating primarily to corporate 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. Grade of C (2.0) or higher in ACCT 6140 or ACCT 4410 and ACCT 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 corporating 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 6054 or department consent. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ACCT 6620 - Seminar: Auditing and Other Assurance Services

A graduate seminar course providing in-depth exposure to specialized topics in auditing and other assurance services, with an emphasis on recent developments in the profession. Includes coverage of generally accepted auditing standards and PCAOB standards. Note: A grade of C or higher must be earned to receive credit for the CPA license. Prereq: ACCT 6020. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Max hours: 8 Credits. **Semester Hours:** 1 to 8

ACCT 6900 - Professional Certification in Accounting

This course will prepare students for the Uniform Certified Public Accountant Examination, including the Auditing and Attestation (AUD), Business Environment and Concepts (BEC), Financial Accounting and Reporting (FAR), and Regulation (REG) sections. Topical coverage will include a balance of most-tested topics, difficult topics, and exposure to topics not addressed in required accounting degree courses. Note: there will be a materials fee of \$1,100 for this course. All materials will continue to be available until successful passage of the CPA Exam. Note: Undergraduate Accounting students typically perform better in this class when taking it during the final semester prior to graduation. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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

Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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

Restriction: Restricted to Freshman level students. 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. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. 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 - Exploring Culture through Social Media

Introduction to social media and analysis applied to cultural change. Focus on theories and practices of non-fiction image-making and "doing digital ethnography" to examine a range of experience and knowledge among different societies, communities,

technologies, policy discourses and ourselves. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 2840 - Independent Study

Term offered: fall, spring, summer. 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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. Prereq: Sophomore standing. 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. Term offered: spring. 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: Junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 3042 - Lost Worlds and Crystal Skulls

This class explores the differences between science and pseudoscience specifically within the realm of anthropology. Scientific method and critical thought are employed in a way that trains students to question and recognize the difference between fact and fiction in data. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 3045 - Cannabis Culture

Familiarizes students with anthropological approaches to the culture of cannabis, including medicinal and recreational. Topics: history, cultural uses, legalization, cannabis capitalism, health effects, race and inequality, regulatory policies, retailing and consumption. Ethnographic research for data collection emphasized. Term offered: summer. 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: ANTH 2102. Term offered: fall. 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: ANTH 2102. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Term offered: fall, spring, summer. 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: ANTH 2102. 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 3250 - Climate, Environment and Society

This course will engage social theory and case studies to examine Climate Change, its impact and consequences for human life, and what communities and societies are doing to address it. 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. Term offered: fall, spring. 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 3316 - History of Human Environmental Impacts

Humans exist as active members of an ecosystem. There is increasing awareness that human actions have changed the environment and continue to do so. While ecologists, climatologists, and engineers work to address current and future environmental problems, the discipline of archaeology can provide a time depth and crosscultural breadth of perspective on how such issues have impacted human societies. This course will investigate and critically assess the claim that environmental and ecological factors have played a key role in the dissolution of once thriving civilizations. Examples will be drawn from across time and space, specifically emphasizing the archaeological record and the perspective it provides on a problem that is of critical relevance today. In this course students will: 1) Learn how humans have engaged with their environments over the course of our species' evolutionary history; 2) Critically assess contemporary discussions of collapse and ecocide by contextualizing human environment interactions within the frameworks of resilience, niche construction, and ecosystem engineering; 3) Use 'lessons from the past' to inform contemporary ecological debates; 4) Objectively evaluate the factual basis of various claims made about how humans affect, have affected, and likely will affect their environments; 5) Actively engage with the community to build sustainable gardens. Max hours: 3 Credits. **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: ANTH 2102. 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. Term offered: fall, spring. 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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. Prereq: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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 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. Note: students should consult with the instructor prior to enrolling in this course. Prereq: Junior standing or higher. 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: Junior standing or higher. Cross-listed with ANTH 5080 and PBHL 4080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4090 - Drug Syndemic

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: Junior standing

or higher. Cross-listed with ANTH 5090 and PBHL 4090. Max hours: 3 Credits.

Semester Hours: 3 to 3

ANTH 4121 - Zooarchaeology

Introduction to the theory and methods of zooarchaeology through lectures, readings, and hands-on lab work identifying and analyzing mammalian skeletal material. Students will learn what mammalian remains indicate about biological and cultural evolution of humans. Cross-listed with ANTH 5121. Prereq: ANTH 1303. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. Cross-listed with ANTH 5260. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4270 - Anthropology of the Body

Explores how society, through culture, creates collective and individual bodies; embodied experience across the life course; and the body as an expression of social power, bodily modification and adornment. Note: ANTH 2102 or ANTH 3101 are recommended be taken before this course for undergraduate students. Cross-listed with ANTH 5270. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. Cross-listed with ANTH 5400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 4440 - Museums in the 21st Century

This is an advanced course on natural history/anthropology museums. It will examine practical issues facing museums, and consider the complex questions that museums raise. The class includes lectures, discussions, and hands-on collection work, and exhibit/ outreach development. Cross-listed with ANTH 5440. Term offered: spring. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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: Junior standing or higher. 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. Note: this course assumes that students have completed course work equivalent to a minor in anthropology. Prereq: Junior standing or higher. Cross-listed with ANTH 5810. Term offered: fall. 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. Term offered: fall, spring, summer. Max hours: 12 Credits. **Semester Hours:** 1 to 3

ANTH 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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: Junior standing or higher. Cross-listed with ANTH 5910. Max hours: 9 Credits. **Semester Hours:** 3 to 6

ANTH 4995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. 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. Restriction: Restricted to Anthropology graduate students. 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: 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. Note: this course assumes that students have completed introductory coursework in anthropology and/or biology. Prereq: 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. Note: this course assumes that students have completed an introductory course in anthropology. Prereq: 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. Note: this course assumes that students have completed a college-level algebra course. Prereq: 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. Note: this course assumes that students have completed ANTH 1303 or equivalent. Prereq: Graduate standing. Cross-listed with ANTH 4060 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. Note: students

should consult with the instructor prior to enrolling in this course. Prereq: Graduate standing. 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. Note: this course assumes that students have completed HBSC/ANTH 4010/5014, HBSC/ANTH 4020/5024, HLTH 6070 or equivalent. Prereq: Graduate standing. Cross-listed with ANTH 4080 and PBHL 4080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5090 - Drug Syndemic

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. Note: this course assumes that students have completed an introductory course in cultural anthropology. Prereq: Graduate standing. Cross-listed with ANTH 4090 and PBHL 4090. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5121 - Zooarchaeology

Introduction to the theory and methods of zooarchaeology through lectures, readings, and hands-on lab work identifying and analyzing mammalian skeletal material. Students will learn what mammalian remains indicate about biological and cultural evolution of humans. Cross-listed with ANTH 4121. Prereq: Graduate standing. 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. Note: this course assumes that students have a background in cultural anthropology. Prereq: 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. Note: this course assumes that students have completed ANTH 2102 or equivalent. Prereq: Graduate standing. 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. Note: this course assumes that students have completed ANTH 2102 or equivalent. Prereq: Graduate standing. 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. Prereq: Graduate standing. 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. Note: this

course assumes that students have completed ANTH 1303 or equivalent. Prereq: Graduate standing. Cross-listed with ANTH 4260. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5270 - Anthropology of the Body

Explores how society, through culture, creates collective and individual bodies; embodied experience across the life course; and the body as an expression of social power, bodily modification and adornment. Prereq: Graduate standing is required. Cross-listed with ANTH 4270. 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. Note: this course assumes that students have completed an introductory archaeology course. Prereq: Graduate standing. 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. Note: this course assumes that students have completed ANTH 1302 or equivalent. Prereq: Graduate standing. 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. Note: previous coursework in anthropology is strongly recommended for success in this course. Prereq: Graduate standing. 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. Note: this course assumes that students have completed ANTH 1302 or equivalent. Prereq: Graduate standing. 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. Note: this course assumes that students have completed ANTH 1302 or equivalent. Prereq: Graduate standing. Cross-listed with ANTH 4400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ANTH 5440 - Museums in the 21st Century

This is an advanced course on natural history/anthropology museums. It will examine practical issues facing museums, and consider the complex questions that museums raise. The class includes lectures, discussions, and hands-on collection work, and exhibit/ outreach development. Restriction: Restricted to Graduate and Graduate Non-Degree majors (NDGR-NHL and NDGR-NLA). Cross-listed with ANTH 4440. Term offered: spring. 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. Note: this course assumes that students have completed ANTH 4070 and 4170 or equivalent. Prereq: Graduate standing. 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. Note: this course assumes that students have completed ANTH 5450. Prereq: Graduate standing. 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. Prereq: Graduate standing. 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. Note: this course assumes that students have completed undergraduate coursework in biological anthropology or genetics. Prereq: Graduate standing. 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. Note: this course assumes that students have completed ANTH 1303 or equivalent. Prereq: Graduate standing. 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. Note: this course assumes that students have a background in biological or physical anthropology. Prereq: 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. Note: this course assumes that students have completed ANTH 1302 or equivalent. Prereq: Graduate standing. 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. Note: this course assumes that students have completed ANTH 1303 or equivalent. Prereq: Graduate standing. 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. Note: this course assumes that students have completed ANTH 1303 or equivalent. Prereq: Graduate standing. 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. Note: this course assumes that students have completed ANTH 1303 or equivalent. Prereq: Graduate standing. 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. Restriction: Restricted to Anthropology graduate students. Cross-listed with ANTH 4810. Term offered: fall. 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 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 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. Note: this course assumes that students have a background in archaeology. Prereq: Graduate standing. Cross-listed with ANTH 4910. Max hours: 9 Credits. **Semester Hours:** 3 to 6

ANTH 5939 - Internship

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Max hours: 9 Credits. **Semester Hours:** 1 to 6

ANTH 5995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. 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. Note: students should receive permission from the instructor prior to registering for this course. Prereq: Graduate standing. 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. Note: students should receive permission from the instructor prior to registering for this course. Prereq: Graduate standing. 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. Restriction: Restricted to Anthropology graduate students. 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. Note: this course assumes that students have completed undergraduate coursework in cultural anthropology. Prereq: Graduate standing. 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. Note: this course assumes that students have completed undergraduate coursework in cultural anthropology. Prereq: Graduate standing. 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. Note: this course assumes that students have completed undergraduate coursework in archaeology. Prereq: Graduate standing. 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. Note: this course assumes that students have completed ANTH 6307 or equivalent. Prereq: Graduate standing. 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. Note: This course assumes that students have completed undergraduate work in biological/physical anthropology. Prereq: 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

Term offered: fall, spring, summer. 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. Term offered: fall. 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. Note: This course assumes that students have passed ARAB 1010 or equivalent, or have taken one year of high school Arabic, or possess equivalent proficiency. A grade of C- or higher in ARAB 1010 is recommended for success in this course. This course is not intended for native speakers. Term offered: spring. Max hours: 5 Credits. **Semester Hours:** 5 to 5

ARAB 2110 - Intermediate Arabic I

Third-semester course in Modern Standard Arabic (MSA) designed for students who have had two semesters or comparable proficiency in the language. Note: This course assumes that students have passed ARAB 1020 or equivalent, or have taken two years

of high school Arabic, or possess equivalent proficiency. A grade of C- or higher in ARAB 1020 is recommended for success in this course. This course is not intended for native speakers. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARAB 2120 - Intermediate Arabic II

Fourth-semester course in Modern Standard Arabic (MSA) designed for students who have had three semesters or comparable proficiency in the language. Note: This course assumes that students have passed ARAB 2110 or equivalent, or have taken three years of high school Arabic, or possess equivalent proficiency. A grade of C- or higher in ARAB 2110 is recommended for success in this course. This course is not intended for native speakers. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARAB 2840 - Independent Study

Independent study for students wishing to pursue nonoffered studies in Arabic language and culture. Max hours: 12 Credits. **Semester Hours:** 1 to 3

ARAB 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

ARAB 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 1710 - Architectural Drawing: Analysis and Representation

This course explores the development of graphic skills emphasizing drawing as a means to analyze and represent architectural ideas throughout the design process. Using freehand and mechanical drawing methods students will learn the conventions and opportunities of the three architectural projections. 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: Restricted to undergraduate ARCH students within the College of Architecture and Planning. 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: Material and Structural Systems

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. 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: Open to all undergraduate majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3330 - Building Systems I

Introduces the concepts of 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. Recommended Prereq: MATH 1130 OR MATH 1110 & 1120; PHYS 2010/2030 OR PHYS 2311/2321. Restriction: Restricted to undergraduate ARCH students within the College of Architecture and Planning. 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. Recommended Prereq: MATH 1130 OR MATH 1110 & 1120; PHYS 2010/2030 OR PHYS 2311/2321. Restriction: Restricted to undergraduate ARCH students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3430 - Construction Practices: Building Envelope

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. Restricted to sophomore standing or higher. 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. Prereq: ARCH 2230 and 3230. Restriction: Restricted to undergraduate ARCH students within the College of Architecture and Planning. 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 3603 - Modern Architecture

Examination of that period in architecture called the Modern Movement, its proponents and its influence on the design of buildings today. Extensive readings and writings required. Prereq: ARCH 2230. Restriction: Restricted to Sophomore standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3690 - Cultural Research Abroad

Topics in architecture studies related to cultural inquiries including theory, cultural diversity, and/or cross cultural thinking in other cultures. Work shall include preparation in culture, history and language skills in other countries. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ARCH 3691 - Cultural Design Abroad

Design topics in architecture studies related to cultural inquiries including design, cultural implications of design, and/or cross cultural application of design. Max hours: 6 Credits.

Semester Hours: 3 to 3

ARCH 3692 - International: Project Delivery

This course is the delivery of the design solution developed in ARCH 3703. Critical thinking skills will be honed as students respond to construction material and technology limitations during the 10 day build in a South American cultural setting. Prereq ARCH 3703. Restriction: Restricted to undergraduates with a Junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3693 - Rome: Architecture & Urbanism

The objective of this course is to provide a broad overview of the city's major architectural sites, topography, infrastructure and systems of urban design and organization through the study of the rich palimpsest of buildings, piazzas and landscapes from antiquity to the present day. Coreq. ARCH 3694 Restricted to undergraduate BS-ARCH students with Junior standing or higher. Cross-listed with ARCH 6755. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3694 - Rome: Documentation, Analysis and Design

With graphic representation as the primary mode of inquiry, this course is an intensive study of a single building, piazza or landscape within the rich urban fabric of Rome. The graphical inquiry will be supported by pre-departure research and onsite observation and presentations. Coreq: ARCH 3693. Restricted to undergraduate BS-ARCH students with Junior standing or higher. Cross-listed with ARCH 6760. 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: Restricted to undergraduate ARCH students within the College of

Architecture and Planning 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 3703 - International: Design in Context

The course is a project-based design seminar. In collaboration with a small community in Central America, students have the opportunity to engage in the context of another culture, environment, construction limitations and economic constraints. The course integrates architecture, engineering, and business. Restriction: Restricted to ARCH-BS majors with Junior standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3704 - The Poetic Detail-Studies in Tectonics—Wood

This research seminar focuses on tectonics through traditional timber frame and wood construction case studies. The relationship between function, aesthetics, detail, and tectonics are explored in relation to contemporary concerns. Learning by making. Cross-listed with ARCH 6357. Restriction: Restricted to ARCH-BS majors with sophomore standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3705 - Human Centered Design, Innovation and Prototyping

Introduces techniques for collaborative design by interdisciplinary teams: design thinking, problem solving, and rapid prototyping. Teams of students design and implement increasingly complex projects while acquiring essential innovation and problem-solving skills. The course will culminate in a final project chosen by each team. Cross-listed with IWKS 2100. Restriction: Restricted to ARCH-BS majors with sophomore standing. 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 - Introduction to Digital Media

Introduces Building Information Modeling (BIM) systems as a means to integrate and optimize design processes and building systems in the professional practice of architecture. Topics include creation of simulated, complex, three-dimensional environments in support of the architectural design studio sequence. 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 3804 - Green Tech Eco-Furniture Fabrication I

Green Tech I is the first of two courses that are a "real build" course in which students advance their knowledge of environmental design through full-scale construction of architectural elements, furnishings, accessories, finishes, outdoor gear, or even clothing. Restriction: Restricted to ARCH-BS majors with sophomore standing or higher. Coreq: ARCH 3806. Cross-listed with ARCH 6375. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3805 - Beginning Revit

Introduction to Building Information Modeling through Autodesk's Revit Architecture software. The course explores fundamental architectural concepts as they are developed and expressed in Revit. Appropriate program use and team learning experiences are emphasized. Prereq: ARCH 3110 and 3130. Restriction: Restricted to ARCH-BS majors with sophomore standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3806 - Green Tech Eco-Furniture Fabrication II

Green Tech II is the second of two courses that are a "real build" course in which students advance their knowledge of environmental design through full-scale construction of architectural elements, furnishings, accessories, finishes, outdoor gear,

or even clothing. Restriction: Restricted to ARCH-BS majors with sophomore standing or higher. Coreq: ARCH 3804. Cross-listed with ARCH 6376. Max hours: 3 Credits.

Semester Hours: 3 to 3

ARCH 3807 - Small Eco Home Design & Fabrication

This unique, quick-paced seminar focuses on small-scale residential design, from tiny-homes, to prefab, and movable residences. Students learn Small Home design, methods, and techno-systems, then using green materials, they design and fabricate architectural elements and furniture for enhancing small-scale living. Restriction: Restricted to ARCH-BS majors with sophomore standing. Cross-listed with ARCH 6377. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3808 - Architectural Design and Fabrication

This course explores architectural production using advanced 3D-modeling, fabrication, and construction documentation techniques. The course connects contemporary design practice with material experimentation and architectural production. Prereq: ARCH 3801. Restriction: Restricted to ARCH-BS majors with sophomore standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 3809 - Architectural Design and Graphics

This course explores the varied mediums of graphic representation in architecture. Using advanced tutorials in 3D-modeling, computer-generated rendering, and workflows through multiple software platforms, students will create work that is reflective of contemporary architecture culture. Prereq: ARCH 3801. Restriction: Restricted to ARCH-BS majors with sophomore standing. 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. Recommended Prereq: MATH 1130 OR MATH 1110 & 1120; PHYS 2010/2030 OR PHYS 2311/2321. Restriction: Restricted to undergrad ARCH students within the College of Architecture and Planning. 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. Restriction: Restricted to graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 5110 - Design Studio I

The first of two elemental design studios focused on on the language of design, organizational and spatial systems and principles as well as on analog and digital methods of visualizing architectural ideas and forms. Restriction: Restricted to Graduate Architecture students within the College of Architecture and Planning. Max hours: 6 Credits. **Semester Hours:** 6 to 6

ARCH 5120 - Design Studio II

The second of two elemental design studios focused on translating organizational and spatial systems, principles and concepts into architectural systems. Through a number of small scaled design exercises students learn how organizational and spatial systems can be leveraged in the design of their buildings. Prereq: ARCH 5110 and ARCH 5510. Max hours: 6 Credits. **Semester Hours:** 6 to 6

ARCH 5130 - Design Studio III

The first of the two analytical design studios addresses how design ideas are formed through the analysis of the program in terms of action and perception and how to transform those ideas into formal strategies and specific architectural experiences. Prereq: ARCH 5120. Max hours: 6 Credits. **Semester Hours:** 6 to 6

ARCH 5140 - Design Studio IV

The second of the two analytical studios will build upon ideas developed in the previous studio concerning how the analysis of the program in terms of action and perception inform the formal strategies and the design of specific architectural experiences. Prereq: ARCH 5130. Max hours: 6 Credits. **Semester Hours:** 6 to 6

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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 5310 - Building Construction I

The first of a two-course sequence that 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 5320 - Building Construction II

This course focuses on principles and processes of building construction, and introduces major constructional systems. It stresses the relationship between architectural concepts and building technology and assemblies. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 5330 - Sustainable Systems I

The first course in the sustainable systems sequence introduces concepts and design methods of energy-efficient environmental control in buildings including thermal and moisture loads, heating, ventilation and air conditioning equipment and systems, and active and passive thermal strategies. Restricted to graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 5340 - Sustainable Systems II

The second course in the sustainable systems sequence introduces concepts and design methods of plumbing, power distribution, renewable electricity, artificial illumination, daylighting, acoustics, vertical transportation, fire protection, and telecommunication systems in buildings with a focus on energy and resource efficiency. 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 static's and the strength of materials. Topics include stress determination, deflection and the behaviors of tension, compression and shear in various structural elements. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 5420 - BIM: Principles & Practices

Introduces basic aspects of building information modeling (BIM) concepts, software, development, management and delivery for architectural projects. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 5430 - Social Context of Design

Focuses on the ethical, social, cultural and psychological principles, which people bring to the perception and design of the built environment. Its major topics include: ethical values; cultural patterns and values; social, cultural and personal ritual; and pre-design and programming. Prereq: Graduate ARCH students only. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 5450 - Sustainable Design Practices

This course explores sustainable principles and practices as it relates to the design, construction of both the building and its site. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 5510 - Architectural Graphics

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. Restriction: Restricted to Graduate Architecture students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6150 - Design Studio V

The first of two reflective studios will assume reflective/critical stance towards programmatic issues or rather cultural presuppositions and critically explore the ways in which architecture can play a critical as well as an affirmative role within the broader cultural context. Prereq: ARCH 5140. Coreq: ARCH 6151. Max hours: 6 Credits. **Semester Hours:** 6 to 6

ARCH 6170 - Design Studio VI

This is the second of two reflective studios, which focuses on the comprehensive design of 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. Coreq: ARCH 6171. Max hours: 12 Credits. **Semester Hours:** 6 to 6

ARCH 6171 - Integration Seminar

In this seminar students will develop and document the technical aspects of their Design Studio VI design projects including, life safety, mechanical, electrical, plumbing, conveyance, accessibility systems and material assemblies. Prereq: ARCH 6150, ARCH 6151. Coreq: ARCH 6170. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ARCH 6180 - Furniture Design

Students learn how to design and build furniture in the College's woodshop. Topics include ergonometics, properties of materials, principles and techniques of joinery and techniques of hand and machine tools. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits.

Semester Hours: 3 to 3

ARCH 6185 - 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits.

Semester Hours: 3 to 3

ARCH 6190 - Special Topics in Design Studies

Various topics in design, according to current faculty and student interests. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ARCH 6205 - 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. Cross-listed with LDAR 6755 and URPL 6405. Max hours: 3 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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 6233 - Historic Buildings in Context

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. Cross-listed with HIPR 6210. 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. Restriction:

Restricted to Architecture graduate students within the College of Architecture and Planning. 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 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. Cross-listed with DSPL 7016. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6256 - 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. Cross-listed with URPL 6400. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6257 - Community Engaged Design Practice

Obtain real-world pre-design and conceptual design experience in complex urban environments focusing on evolving trends in sustainability. Using digital trans-disciplinary

learning students will develop comprehensive sustainable strategies that draw from their own sustainable philosophy developed during this class. Cross-listed with LDAR 6635 and LDAR 4435. Restriction: Restricted to graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6258 - 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. Cross-listed with URPL 6410 and LDAR 6637. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6259 - The Art of Traditional Design

Introduction to Philosophy, History and Design Methods of Traditional Design derived from Greek precedents developed through the Renaissance and later the Beaux Arts. The course will emphasize this influence on the Architecture of the United States. Restriction: Restricted to graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6260 - 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6270 - 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, URBN 6633, and LDAR 5530. Restriction: Restricted to graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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." Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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 6356 - Adaptive Reuse: Business and Practice

Existing buildings and infrastructure afford challenges and opportunities for reuse. This course explores the business, and financial aspects of adapting the built environment for contemporary uses. The course is suitable for designers, planners, historians and social scientists. Restriction: Restricted to majors within the College of Architecture and Planning. Cross-listed with HIPR 6220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6357 - The Poetic Detail—Studies in Tectonics—Wood

This research seminar focuses on tectonics through traditional timber frame and wood construction case studies. The relationship between function, aesthetics, detail, and tectonics are explored in relation to contemporary concerns. Learning by making. Cross-listed with ARCH 3704. Restriction: Restricted to ARCH-BS majors with sophomore standing. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6375 - Green Tech Eco-Furniture Fabrication I

Green Tech I is the first of two courses that are a "real build" course in which students advance their knowledge of environmental design through full-scale construction of architectural elements, furnishings, accessories, finishes, outdoor gear, or even clothing. Coreq: ARCH 6376. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Cross-listed with ARCH 3804. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6376 - Green Tech Eco-Furniture Fabrication II

Green Tech II is the second of two courses that is a "real build" course in which students advance their knowledge of environmental design through full-scale construction of architectural elements, furnishings, accessories, finishes, outdoor gear, or even clothing. Students must be enrolled in both Green Tech I and Green Tech II in the same semester. Coreq: ARCH 6375. Restriction: Restricted to Architecture graduate students

within the College of Architecture and Planning. Cross-listed with ARCH 3806. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6377 - Small Eco Home Design & Fabrication

This unique, quick-paced seminar focuses on small-scale residential design, from tiny-homes, to prefab, and movable residences. Students learn Small Home design, methods, and techno-systems, then using green materials, they design and fabricate architectural elements and furniture for enhancing small-scale living. Restriction: Restricted to ARCH graduate students. Cross-listed with ARCH 3807. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 18 Credits. **Semester Hours:** 3 to 3

ARCH 6412 - Construction Documents

Introduces the concepts and techniques of construction documents. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6413 - Construction Leadership

The final course is an integrated architecture, engineering, and construction business course bringing together executives, principals, and managers to current industry topics and provide students opportunities to apply management and leadership principles from the various fields to case study projects. Crosslisted with CVEN 5238. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6420 - Integrated Practice & BIM Technology

This class will be a general overview of integrated practices and technologies used in today's industry. Understanding the nature of how information is created and managed using BIM technologies will help us define a road map for how information passes downstream and bring value to a project. Restriction: Restricted to Architecture graduate

students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6463 - BIM: Emerging Prof. Practices

The 21st century architect's emerging role is designing the design process. BIM (Revit) attempts to optimize the entire process, including all participants, from conceptual design, through post-building occupancy. These capabilities are explored and developed. Prereq: ARCH 5430. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6464 - BIM: Advanced Design Concepts

BIM's complexity (Revit) challenges all designers. The emerging tool is very sophisticated, but its benefits are not realized from modeling alone. We address architectural design as a multifaceted optimization process: concept, form, and function. Prereq: ARCH 5430. Cross-listed with 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. Cross-listed with LDAR 6470 and URPL 6850. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6475 - BIM/Flow of Information

The course is geared toward CAP students, non-degree seeking working professionals and other students interested in the Integrated Construction, Management and Leadership (ICML) Certificate. This class will be a general overview of Virtual Design and Construction (VDC) in today's AEC industry. Restriction: Graduate students. Junior standing and above undergraduate students are eligible to take course with approval by instructor. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 18 Credits. **Semester Hours:** 3 to 3

ARCH 6510 - Digital Applications in Design

This course introduces first year design students to the Graphic Design Concepts and

Digital Applications necessary to create digital, printed and physical presentations of their work. Students learn computer skills including: raster and vector based programs and digital modeling. Prereq: ARCH 5110 and ARCH 5510. Max hours: 3 Credits.

Semester Hours: 3 to 3

ARCH 6515 - Adv. Digital Representation

In this course students will learn advanced techniques of architectural representation using digital modeling, rendering engines, and post processing in the Adobe Creative Suite. Prereq: ARCH 5510 and 6510 or equivalent. Max hours: 3 Credits. **Semester**

Hours: 3 to 3

ARCH 6530 - 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.

Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6550 - 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6560 - Architecture Photography

Emphasizes and understanding of light, composition, color and problem solving, with a particular goal of applying these skills to the photography of architectural exteriors and interiors. For students who have access to adjustable 35 mm digital cameras.

Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6570 - 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6590 - Special Topics in Representational Studies

Various topics in representational studies, according to current faculty and student interests. Prereq: ARCH 5510. Max hours: 15 Credits. **Semester Hours:** 3 to 3

ARCH 6710 - Architecture in Other Cultures

Various studies of architecture and urbanism in foreign countries. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 12 Credits. **Semester Hours:** 1 to 9

ARCH 6715 - 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 1 to 3

ARCH 6755 - Rome: Architecture & Urbanism

The objective of this course is to provide a broad overview of the city's major architectural sites, topography, infrastructure and systems of urban design and organization through the study of the rich palimpsest of buildings, piazzas and landscapes from antiquity to the present day. Coreq: ARCH 6760. Restriction: Restricted to ARCH graduate students. Cross-listed with ARCH 3693. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ARCH 6760 - Rome: Documentation, Analysis and Design

With graphic representation as the primary mode of inquiry, this course is an intensive study of a single building, piazza or landscape within the rich urban fabric of Rome. The graphical inquiry will be supported by pre-departure research and onsite observation and presentations. Coreq. ARCH 6755. Restriction: Restricted to ARCH graduate students. Cross-listed with ARCH 3694. Max hours: 3 Credits. **Semester Hours:** 3 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. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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 Bioengineering Pre-majors in the College of Engineering Design and Computing. Prereq: MATH 1401 or instructor permission. 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 or instructor permission. Max hours: 2 Credits. **Semester Hours:** 2 to 2

BIOE 2840 - Independent Study in Bioengineering

Covers topics which students may wish to pursue on their own initiative with guidance from department faculty. Credit is awarded upon completion of a project. Departmental approval is required. Max hours: 6 Credits. **Semester Hours:** 1 to 6

BIOE 3010 - Bioinstrumentation

This course is intended for junior bioengineering students to facilitate their development into bioengineering investigation. The course has been designed to introduce fundamental principles of circuit theory, analog and digital electronics and biological instrumentation techniques commonly used in biomedical research. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 3020 - Introduction to Biomechanical Analysis

This course will offer an overview of solid and fluid mechanics, as applied to biomechanical systems. After completing this course, students should have enough understanding of biomechanics to: (1) perform and interpret basic analytical of biomech. systems: (2) analytically reason through a design: (3) and choose a specialty. Prereq: MATH 1401, 2411 and 3195 (or combination of MATH 3200 and MATH 3191 to meet MATH 3195 requirement). Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 3030 - Introduction to Biomaterials

This course will cover different kinds of biomaterials in biomedical applications, and their physiological response in the biological environment. In addition, it will cover material properties, host response, and characterization techniques. Prereq: CHEM 3411 or CHEM 3481. Restriction: Restricted to BIOE-BS majors within the College of Engineering Design and Computing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 3040 - Physiology for Bioengineering

This course will introduce students to central concepts in human physiology. This includes the structure, function and homeostatic role of key organs within the body; the engineering principles governing these systems and processes; and designing engineering-based solutions to overcome dysfunction in disease. Prereq: BIOL 2051 and 2061 or BIOL 2095 and 2097. Restriction: Restricted to BIOE-BS majors within the College of Engineering, Design and Computing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 3050 - Cell & Molecular Bioengineering

An examination of the structure and function of eukaryotic cells. Emphasis is placed on mechanisms of intracellular and transmembrane transport, cellular control, gene expression, and intercellular and intracellular signaling. Experimental methods and applications will be discussed. Prereq: BIOL 2051 and 2061 or BIOL 2095 and 2097, CHEM 2031 and 2061 or CHEM 2081 and 2091. Restriction: Restricted to BIOE-BS majors within the College of Engineering, Design and Computing. Max hours: 3 Credits.

Semester Hours: 3 to 3

BIOE 3051 - Cell & Molecular Bioengineering Lab

Laboratory experience in cell and molecular biology techniques. Experimental methods and applications will be discussed and performed including basic microscopy, PCR, purification and separation techniques, and protein assays. Restricted to BIOE-BS majors. Prereq: BIOL 2051 and 2061 or BIOL 2095 and 2097, CHEM 2031 and 2061 or CHEM 2081 and 2091. Restriction: Restricted to BIOE-BS majors within the College of Engineering, Design and Computing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 3060 - Biostatistics, Measurement and Analysis

Students will learn and apply parametric statistics, including t-tests, ANOVA, and regression methods, using commercially available statistical software to the analysis of clinical and/or biological data. Further, they will be introduced to measurement error and the propagation of error technique. Restricted to BIOE-BS majors. Prereq: MATH 3195 and BIOE 2020 or combination of MATH 3200 and MATH 3191. Max hours: 3 Credits.

Semester Hours: 3 to 3

BIOE 3070 - Bioengineering Lab I

Core bioengineering lab required of all major students. This lab introduces students to experimental techniques in the areas of Biomaterials, Biomedical Instrumentation, and Biomechanics. Restriction: Restricted to BIOE-BS majors within the College of Engineering, Design and Computing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 3071 - Bioengineering Lab II

Lab sequence 2 of 2. A series of modules focused on quantitative techniques relative to Bioengineering. Modules will include Physiological data acquisition and analysis,

Medical Imaging and Assistive Technologies. Restricted to BIOE-BS majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 3090 - Introduction to BioDesign

BioDesign I is the first course in a three sequence design process that provides students with a framework for identifying medical needs through clinical observation, environment analysis and product screening. Restricted to BIOE-BS. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 3939 - Undergraduate Internship

Department of Bioengineering Internship. Credit may not be applied toward the BS in Bioengineering degree. Enrollment by department permission only. Max hours: 6 Credits. **Semester Hours:** 1 to 6

BIOE 4035 - Undergraduate BioDesign II

This represents the second semester of the core undergraduate Biodesign sequence. Students gain experience around Design and Prototyping, Verification and Validation, and evaluation of key components around biomedical technology development. Prereq: BIOE 3090. Restriction: Restricted to full Bioengineering majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 4045 - BioDesign III

This course represents the capstone culmination of the core undergraduate Biodesign experience. Students finalize all design, prototyping, testing and validation components, and present the project per professional standards to professionals and peers. Prereq: BIOE 4035. Restriction: Restricted to full Bioengineering majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 4053 - Optics and Microscopy in Biomedical Research

Undergraduate 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. Cross-listed with BIOE 5053. Restriction: Restricted to BIOE-BS majors within the College of Engineering, Design and Computing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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 CEDC students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 4064 - Advanced MatLab For Bioengineers And Life Scientists

MatLab programming for undergraduate 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. Cross-listed with BIOE 5064. Restriction: Restricted to BIOE-BS majors within the College of Engineering, Design and Computing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 4065 - Introduction to iOS Apps

This course will introduce students to best practices in developing Health centered iOS Apps. Topics will focus on Xcode, Object Oriented Design, Objective-C, Cocoa, Core Data and the iOS emulator. Cross-listed with BIOE 5065. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 4066 - Advanced Topics in iOS Apps

This course will introduce undergraduates to advanced topics focused on creating health centered iOS Apps. Topics will cover best practices for developing Apps across the iOS product lineup including Apple Watch and developing for Apple Health kit. Deployment and validation will also be covered. Cross-listed with BIOE 5066. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 4068 - Introduction to Medical Imaging

This course will introduce undergraduates to the basic physics, technologies, and clinical methodologies underlying Ultrasound, MRI, CT, PET and SPECT imaging systems. The course will include lectures, and visits to campus hospital and research imaging systems as well as hands on ultrasound labs. Cross-listed with BIOE 5068. Restriction: Restricted

to BIOE-BS majors within the College of Engineering, Design and Computing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 4069 - Advanced Biomechanics for Undergraduates

This course covers advanced topics such as blood flow dynamics, introduction to non-linear finite deformation techniques, blood rheology, and computational techniques. Restriction: Restricted to BIOE-BS majors within the College of Engineering, Design and Computing. Cross-listed with BIOE 5069. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 4073 - Neural Interfaces and Bionic Limbs

This course will introduce undergraduates to 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. Cross-listed with BIOE 5073. Restriction: Restricted to BIOE-BS majors within the College of Engineering, Design and Computing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 4083 - Polymers in Biomedical Applications

This course will introduce undergraduate students to the 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. Cross-listed with BIOE 5083. Restriction: Restricted to BIOE-BS majors within the College of Engineering, Design and Computing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 4085 - Tissue Engineering

This course covers tools, techniques, characterization and applications in modern tissue engineering. Cross-listed with BIOE 5085. Restriction: Restricted to BIOE-BS majors within the College of Engineering, Design and Computing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 4420 - Special Topics in Bioengineering

Special topics of particular interest to undergraduate in the Bioengineering program. Registration requires departmental approval. Max hours: 9 Credits. **Semester Hours:** 1 to 3

BIOE 4840 - Independent Study in Bioengineering

Covers advanced topics which students may wish to pursue on their own initiative with guidance from department faculty. Credit is awarded upon completion of a project. Departmental approval is required. Max hours: 6 Credits. **Semester Hours:** 1 to 6

BIOE 4929 - Undergraduate Research Project

Department of Bioengineering Research Project. Credit may not be applied toward the BS in Bioengineering degree. Enrollment by department permission only. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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

Graduate 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. Cross-listed with BIOE 4053. 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 CEDC students. Max hours: 3 Credits. **Semester Hours: 3 to 3**

BIOE 5064 - Advanced MatLab For Bioengineers And Life Scientists

MatLab programming for graduate 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. Cross-listed with BIOE 4064. Max hours: 3 Credits. **Semester Hours: 3 to 3**

BIOE 5065 - Introduction to iOS Apps

This course will introduce graduate students to best practices in developing Health centered iOS Apps. Topics will focus on Xcode, Object Oriented Design, Objective-C, Cocoa, Core Data and the iOS emulator. Cross-listed with BIOE 4065. Max hours: 3 Credits. **Semester Hours: 3 to 3**

BIOE 5066 - Advanced Topics in iOS Apps

This course will cover advanced topics focused on creating health centered iOS Apps. Topics will cover best practices for developing Apps across the iOS product lineup including Apple Watch and developing for Apple Health kit. Deployment and validation will also be covered. Cross-listed with BIOE 4066. Max hours: 3 Credits. **Semester Hours: 3 to 3**

BIOE 5068 - Introduction to Medical Imaging

This course will introduce graduate students to the basic physics, technologies, and clinical methodologies underlying Ultrasound, MRI, CT, PET and SPECT imaging systems. The course will include lectures, and visits to campus hospital and research

imaging systems as well as hands on ultrasound labs. Cross-listed with BIOE 4068. Restriction: Restricted to Bioengineering students with graduate student status. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 5069 - Advanced Biomechanics for Graduates

This course covers advanced topics such as blood flow dynamics, introduction to non-linear finite deformation techniques, blood rheology, and computational techniques. Restriction: Restricted to Bioengineering students with graduate student status, or by Permission of Instructor. Crosslisted with BIOE 4069. Max hours: 3 credits. **Semester Hours:** 3 to 3

BIOE 5073 - Neural Interfaces and Bionic Limbs

This course will introduce graduate students to 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. Cross-listed with BIOE 4073. Restrictions: Matriculated CEDC 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 introduce graduate students to 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. Cross-listed with BIOE 4083. Prereq: Graduate standing at CU Denver or instructor permission. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOE 5085 - Tissue Engineering

This course covers tools, techniques, characterization and applications in modern tissue engineering. Cross-listed with BIOE 4085. Restriction: Restricted to Bioengineering students with graduate student status. 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:** 1 to 6

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 6655 - Foundations of Doctoring MS Years

This course is for CU MD-MS students who are on leave of absence from SOM and wish to maintain clinical exposure and training during the leave. Prereq: Phase I & II SOM classes and graduate standing in BIOE. Max hours: 20 Credits. **Semester Hours:** 1 to 5

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 - First Year Seminar

Restriction: Restricted to Freshman level students. Term offered: fall. 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 1200 - Drugs, Health, and Wellness

Taught by CU Anschutz practicing health care professionals, the course provides an introduction to contemporary drug-related issues, such as drug misuse and abuse, medical and recreational marijuana, drug discovery and development, personalized medicine, common illnesses experienced by typical college age students, and personal health and wellness. This course does not count toward the major. Max hours: 2 Credits. **Semester Hours:** 2 to 2

BIOL 1332 - Topics in Biology.

Special topics in introductory biology will be covered. Max hours: 9 Credits. **Semester Hours:** 1 to 3

BIOL 1550 - Basic Biology: Ecology and the Diversity of Life

Introduces the process of science, gene expression, biological diversity, evolution, and ecology. Highlights applications to contemporary issues. Lecture and lab course. Note: For students who are not majoring in biology. Biology and health career majors should not take this course. Students may not receive credit for this course if they have already received credit for BIOL 2051 and BIOL 2061. Term offered: fall, spring, summer. 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 the process of science, cell structure and function, survey of representative human and plant systems, and genetics. Highlights applications to contemporary issues. Lecture and lab course. Note: For students who are not majoring in biology. Biology and

health career majors should not take this course. Students may not receive credit for this course if they have already received credit for BIOL 2051 and BIOL 2061. Term offered: fall, spring, summer. 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: This class is intended for students planning to take upper division biology courses and for biology majors. 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. Term offered: fall, spring, summer. 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: This class is intended for students planning to take upper division biology courses and for biology majors. Biology majors and pre-health career students must also take the accompanying laboratory - BIOL 2081. Prereq: BIOL 2051 or 2095 with a grade of "C-" or higher. No co-credit with BIOL 2097. Term offered: fall, spring, summer. 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 through investigations, observations, and experiments in cell biology, basic biochemical techniques, genetics, molecular genetics and applications of biotechnology. Note: This class is intended for students planning to take upper division biology courses and for biology majors. No co-credit with BIOL 2096. Term offered: fall, spring, summer. 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

Investigations, observations, and experiments in evolution, bioinformatics, ecology, and animal behavior, anatomy, and physiology; requires off-campus field work. Note: This class is intended for students planning to take upper division biology courses and for biology majors. Prereq: BIOL 2071 or 2096 with a C- or higher. Students are strongly encouraged to take BIOL 2061 concurrently or before they take this course. No co-credit with BIOL 2098. Term offered: fall, spring, summer. 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 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. Restriction: Restricted to Biology honors students within the College of Liberal Arts and Sciences(student group BH01). Instructor permission required. No co-credit with BIOL 2051. Term offered: fall. Max hours: 3 Credits. **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. Instructor permission required. Restriction: Restricted to Biology honors students within the College of Liberal Arts and Sciences(student group BH01). No co-credit with BIOL 2071. Term offered: fall. Max hours: 1 Credit. **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: Students need to have completed BIOL 2095 or BIOL 2051 with a grade of C- or higher and Restricted to Biology honors students within the College of Liberal Arts and Sciences(student group BH01). Instructor permission required. No co-credit with BIOL 2061. Term offered: spring. Max hours: 3 Credits. **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 2096 or BIOL 2071 with a grade of C- or higher. Restriction: Restricted to Biology honors students within the College of Liberal Arts and Sciences(student group BH01). No co-credit with BIOL 2081. Term offered: spring. Max hours: 1 Credit. **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

Student will contribute to ongoing faculty or graduate student's lab or field-based investigation that makes an original intellectual or creative contribution to the discipline. Associated coursework includes scientific reading/writing/presentation(s). Note: registration by special processing form only. Prereq: Students must have completed one year of general biology with a grade of "C-" or higher and must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. 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: Students must have completed 15 hours of BIOL courses with a 2.75 GPA and must work with Experiential Learning Center advising to complete a course contract and gain approval. Term offered: fall, spring, summer. 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: BIOL 2051/2095, 2061/2097, 2071/2096, and

2081/2098 with a C- or higher. 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, with respect to the regulation of gene expression and protein synthesis. Emphasizes eukaryotic systems and understanding the significance of contemporary laboratory-based research. Prereq: BIOL 3832 with a grade of C- or higher. Term offered: fall. 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. Note: This is a combined lecture and lab course. Prereq: BIOL 2051/2095, 2061/2097, 2071/2096, 2081/2098 and CHEM 2031/2081, 2038/2088, 2061/2091 and 2068/2098 with a C- or higher. Term offered: fall, spring. Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 3244 - Human Anatomy

This course introduces structural aspects of the human body from a systems-based approach, in both lecture and laboratory. The systems addressed include the integument, skeletal, muscular, nervous, digestive, respiratory, circulatory, immune, renal, reproductive and endocrine systems. Anatomical models, microscope slides and human cadavers are used in lab. Prereq: BIOL 2051/2095, 2061/2097, 2071/2096 and 2081/2098 with a C- or higher. Term offered: fall, spring. 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 2051/2095, 2061/2097, 2071/2096 and 2081/2098 with a 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 2051/2095, 2061/2097, 2071/2096, and 2081/2098 with a C- or higher. Term offered: fall, spring, summer. 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: Students must have completed BIOL 3411(Principles of Ecology) with a C- or higher, or be concurrently enrolled in BIOL 3411 in order to enroll in this course. 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. Term offered: fall, spring, summer. 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 evolution, taxonomy, anatomy, physiology, ecology and conservation of these organisms. Prereq: BIOL 2051/2095, 2061/2097, 2071/2096, and 2081/2098 with a C- or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 3525 - Parasitology

This course is designed to provide a foundation in parasitology and to improve skills in scientific writing to students interested in biodiversity, veterinarian medicine, public health, & health care. Prokaryotes are addressed briefly; the focus of this course is the natural history of 'traditional' eukaryotic parasites. Topics include evolutionary associations of parasites with plants and animals (including humans), modes of transmission, and general life cycles. Subject matter includes basic anatomy, epidemiology, and physiology, with a brief introduction to immunology. Note: may be used as an upper-division biology elective. Prereq: BIOL 2051/2095, 2061/2097, 2071/2096, and 2081/2098 with a 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 2051/2095, 2061/2097, 2071/2096, 2081/2098 and CHEM 2031/2081, 2038/2088, 2061/2091 and 2068/2098 with a C- or higher. Term offered: fall, spring, summer. 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 microbiological laboratory techniques. Note: This is a combined lecture and lab course. Prereq: Grade of C- (1.7) or higher in BIOL 2051/2095, 2061/2097, 2071/2096, 2081/2098 & CHEM 2031/2081, 2038/2088, 2061/2091 and 2068/2098. Term offered: fall, spring. Max hours: 5 Credits. **Semester Hours:** 5 to 5

BIOL 3674 - 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: BIOL 3611 with a grade of C- or higher. Students will not earn credit for this course if they have already earned credit for BIOL 4674. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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: BIOL 2051/2095, BIOL 2061/2097, BIOL 2071/2096, BIOL 2081/2098 with a grade of C- or higher, and MATH 1110, or MATH 1120, or 1130, or 1401, or 2411, or 2421 or 2830 with a C- or higher. Term offered: fall, spring. Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 3804 - Developmental Biology

Covers gametogenesis, fertilization, cleavage and development of the embryo with an emphasis on the biochemical and biophysical aspects. Note: Students will not earn credit for BIOL 3804 if they have earned credit for BIOL 4054 and will not earn credit for BIOL 4054 if they have earned credit for BIOL 3804. Prereq: General cell biology with a grade of "C-" or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 3832 - General Genetics

Introduces molecular, classical, developmental and population genetics. Prereq: BIOL 2051/2095, 2061/2097, 2071/2096, and 2081/2098 with a C- or higher. Term offered: fall, spring, summer. Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 3840 - Independent Study

Student will contribute to ongoing faculty or graduate student's lab or field-based investigation that makes an original intellectual or creative contribution to the discipline. Associated coursework includes scientific reading/writing/presentation(s). Prereq: Students must have completed one semester of general biology with a grade of "C-" or higher and must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 3

BIOL 3939 - Internship

Approved internships will provide opportunities to apply classroom knowledge in a professional environment and expand the student's knowledge of biology. Associated coursework includes scientific reading/writing and presentation(s). Prereq: BIOL 2051 or 2095 and BIOL 2061 or 2097 with a C or higher AND have junior level standing with a 2.75 GPA. Term offered: fall, spring, summer. 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: BIOL 2051/2095, 2061/2097, 2071/2096, and 2081/2098 with a 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: BIOL 3654 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: Students must have completed BIOL 3411(Principles of Ecology) with a C- or higher, in order to enroll in this course. 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: Students must have completed BIOL 3411(Principles of Ecology) with a C- or higher, in order to enroll in this course. Cross-listed with BIOL 5053. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4055 - Virology

This is an upper level undergraduate/graduate class providing an in-depth study of the history of virology, different types of viruses, viral disease, research to combat viral infections, and different uses of viruses in biotechnology. Note: Students will not earn credit for this course if they have already earned credit for BIOL 4051 or BIOL 5051.

Prereq: BIOL 3611 with a grade of C- or higher. Cross-listed with BIOL 5055. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4064 - Cell Biology of Disease

Builds on the foundations laid in the prerequisite courses. How alterations in membrane transport, autophagy, mitochondria, lysosomes, cilia, unfolded protein response and autophagy lead to major human diseases. 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: Students must have completed BIOL 3611 and BIOL 3832 with a C- or higher in order to enroll in this course. 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, mRNA and protein detection in the context of gene editing. Experimental design and the theories underlying the techniques are also discussed. Prereq: BIOL 3124 with a C- or higher or Coreq: BIOL 3124. Cross-listed with BIOL 5125. Term offered: spring. 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: Completion of Introduction to Molecular Biology with a C- or higher is required in order for students to enroll in this course. 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: Students must have completed BIOL 3411(Principles of Ecology) with a C- or higher, in order to enroll in this course. 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: BIOL 3611 and PSYC 2220 with a C- or higher OR BIOL 3225 with a C- or higher. Cross-listed with BIOL 5165. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4225 - Genomics and Bioinformatics

Explores how genome-wide data are collected and analyzed. Example applications include human disease, microbial evolution, ecological genomics, and parasite drug resistance. Students implement projects based on real DNA sequencing data. Prereq:

BIOL 3832 with a C- or higher. Cross-listed with BIOL 5225. 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: BIOL 2051/2095, 2061/2097, 2071/2096, and 2081/2098 with a 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 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: Students must have completed BIOL 3411(Principles of Ecology) with a C- or higher, in order to enroll in this course. 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: Students must have completed BIOL 3411(Principles of Ecology) with a C- or higher, in order to enroll in this course. 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: Students must have completed BIOL 3411(Principles of Ecology) with a C- or higher, in order to enroll in this course. 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: BIOL 2051/2095, 2061/2097, 2071/2096, and 2081/2098 with a 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: BIOL 3611 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: BIOL 3611 with a grade of C- or higher. 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: Students must have completed BIOL 3411(Principles of Ecology) with a C- or higher, in order to enroll in this course. 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. Mechanisms of inflammatory diseases, infectious diseases, neoplastic diseases, and others will be examined. Prereq: BIOL 3611 with a grade of C- or higher. 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: Completion of General Genetics and Introduction to Evolution with a C- or higher is required in order for students to enroll in this course. 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: BIOL 3611 and BIOL 3832 with a C- or higher. 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: BIOL 3411 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. Term offered: fall, spring. 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 4815 - Structural Biology of Neurodegenerative Diseases

Advanced course in Biochemistry/Biophysics. Principles of Protein Folding, Structure-Function Relationship, and spectroscopic techniques related to characterization of these processes as applied to neurodegenerative diseases such as Parkinson's and Alzheimer's. Prereq: 1) BIOL 2051 & BIOL 2071 or BIOL 2095 & BIOL 2096, and 2) CHEM 3810 or CHEM 4810 or CHEM 5810. Coreq: PHYS 2020 or PHYS 2331. Cross-listed with CHEM 4815, CHEM 5815, and BIOL 5815. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4825 - Biochemistry of Metabolic Disease

Advanced course in biochemistry. An expanded study of selected topics in metabolism and how they relate to diseases, including inflammation, diabetes, obesity, and rare genetic disorders. Prereq: 1) CHEM 3810 or CHEM 4810 or CHEM 5810, and 2) BIOL 2051 & BIOL 2071 or BIOL 2095 and BIOL 2096. Cross-listed with CHEM 4825, CHEM 5825, and BIOL 5825. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4835 - Biochemistry of Gene Regulation and Cancer

Explores the biochemical and molecular aspects of cancer biology. Topics include DNA mutations and repair, gene regulation, oncogenes and tumor suppressors, stem cells and differentiation, and cancer drug development. Prereq: 1) CHEM 3810 or CHEM 4810 or CHEM 5810, and 2) BIOL 2051 & 2071 or BIOL 2095 & BIOL 2096. Cross-listed

with CHEM 4835, CHEM 5835, and BIOL 5835. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 4840 - Independent Study

Student will contribute to ongoing faculty or graduate student's lab or field-based investigation that makes an original intellectual or creative contribution to the discipline. Associated coursework includes scientific reading/writing/presentation(s). Note: Registration by special processing form only. Prereq: Students must have completed one year of general biology with a grade of "C-" or higher and must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 12 Credits. **Semester Hours:** 1 to 6

BIOL 4880 - Directed Research

A student designed lab or field-based investigation that involves data collection, and that makes an original intellectual or creative contribution to the discipline. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 6 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: Students must have completed BIOL 3411(Principles of Ecology) with a C- or higher, in order to enroll in this course. Cross-listed with BIOL 5910. Max hours: 6 Credits. **Semester Hours:** 3 to 3

BIOL 4974 - Advanced 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 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. Restriction: Restricted to degree granting graduate programs on the downtown campus as well as the School of Medicine on the Anschutz Medical campus. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. Cross-listed with BIOL 4053. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5055 - Virology

This is an upper level undergraduate/graduate class providing an in-depth study of the history of virology, different types of viruses, viral disease, research to combat viral infections, and different uses of viruses in biotechnology. Note: Students will not earn credit for this course if they have already earned credit for BIOL 4051 or BIOL 5051. Restriction: Restricted to degree-granting graduate programs. Cross-listed with BIOL 4055. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5064 - Cell Biology of Disease

Builds on the foundations laid in the prerequisite courses. How alterations in membrane transport, autophagy, mitochondria, lysosomes, cilia, unfolded protein response and autophagy lead to major human diseases. A major emphasis is the control and integration of cellular activities. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. Cross-listed with BIOL 4074. 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, mRNA and protein detection in the context of gene editing. Experimental design and the theories underlying the techniques are also discussed. Restriction: Restricted to degree granting graduate programs on the downtown campus as well as the School of Medicine on the Anschutz Medical campus. Cross-listed with BIOL 4125. Term offered: spring. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. Cross-listed with BIOL 4165. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5225 - Genomics and Bioinformatics

Explores how genome-wide data are collected and analyzed. Example applications include human disease, microbial evolution, ecological genomics, and parasite drug resistance. Students implement projects based on real DNA sequencing data. Prereq: graduate standing or permission of instructor. Cross-listed with BIOL 4225. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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.

Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Mechanisms of inflammatory diseases, infectious diseases, neoplastic diseases, and others will be examined. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. Cross-listed with BIOL 4644. Term offered: fall, spring. 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. Restriction: Restricted to degree-granting graduate programs. Cross-listed with BIOL 4674. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5705 - Biological Research Workshop

For graduate and advanced undergraduate students who are directly engaged in original research. Provides introduction to the discovery dissemination and peer review process associated with writing research proposals, manuscripts, and grants, as well as poster and oral presentations. Students will workshop each other's original research. Graduate students enroll in 6705; research-active undergraduates enroll in 5705. Cross-listed with BIOL 6705. Prereq: Students involved in original research. Restriction: Restricted to degree-granting graduate programs. Max hours: 2 Credits. **Semester Hours:** 2 to 2

BIOL 5815 - Structural Biology of Neurodegenerative Diseases

Advanced course in Biochemistry/Biophysics. Principles of Protein Folding, Structure-Function Relationship, and spectroscopic techniques related to characterization of these processes as applied to neurodegenerative diseases such as Parkinson's and

Alzheimer's. Restriction: Restricted to degree-granting graduate programs. Cross-listed with CHEM 4815, BIOL 4815, and BIOL 4815. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5825 - Biochemistry of Metabolic Disease

Advanced course in biochemistry. An expanded study of selected topics in metabolism and how they relate to diseases, including inflammation, diabetes, obesity, and rare genetic disorders. Restriction: Restricted to degree-granting graduate programs. Cross-listed with CHEM 4825, CHEM 5825, and BIOL 4825. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5835 - Biochemistry of Gene Regulation and Cancer

Explores the biochemical and molecular aspects of cancer biology. Topics include DNA mutations and repair, gene regulation, oncogenes and tumor suppressors, stem cells and differentiation, and cancer drug development. Restriction: Restricted to degree-granting graduate programs Cross-listed with CHEM 4835, CHEM 5835, and BIOL 4835. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 5840 - Independent Study: BIOL

Note: Registration by special processing form only. Restriction: Restricted to degree-granting graduate programs. Term offered: fall, spring, summer. 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. Restriction: Restricted to degree-granting graduate programs. 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. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the

course expectations, assignments and outcomes, to the Graduate School for approval. Restriction: Restricted to degree-granting graduate programs. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 6

BIOL 5974 - Advanced 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.

Restriction: Restricted to degree-granting graduate programs. 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. Restriction: Restricted to degree-granting graduate programs. Term offered: fall. Max hours: 1 Credit. **Semester Hours:** 2 to 2

BIOL 6655 - Seminar

Restriction: Restricted to degree-granting graduate programs. Cross-listed with BIOL 4990. Term offered: fall, spring. Max hours: 2 Credits. **Semester Hours:** 1 to 1

BIOL 6705 - Biological Research Workshop

For graduate and advanced undergraduate students who are directly engaged in original research. Provides introduction to the discovery dissemination and peer review process associated with writing research proposals, manuscripts, and grants, as well as poster and oral presentations. Students will workshop each other's original research. Graduate students enroll in 6705; research-active undergraduates enroll in 5705. Cross-listed with BIOL 5705. Prereq: Students involved in original research and permission of instructor. Restriction: Restricted to degree-granting graduate programs. Term offered: fall, spring. 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. Includes intensive computer lab using the statistical

programming software R to demonstrate both traditional analytical and contemporary simulation based (permutation, bootstrap, and Bayesian) approaches for inference in biology. Restriction: Restricted to degree-granting graduate programs. Max hours: 4 Credits. **Semester Hours:** 4 to 4

BIOL 6880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Restriction: Restricted to degree-granting graduate programs. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

BIOL 6950 - Master's Thesis

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Restriction: Restricted to degree-granting graduate programs. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 8

BIOL 7010 - 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 in the Integrative and Systems Biology PhD program will enroll in this course during their first year. Restriction: Restricted to degree-granting graduate programs. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BIOL 7050 - Special Topics

Readings in current biology topics. Specific topics vary and may be proposed by groups of graduate students who identify a suitable faculty instructor or by a faculty member who identifies a need for advanced study in a specialized topic of biology. Restriction: Restricted to degree-granting graduate programs. Max hours: 9 Credits. **Semester Hours:** 1 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. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Prereq: Ph.D. student and permission of instructor. Restriction: Restricted to degree-granting graduate programs. Term offered: fall, spring, summer. Max hours: 10 Credits. **Semester Hours:** 1 to 10

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. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Prereq: Students must be in the Integrative and Systems Biology PhD program and have permission from the instructor. Restriction: Restricted to degree-granting graduate programs. Term offered: fall, spring, summer. 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. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Prereq: Students must be in the Integrative and Systems Biology PhD program and have permission from the instructor. Restriction: Restricted to degree-granting graduate programs. Term offered: fall, spring, summer. Max hours: 60 Credits. **Semester Hours:** 1 to 10

BIOL 9000 - INTC: Special Topics

Restriction: Restricted to degree-granting graduate programs. Max hours: 10 Credits. **Semester Hours:** 1 to 10

Bus Minor for non-bus majors

BMIN 1000 - Introduction to Business

The business and economic landscape is introduced illustrating the challenges and opportunities in today's business environment. A foundation in traditional business disciplines is introduced including the principles and terminology employed in Marketing, Management, Finance, Accounting, Operations, and Economics. This course is cross-listed with MGMT 1000. Restriction: Students enrolled in the Business School are not eligible for this course. Note: Students seeking a Minor in Business Fundamentals are encouraged to enroll in BMIN 1000 as their first course. However, BMIN 1000 may be taken as a co-requisite with BMIN 3001, 3002 or 3003 or ENTP 3000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BMIN 1010 - Introduction to Business -- Career Planning

Students will explore their best career choices based on assessments and their personality type. They will learn what strengths they bring to a team and to their individual management style utilizing the Myers Briggs Type Indicator and Strong Interest Inventory assessments. Topics covered include: career exploration, career and internship planning, personality styles and strengths, working with executives, corporate culture overview, business trends and news, and analysis of Fortune 100 companies. Supplemental topics include: resume writing, effective interviewing, time management, business writing and hiring trends. Restriction: Students enrolled in the Business School are not eligible for this course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BMIN 3001 - Fundamentals of Management and Marketing

Comprised of two modules focusing on essential concepts of Management and Marketing: 1) Management: Including organizational behavior concepts, leadership, management skills and methods and team dynamics 2) Marketing: Students will develop a new product marketing plan including, industry and market research, market segmentation, marketing mix planning and implementation strategies. Restriction: Students enrolled in the Business School are not eligible for this course. Co-req: BMIN 1000 or MGMT 1000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BMIN 3002 - Fundamentals of Accounting and Finance

Comprised of two modules focusing on essential concepts of 1) Accounting: including the use of information in financial reports and in making business decisions, and 2) Finance: including financial markets, capital structure, time-value of money, valuation and capital budgeting. Restriction: Students enrolled in the Business School are not

eligible for this course. Co-req: BMIN 1000 or MGMT 1000. Max hours: 3 Credits.

Semester Hours: 3 to 3

BMIN 3004 - Principles of Strategic Management

Students will examine the critical issues related to running sustainable businesses. Using the strategic management model as a framework, the course focuses primarily on developing and implementing corporate strategy. Topics covered include mission, vision and values; corporate social responsibility; competitive analysis; leveraging core competencies; developing a business model, and creating value. Supplemental topics include how to create competitive advantage through innovation, choosing an appropriate legal business entity, and managing risk. This is a capstone course and synthesizes key concepts from other Cohort Business Minor courses including entrepreneurship, accounting & finance, management, and marketing. Restriction: Students enrolled in the Business School are not eligible for this course. Prereq: BMIN 3001, BMIN 3002, Junior-Level Standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Business

BUSN 1110 - Intro to Investment Services Careers

Open to all majors! Provides a comprehensive overview of careers in the Investment Services industry. Emphasis will be on interactions with industry professionals to provide hands-on knowledge and opportunities for in-depth discussion. Students are required to participate in a site visit to an investment services company during the course. Max hours: 1 Credit. **Semester Hours:** 1 to 1

BUSN 5939 - Internship

Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6560 - Marketing Dynamics in the 21st Century

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. Emphasis on cases and guest speakers. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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. Restrictions: Restricted to HLAD and MBAH majors within the Business School. Max hours: 3 Credits. **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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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 firms 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. Co-req: BUSN 6550 or ACCT 6030 or ACCT 6031 and BUSN 6530 or FNCE 6290 or BANA 6610. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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. Co-req: BUSN 6550 or ACCT 6030 or ACCT 6031 and BUSN 6530 or FNCE 6290 or BANA 6610. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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 contemporary Operation Management topics using current techniques and modeling to solve and understand key issues. Basic Excel skills are required. The use of model-assisted decision making is emphasized. Restriction:

Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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 with a grade of C or better. Coreq: BUSN 6530 or FNCE 6290 or BANA 6610 and BUSN 6620 or BUSN 6621. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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. Coreq: BUSN 6560 or 6561, BUSN 6630 or BUSN 6631; and BUSN 6640. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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. Coreq: BUSN 6560 or BUSN 6561, and BUSN 6640. Restrictions: Restricted to HLAD and MBAH majors within the Business School. 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 6807 - Analyzing Emerging Opps & Planning During Uncertain Time

To develop strategic thinking and practical planning skills. Prepare students for the dynamic and uncertain business environ bus prof face today. More specifically, we explore how to think innovatively and spot trends, develop formal business plans around emerging opportunities, address uncertain and volatile situations using scenarios.

Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 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. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits.

Semester Hours: 3 to 3

BUSN 6812 - Business Intelligence and Analytics

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. For the best outcome it is recommended that you complete ISMG 6080 prior to taking this course.

Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BUSN 6840 - Independent Study

Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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, or MATH 1080, or MATH 1110, or MATH 1120, or MATH 1130, or MATH 1401 with a grade of C- or higher. Restriction: Restricted to undergraduate students at a sophomore standing or higher. 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: BANA 2010 and ACCT 2200 both with a grade of 'C-' or higher. Restriction: Restricted to undergraduate students at a junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 4840 - Independent Study

Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 9 Credits. **Semester Hours:** 3 to 3

BANA 4950 - Special Topics in Business Analytics

Course offered on an irregular basis for the purpose of presenting new subject matter in Business Analytics. Prereq: Will vary depending upon the particular topic and instructor. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 5939 - Internship

Max hours: 9 Credits. **Semester Hours:** 1 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, regression analysis, classification, regression with high dimensional data, etc. Students gain hands-on experience with data analytic problems via projects using real

business settings and data. Restriction: Restricted to MS BANA majors within the Business School. 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. Co-Req: BANA 6610. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 6630 - Time-Series Forecasting

The time series analysis is critical to industries such as finance, marketing, retail, and accounting. This course introduces time-series models with emphasis on their practical applications in business. The goal is to show how dynamic financial and economic data can be modeled and analyzed using proper statistical techniques. The topics include methods for trend and seasonal analysis and adjustment, modeling and forecasting with autoregressive moving average (ARMA) processes, and model identification and diagnostics for time series. Other subjects include volatility and state space models. This course provides hands-on experience by pairing lectures on methodology with lab sessions using R to perform real-world data analyses. If you do not meet the prerequisites you may contact the instructor for permission to register. Prereqs: BANA 6610. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Note: Can only receive credit for either BANA 6630/DSCI 6230. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 6640 - Decision Analysis

Introduces a quantitative approach to business decision making under conditions of risk and uncertainty. Emphasis will include introductions to decision analysis theory, risk analysis, utility theory, multi-criteria decision making, Bayesian decision analysis and hierarchical structured models. Psychological issues and qualitative approaches in the decision-making process will be discussed. Student computer-assisted projects are included. Prereq: BANA 6610 or permission from instructor. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 6660 - Predictive Analytics

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. If you do not meet the prerequisites listed, you may contact the instructor for permission. Prereq: BANA 6610 Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 6670 - Prescriptive Analytics with Optimization

Optimization is a key part of Business Analytics dealing with decision problems that lend themselves to modelling and analysis designed to determined optimal decisions. In this course, we'll study methodologies for determining the best course of action in situations with a large number of alternatives, each with their own financial or other characteristics, including restrictions on our actions that must be satisfied as we search for best solutions. While the focus of the course is on modeling and solving a wide variety of optimization problems, we'll also cover the basic mathematical underpinnings of linear programming, the most widely used form of optimization in industry and government and the foundation of many extensions into other classes of optimization. State of the art Software for solving optimization problems will be used throughout the course. Students will work in teams on a project involving optimization and some important problem. Co-Req: BANA 6610. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 6680 - Optimization for Machine Learning

This course will give an introduction on numerical optimization algorithms in the context of machine learning applications. We shall discuss how optimization problems arise in machine learning and what makes them challenging. Topics include traditional nonlinear optimization, linear optimization and discrete optimization with an emphasis on effective computational techniques. We shall also talk about next generation large-scale machine learning algorithms such as stochastic gradient (SG) method. Applications to a variety of areas such as text mining and neural networks are also stressed through class projects. Problems will be solved using appropriate software tools. Prereq: BANA 6620 and BANA 6670. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours: 3 to 3**

BANA 6690 - Network Modeling

This course introduces network modeling. Utilizing data and metadata, programming, algorithms, statistical analysis, and visualization; networks are studied. The focus is on Business Applications to provide managerial insights and recommendations and will include transportation, social, transactional, electrical and communication networks. Prereq: BANA 6620. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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: Grade of A- (3.7) in BUSN 6530 or BANA 6610. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 6730 - Supply Chain Analytics

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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BANA 6750 - Large-Scale Optimization Methods for Big Data

Optimization methodologies comprise one of the major components of modern business analytics. In the era of big data where problem scale is enormous, the ability to model and solve large-scale problems is increasingly important. In the first part of this course we will learn how to model and solve large scale applications by using the AMPL modeling language and solvers such as CPLEX and Gurobi. The second half of the course will be devoted to working on projects. Prereq: BUSN 6630 with a grade of "C" or better. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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: Will vary depending upon the particular topic (consult the schedule of classes). Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Business Law

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. Restriction: Restricted to undergraduate students at a junior standing or higher. Cross-listed with BLAW 3000, ENTP 3120, and BLAW 4120. 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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

BLAW 4140 - Negotiation Skills/Property: Effective Strategies

Course covers real and personal property law, including ownership, title, landlord/tenant, easements, environmental law, and zoning. Emerging issues in intellectual property are also reviewed, including U. S. law and international treaties and agreements. Negotiation techniques through role-playing are emphasized. NOTE: This course is an elective course and may not be used to fulfill the CORE BLAW 3050 course. Meets concurrently with MGMT 4140. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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). Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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 is a lecture- only course intended for students pursuing a degree in science or a health-related field. The course is designed for students who have never had a chemistry course or who have not taken general chemistry in 5+ years. Topics include

the classification of matter, the Metric system, dimensional analysis, atomic theory and the structure of atoms, periodic relationships, energy and temperature, gas laws and the kinetic molecular theory, compounds and nomenclature of inorganic compounds, the mole, stoichiometry, types of chemical reactions, balancing equations, electron configurations, and chemical bonding. Enrollment in this course is strongly encouraged prior to enrollment in Chem 2031 if the student does not have a strong and recent background in general chemistry. Note: College Algebra or the equivalent is strongly recommended for optimal student success. Students may not receive credit for this course if they have already received credit for CHEM 2031 and CHEM 2061. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 1111 - First Year Seminar

Restriction: Restricted to Freshman level students. Term offered: fall. 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. Note: Students may not receive credit for this course if they have already received credit for CHEM 2031 and CHEM 2061. 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) are strongly recommended for optimal student success. Note: Students may not receive credit for this course if they have already received credit for CHEM 2031 and CHEM 2061. Max hours: 5 Credits. **Semester Hours:** 5 to 5

CHEM 1474 - Core Chemistry: Chemistry for Everyday

Focuses on the common household chemicals that affect us on a daily basis. Students explore current topics in chemistry and the underlying chemistry of nuclear power, plastics, sunscreens, food, acid rain, etc. Home-based laboratory experiments with safe, common substances. No co-credit: Students may not receive credit for this course if they

have already received credit for CHEM 2031 and CHEM 2061. Term offered: fall, spring, summer. 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 1494 - Forensic Science

This one semester chemistry lecture and laboratory course is designed to engage a non-science major through the high-interest topic: criminal investigations. In this course, using the theme of forensic science students will be introduced to a basic understanding of chemistry, the physical and chemical properties of matter, simple types of chemical reactions and equations, and molecular structure of drugs and biomolecules. Note: Two years of high school science and one year of high school algebra are strongly recommended for optimal success. Students will not receive credit for this course if they have already received credit for CHEM 2031 and CHEM 2061. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 1575 - Chemistry: History and Policies

A study of the building blocks of all matter: chemicals. A focus on how the study of chemistry began and how it has changed over the course of history. The course explores how chemistry has impacted man from the earliest times: from the Bronze Age to the present and beyond. Students learn about the first use of manufactured chemical substances in history and the progression of chemical knowledge throughout history. Students also study how certain substances introduced into the environment throughout history have affected the environment and what policies have been put in place to control or remediate the release of these substances. Eight home-based laboratory experiments will be performed during the semester. High school algebra is strongly recommended preparation for this course. Math concepts critical for this course include basic operations—addition, subtraction, multiplication and division, order of operations, exponents, square roots and the ability to rearrange and solve algebraic equations. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 2031 - General Chemistry I

This is the first of a two semester sequence designed for students pursuing a degree in science or a health related field. Chem 2031 is designed for students who have recently completed high school chemistry or Chem 1000 with a C- or better. Note: Non-science majors should review the course description for Chem 1474 as an alternative, non-majors science CU Denver Undergraduate Core course, with lab credit. Topics covered include the classification of matter, the Metric system, dimensional analysis, atomic theory and the structure of atoms, periodic relationships, empirical formulas,

thermochemistry, gas laws and the kinetic molecular theory, compounds and nomenclature of inorganic compounds, the mole, balancing equations, stoichiometry, types of chemical reactions, solution stoichiometry and dilutions, electron configurations, chemical bonding, Lewis Dot Theory, Valence Shell Electron Pair repulsion Theory, and other topics as time allows. This course is a prerequisite or co-requisite for General Chemistry 1 Lab, Chem 2038. No co-credit with CHEM 2081. Note: a beginning course for science majors, medical technologists, pre-medical and pre-dental students. It is strongly recommended that students have taken CHEM 1000 and MATH 1110 or their high school equivalents to be adequately prepared to succeed in this course. Term offered: fall, spring, summer. 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

Laboratory course designed to accompany Chem 2031. Topics include gravimetric analysis, statistical analysis, stoichiometry, Avogadro's number, thermochemistry, atomic spectroscopy, paper chromatography, and gas laws. No co-credit with CHEM 2088. Coreq: CHEM 2031 or CHEM 2081. Term offered: fall, spring, summer. 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

CHEM 2061 - General Chemistry II

This is a continuation of Chem 2031 and is the second course of a two semester sequence designed for students pursuing a degree in science or a health related field. CHEM 2061 builds upon the understanding of chemistry rooted in the molecular nature of matter and change from General Chemistry I and expands to include topics such as intermolecular forces, solution chemistry, kinetics, chemical equilibrium, acid-base chemistry, buffer chemistry, solubility, thermodynamics and time permitting, electrochemistry. Specific topics include: the use of bonding theories to explain the relationships between atomic structure, molecular shape, and macroscopic properties of matter including boiling point, vapor pressure, surface tension, viscosity, and capillarity; the understanding of molecular structure to explain the energetics of solution formation as well as vapor pressures of pure liquids and solutions; the application of rates of reactions to define the state of equilibrium; the application of problem solving techniques for systems at equilibrium to acid/base and solubility chemistry; and the thermodynamic underpinnings of chemical reaction rates and the spontaneous conversion of chemical species to attain a state of dynamic equilibrium. This course is a prerequisite or co-requisite for General Chemistry II Lab, Chem 2068. Prereq: CHEM 2031 or 2081 with a C- or higher. No co-credit with CHEM 2091. Term offered: fall, spring, summer. 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

Laboratory course designed to accompany Chem 2061. Topics include colligative properties, spectroscopic analysis, kinetics, equilibrium, acid-base chemistry, titrations, and qualitative analysis of metal cations. No co-credit with CHEM 2098. Prereq: CHEM 2038 or 2088 with a C- or higher. Coreq: CHEM 2061 or 2091. Term offered: fall, spring, summer. 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

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. Honors section: Course assumes knowledge of stoichiometry and basic atomic structure. Note: Students may not receive credit for this course if they have already received credit for CHEM 2031. Prereq: Admission into specific CU Denver program or consent of instructor is required to enroll. Working knowledge of high school algebra and advanced high school chemistry are required. Restriction: Restricted to Chemistry Honors students (CH01). Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 2088 - Honors General Chemistry I Laboratory

Laboratory experiments on topics covered in CHEM 2031 or CHEM 2081, gaining experience in observing, recording, and interpreting physical and chemical phenomena. Offers smaller sections and greater access to specialized techniques, open ended experiments, and instrumentation, requiring a faster pace and more sophisticated work. Note: Students may not receive credit for this course if they have already received credit for CHEM 2038. Prereq: Admission into specific CU Denver program or consent of instructor is required to enroll. Coreq: CHEM 2031 or CHEM 2081. No co-credit with CHEM 2038. Term offered: fall. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CHEM 2091 - Honors General Chemistry II Lecture

Continuation of CHEM 2081. Additional topics may include kinetics, equilibria and thermodynamics. Note: Students may not receive credit for this course if they have already received credit for CHEM 2061. Note: Admission into specific CU Denver

program or consent of the instructor is required. Prereq: CHEM 2081 or 2031 with a C- or higher. Restriction: Restricted to Chemistry Honors students (CH01). No co-credit with CHEM 2061. Term offered: spring. 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: Admission into specific CU Denver program or consent of instructor is required to enroll. Prereq: CHEM 2038 or CHEM 2088. Coreq: CHEM 2091 or CHEM 2061. Restriction: Restricted to Chemistry Honors Students. No co-credit with CHEM 2068. Term offered: spring. 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 or CHEM 1474 or CHEM 2031 with a C- or better. Term offered: spring. 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

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments

and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. 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. Term offered: spring. 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. Term offered: spring. 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 or CHEM 2091 with a C- or higher. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 3118 - Analytical Chemistry Laboratory

CHEM 3118 provides a strong background in those chemical principles that are particularly important to analytical chemistry, such as the ability to obtain high-quality analytical data. Students gain experience with techniques of sampling and analysis, including an introduction to instrumental methods. Additionally, students develop the skills needed to solve analytical problems in a quantitative manner, with the aid of spreadsheet tools. The post laboratory assignments demonstrate a writing process that

follows the guidelines of the American Chemical Society. Note: Laboratory course to be taken concurrently with CHEM 3111. Prereq: CHEM 2068 or CHEM 2098 with a C- or higher. Coreq: CHEM 3111 or CHEM 3481. Term offered: fall. Max hours: 2 Credits.

Semester Hours: 2 to 2

CHEM 3411 - Organic Chemistry I

Lecture course for science majors. Topics covered include Structure and Bonding, Stereochemistry, Alkanes, reactions of alkenes, alkyl halides, alcohols and other functional groups, reaction mechanism and spectroscopy. Prereq: CHEM 2061 or 2091 with a C- or higher. No co-credit with CHEM 3481. Term offered: fall, spring, summer. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 3418 - Organic Chemistry Lab I

Laboratory course for science majors. Topics include methods of purification, separation and analysis of organic compounds; organic reactions and workups and spectroscopy. Emphasis on scientific writing. Prereq: CHEM 2068 or 2098 with a C- or higher. Coreq: CHEM 3411 or CHEM 3481. No co-credit with CHEM 3488. Term offered: fall, spring, summer. Max hours: 1 Credit. **Semester Hours:** 1 to 1

CHEM 3421 - Organic Chemistry II

Lecture course for science majors. A continuation of Chem 3411. Topics covered include spectroscopy, aromaticity, reactions of alkynes, conjugated dienes, benzene, benzene derivatives, aldehydes, ketone, carboxylic acids, carboxylic acid derivatives, enols, enolates and amines, reaction mechanisms and syntheses. Prereq: CHEM 3411 or 3481 with a C- or higher. No co-credit with CHEM 3491. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 3428 - Organic Chemistry Lab II

Laboratory course for science majors. A continuation of CHEM 3418. Topics include analysis of organic unknowns, organic reactions and workups and spectroscopy. Emphasis on scientific writing. Prereq: CHEM 3418 or 3488 with a C- or higher; Coreq: CHEM 3421 or CHEM 3491. Note: Students will not receive credit for CHEM 3428 if they take it after successfully completing CHEM 3498. Term offered: fall, spring, summer. Max hours: 1 Credit. **Semester Hours:** 1 to 1

CHEM 3481 - Honors Organic Chemistry I

Lecture course for science majors. An accelerated and in-depth approach to organic chemistry. Intended for chemistry majors and advanced premedical, pre-dental, pre-pharmacy and other health related careers requiring a full year of organic chemistry. Instructor permission required. Topics covered include Structure and Bonding, Stereochemistry, Alkanes, reactions of alkenes, alkyl halides, alcohols and other functional groups, reaction mechanism and spectroscopy. Prereq: CHEM 2061 or CHEM 2091, and CHEM 2068 or CHEM 2098 with a C- or higher. Coreq: CHEM 3418 or CHEM 3488. Instructor permission required to enroll. No co-credit with CHEM 3411. Term offered: fall. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 3488 - Honors Organic Chemistry Laboratory I

Laboratory course for science majors. Honors laboratory class to accompany CHEM 3411 or CHEM 3481. Topics include methods of purification, separation and analysis of organic compounds through extended experiments; organic reactions and workups and spectroscopy. Emphasis on scientific writing. Prereq: CHEM 2068 or CHEM 2098 with a C- or higher. Coreq: CHEM 3411 or CHEM 3481. Instructor permission required to enroll. Note: No co-credit with CHEM 3418. Term offered: fall. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CHEM 3491 - Honors Organic Chemistry II

Lecture course for science majors. A continuation of Chem 3481. An accelerated and in-depth approach to organic chemistry. Intended for chemistry majors and advanced pre-medical, pre-dental, pre-pharmacy and other health related careers requiring a full year of organic chemistry. Instructor permission required. Topics covered include spectroscopy, aromaticity, reactions of alkynes, conjugated dienes, benzene, benzene derivatives, aldehydes, ketone, carboxylic acids, carboxylic acid derivatives, enols, enolates and amines, reaction mechanisms and syntheses. Prereq: CHEM 3411 or CHEM 3481 and CHEM 3418 or CHEM 3488 with a C- or higher and instructor consent are required in order to enroll in this course. No co-credit with CHEM 3421. Term offered: spring. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 3498 - Honors Organic Chemistry Laboratory II

Laboratory course for science majors. A continuation of CHEM 3418 or CHEM 3488. Topics include multi-step organic reactions, workups and spectroscopy and an independent research project. Emphasis on use of the chemical literature, scientific writing and scientific presentation. Prereq: CHEM 3411 or CHEM 3481 and CHEM 3418 or CHEM 3488 with a C- or higher and instructor consent are required in order to enroll

in this course. Coreq: CHEM 3421 or CHEM 3491. Note: Students will not receive credit for CHEM 3428 if they take it after successfully completing CHEM 3498. Term offered: fall, spring. 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 or CHEM 2091, MATH 1120 (or 1130, 1401, 2411, 2421) and PHYS 2020 with a C- or higher. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 3810 - Biochemistry

Introduces the principles of biochemistry for science and health science-oriented majors. This survey course covers the important aspects of modern biochemistry including macromolecular structure, enzymology, and metabolism in one semester. Prereq: BIOL 2061 or 2097 and CHEM 3411 or 3481 with a C- or higher. Term offered: fall, spring, summer. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 3840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. 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: Students must have a junior standing and at least a 2.75 GPA and must work with the Experiential Learning Center advising to complete a course contract and gain approval. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 3

CHEM 4010 - 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. Requisite knowledge in

Undergraduate Inorganic and Physical Chemistry assumed. Cross-listed with CHEM 5010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4110 - 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). Requisite knowledge in Undergraduate Instrumental Analysis is assumed. Cross-listed with CHEM 5110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4121 - Instrumental Analysis

Surveys instrumental methods of analysis, emphasizing atomic and molecular spectroscopy, mass spectrometry, surface characterization, and chromatography techniques. Students are introduced to a wide array of powerful and elegant tools for obtaining qualitative and quantitative information about the composition and structure of matter. Prereq: CHEM 3111, CHEM 3421 or CHEM 3491, CHEM 4521 and PHYS 2331 with a C- or higher. Coreq for Chemistry majors: CHEM 4128. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4128 - Instrumental Analysis Laboratory

CHEM 4128 demonstrates a wide array of powerful and elegant tools for obtaining qualitative and quantitative information about the composition and structure of matter. The post laboratory assignments demonstrate a writing process that follows the guidelines of the American Chemical Society. Note: Required of chemistry majors and open to other students in CHEM 4121. Prereq: CHEM 3118 and 4538 with a C- or higher. Coreq: CHEM 4121. Term offered: spring. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CHEM 4221 - Practical Applications of Spectroscopy

This course surveys spectroscopic methods in order to deduce the structure of organic compounds from an examination of spectra, with an emphasis on infrared spectroscopy, mass spectrometry, nuclear magnetic resonance spectroscopy, and ultraviolet spectroscopy. Students will be introduced to a wide array of powerful and elegant tools for obtaining qualitative information about the structure of matter. This course will require a good amount of thought, yet all of the concepts and associated mathematical

manipulations are within the reach of a student who has met the prerequisites. Prereq: CHEM 3411 or CHEM 3481. Cross-listed with CHEM 5221. Max hours: 3 Credits.

Semester Hours: 3 to 3

CHEM 4310 - 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. Requisite knowledge in Undergraduate Organic Chemistry and Physical Chemistry is assumed. Restriction: Restricted to degree-granting Graduate programs. Cross-listed with CHEM 5310. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4421 - Cannabis Chemistry

An exploration of the terpene to cannabinoid compounds including biosynthesis pathways; human receptor structures and mechanism; current analytical methods for Quality Assurance and Quality Control and current research in medical applications. Prerequisite: Organic Chemistry I with a C- or higher (Chem 3411 or Chem 3481), and corequisite/prerequisite: Organic Chemistry II (CHEM 3421 or CHEM 3491). Cross-listed with CHEM 5421. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4500 - Foundations of Physical Chemistry

This course prepares students for CHEM 4511 and/or 4521. The goal is to bridge the gap between algebra- and calculus-based physics courses and to introduce essential math concepts and skills in Calculus III that are relevant to the Physical Chemistry course sequence 4511/4521. Prereq: MATH 2411, PHYS 2020 or PHYS 2331 and CHEM 3421 or CHEM 3491 with a C- or higher, pre- or co-requisite MATH 3511. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4510 - 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. Requisite knowledge in Undergraduate Physical Chemistry is assumed. Cross-listed with CHEM 5510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4511 - Physical Chemistry: Thermodynamics and Kinetics

Includes study of the laws of thermodynamics, thermochemistry, chemical equilibria, solutions and statistical mechanics. Prereq: PHYS 2020 or PHYS 2331 with C- or higher and co-requisite or pre-requisite: MATH 3511 Mathematics of Chemistry -OR- CHEM 4500 Foundations for Physical Chemistry. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4518 - Physical Chemistry Laboratory: Reaction Analysis

Instruction in the experimental techniques of physical chemistry with emphasis on the properties of gases, thermodynamics and chemical equilibrium. Prereq: CHEM 3118 with a C- or higher. Coreq: CHEM 4511. Term offered: spring. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CHEM 4521 - Physical Chemistry: Quantum and Spectroscopy

Continuation of CHEM 4511, with emphasis on chemical kinetics, quantum mechanics, molecular structure and spectroscopy. Prereq: PHYS 2020 or PHYS 2331 with C- or higher and co-requisite or pre-requisite: MATH 3511 Mathematics of Chemistry -OR- CHEM 4500 Foundations for Physical Chemistry. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4530 - 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. Requisite knowledge in Undergraduate Physical Chemistry is assumed. Cross-listed with CHEM 5530. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4538 - Physical Chemistry Laboratory: Molecular Structure

CHEM 4538 explores the central principles of physical chemistry, with emphasis on quantum chemistry, spectroscopy, and computational methods. The post laboratory assignments demonstrate a writing process that follows the guidelines of the American Chemical Society. Prereq: CHEM 3118 with a C- or higher. Co-Req: CHEM 4521. Term offered: fall. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CHEM 4548 - Physical Biochemistry Laboratory

Experimental techniques of physical chemistry emphasizing thermodynamics, kinetics, and spectroscopy of biological molecules. Fulfills the Physical Chemistry Lab requirement for Biochemistry Emphasis majors. Prereq: CHEM 3118. Prereq/Coreq: CHEM 4511 and CHEM 4521. Recommended Preparation: CHEM 4810. Term offered: spring. 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 4610 - Understanding & Presenting Chemical Research

This course will improve your ability to systematically search for chemical information, help you interpret the information you find, & improve your ability to summarize and present that information. Prereq: CHEM 2061 or CHEM 2091 with a C- or higher. Cross-listed with CHEM 5610. Term offered: fall, spring. Max hours: 2 Credits. **Semester Hours:** 1 to 2

CHEM 4655 - Teaching Assistant Bootcamp

This course is 4-5 8-hour days of intensive training in suitable pedagogy for general chemistry and organic chemistry laboratory classes, procedures for teaching laboratory sections, and laboratory techniques. Students must have a teaching assistant contract with the Chemistry Department in order to take this course. Cross-listed with CHEM 5655. Term offered: fall. Max hours: 1 Credit. **Semester Hours:** 1 to 1

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 CHEM 3411 or CHEM 3481 with a C- or higher. Cross-listed with CHEM 5700. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4810 - General Biochemistry I

In-depth introductory course for chemistry, science and health science majors. Topics

include structure and energetics of proteins; mechanisms and kinetics of enzymes; structure and function of carbohydrates, lipids and nucleic acids. Prereq or Coreq: CHEM 3421 or CHEM 3491 with a grade of C- or higher. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4815 - Structural Biology of Neurodegenerative Diseases

Advanced course in Biochemistry/Biophysics. Principles of Protein Folding, Structure-Function Relationship, and spectroscopic techniques related to characterization of these processes as applied to neurodegenerative diseases such as Parkinson's and Alzheimer's. Prereq: 1) BIOL 2051 & BIOL 2071 or BIOL 2095 & BIOL 2096, and 2) CHEM 3810 or CHEM 4810 or CHEM 5810. Coreq: PHYS 2020 or PHYS 2331. Cross-listed with CHEM 5815, BIOL 4815, and BIOL 5815. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4820 - General Biochemistry II

Advanced course for chemistry, science and health science majors. Topics include energetics and pathways for metabolism of carbohydrates, lipids, and amino acids. Prereq: CHEM 3810 or 4810 or 5810 with a C- or higher. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4825 - Biochemistry of Metabolic Disease

Advanced course in biochemistry. An expanded study of selected topics in metabolism and how they relate to diseases, including inflammation, diabetes, obesity, and rare genetic disorders. Prereq: 1) CHEM 3810 or CHEM 4810 or CHEM 5810, and 2) BIOL 2051 & BIOL 2071 or BIOL 2095 and BIOL 2096. Cross-listed with CHEM 5825, BIOL 4825 and BIOL 5825. Term offered: fall. 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 characterization. Students perform experiments including chromatography, electrophoresis, molecular cloning, spectrophotometry, and enzyme activity assays. Prereq: CHEM 3810 or CHEM 4810 or CHEM 5810 with a C- or higher. Term offered: spring. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CHEM 4835 - Biochemistry of Gene Regulation and Cancer

Explores the biochemical and molecular aspects of cancer biology. Topics include DNA mutations and repair, gene regulation, oncogenes and tumor suppressors, stem cells and differentiation, and cancer drug development. Prereq: 1) CHEM 3810 or CHEM 4810 or CHEM 5810, and 2) BIOL 2051 & 2071 or BIOL 2095 & BIOL 2096. Cross-listed with CHEM 5835, BIOL 4835, and BIOL 5835. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4840 - Independent Study: Chem

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Prereq: Permission of instructor required. Term offered: fall, spring, summer. Max hours: 12 Credits. **Semester Hours:** 1 to 6

CHEM 4845 - Molecular Modeling and Drug Design

Advanced course in biochemistry. An introductory course on modern molecular modeling techniques and their applications to computer-aided rational drug design. Prereq: CHEM 3411 with a C- or higher and either PHYS 2020 or PHYS 2331 with a C- or higher. Cross-listed with CHEM 5845. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 6 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. Requisite knowledge in Undergraduate Inorganic and Physical Chemistry assumed. Restriction: Restricted to

degree-granting Graduate programs. Cross-listed with CHEM 4010. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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 with a B- or higher. 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). Requisite knowledge in Undergraduate Instrumental Analysis is assumed. Restriction: Restricted to degree-granting Graduate programs. Cross-listed with CHEM 4110. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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. Requisite knowledge in Undergraduate Instrumental Analysis is assumed. Restriction: Restricted to degree-granting Graduate programs. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 5221 - Practical Applications of Spectroscopy

This course surveys spectroscopic methods in order to deduce the structure of organic compounds from an examination of spectra, with an emphasis on infrared spectroscopy, mass spectrometry, nuclear magnetic resonance spectroscopy, and ultraviolet spectroscopy. Students will be introduced to a wide array of powerful and elegant tools for obtaining qualitative information about the structure of matter. This course will require a good amount of thought, yet all of the concepts and associated mathematical manipulations are within the reach of a student who has met the prerequisites. Restriction: Restricted to degree-granting graduate programs. Cross-listed with CHEM 4221. 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. Restriction: Restricted to degree-granting Graduate programs. 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. Requisite knowledge in Undergraduate Organic Chemistry and Physical Chemistry is assumed. Restriction: Restricted to degree-granting Graduate programs. Cross-listed with CHEM 4310. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 5421 - Cannabis Chemistry

An exploration of the terpene to cannabinoid compounds including biosynthesis pathways; human receptor structures and mechanism; current analytical methods for

Quality Assurance and Quality Control and current research in medical applications. Restriction: Restricted to degree-granting Graduate programs. Cross-listed with CHEM 4421. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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. Requisite knowledge in Undergraduate Physical Chemistry is assumed. Restriction: Restricted to degree-granting Graduate programs. Cross-listed with CHEM 4510. 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. Requisite knowledge in Undergraduate Physical Chemistry is assumed. Restriction: Restricted to degree-granting Graduate programs. 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. Requisite knowledge in Undergraduate Physical Chemistry is assumed. Restriction: Restricted to degree-granting Graduate programs. Cross-listed with CHEM 4530. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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. Requisite knowledge in Undergraduate Physical Chemistry is assumed. Restriction: Restricted to degree-granting Graduate programs. 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. Restriction: Restricted to degree-granting Graduate programs. Term offered: spring. Max hours: 6 Credits. **Semester Hours:** 1 to 3

CHEM 5610 - Understanding & Presenting Chemical Research

This course will improve your ability to systematically search for chemical information, help you interpret the information you find, & improve your ability to summarize and present that information. Restriction: Restricted to degree-granting Graduate programs. Cross-listed with CHEM 4610. Term offered: fall, spring. Max hours: 2 Credits. **Semester Hours:** 1 to 2

CHEM 5655 - Teaching Assistant Bootcamp

This course is 4-5 8-hour days of intensive training in suitable pedagogy for general chemistry and organic chemistry laboratory classes, procedures for teaching laboratory sections, and laboratory techniques. Students must have a teaching assistant contract with the Chemistry Department in order to take this course. Restriction: Restricted to degree-granting graduate programs. Cross-listed with CHEM 4655. Term offered: fall. Max hours: 1 Credit. **Semester Hours:** 1 to 1

CHEM 5700 - Environmental Chemistry

A discussion of the sources, reactions, transport, effects, and fates of chemical species in the water, soil and air environments. Requisite knowledge in Undergraduate Organic and Analytical Chemistry is assumed. Restriction: Restricted to degree-granting Graduate programs. Cross-listed with CHEM 4700. Term offered: spring. 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. Requisite knowledge in Undergraduate Physical or Environmental Chemistry is assumed. Restriction: Restricted to degree-granting Graduate programs. 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 5710 with a B- or higher. Restriction: Restricted to degree-granting Graduate programs or instructor permission. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 5810 - Graduate Biochemistry I

Topics include proteins, mechanisms and kinetics of enzymes, carbohydrates, lipids and membranes, nucleic acids, genetic engineering, signaling pathways, and energetics, which are integrated with critical analysis of recent journal papers, culminating in written and seminar presentations of individual projects. Requisite knowledge in Undergraduate Organic Chemistry is assumed. Restriction: Restricted to degree-granting Graduate programs. Term offered: fall. Max hours: 4 Credits. **Semester Hours:** 4 to 4

CHEM 5815 - Structural Biology of Neurodegenerative Diseases

Advanced course in Biochemistry/Biophysics. Principles of Protein Folding, Structure-Function Relationship, and spectroscopic techniques related to characterization of these processes as applied to neurodegenerative diseases such as Parkinson's and Alzheimer's. Restriction: Restricted to degree-granting graduate programs. Cross-listed with CHEM 4815, BIOL 4815, and BIOL 5815. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 5825 - Biochemistry of Metabolic Disease

Advanced course in biochemistry. An expanded study of selected topics in metabolism and how they relate to diseases, including inflammation, diabetes, obesity, and rare genetic disorders. Restriction: Restricted to degree-granting graduate programs. Cross-listed with CHEM 4825, BIOL 4825, and BIOL 5825. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 5830 - Graduate Biochemistry II

Topics include biosynthesis & metabolism of carbohydrates, lipids& amino acids, & genetic information flow of DNA replication, transcription, translation& regulation of transcription, which are integrated with critical analysis of recent literature, culminating in written& seminar presentations of individual projects. Continuation of 5810. Prereq:

CHEM 5810 with a B- or higher. Restriction: Restricted to degree-granting Graduate programs or permission of instructor. Term offered: spring. Max hours: 4 Credits.

Semester Hours: 4 to 4

CHEM 5835 - Biochemistry of Gene Regulation and Cancer

Explores the biochemical and molecular aspects of cancer biology. Topics include DNA mutations and repair, gene regulation, oncogenes and tumor suppressors, stem cells and differentiation, and cancer drug development. Restriction: Restricted to degree-granting graduate programs Cross-listed with CHEM 4835, BIOL 4835, and BIOL 5835.

Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 5840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer.

Max hours: 9 Credits. **Semester Hours:** 1 to 3

CHEM 5845 - Molecular Modeling and Drug Design

Advanced course in biochemistry. An introductory course on modern molecular modeling techniques and their applications to computer-aided rational drug design. Restriction:

Graduate standing. Cross-listed with CHEM 4845. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHEM 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

CHEM 5939 - Internship

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments

and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 6

CHEM 5950 - Master's Thesis

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. 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. Requisite knowledge in Undergraduate Physical or Environmental Chemistry is assumed. Restriction: Restricted to degree-granting Graduate programs. Term offered: fall, spring, summer. 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: CHEM 6000 with a B- or higher. Term offered: fall, spring, summer. 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. Restriction: Restricted to degree-granting Graduate programs. 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. Restriction: Restricted to degree-granting Graduate programs. 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

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

CHEM 6960 - Master's Report

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. 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. Term offered: fall, spring. 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. Term offered: fall. 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. Note: This course assumes that students have passed CHIN 1010 or equivalent, or have taken one year of high school Chinese, or possess equivalent proficiency. A grade of C- or higher in CHIN 1010 is recommended for success in this course. This course is not intended for native speakers. Term offered: spring. 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. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHIN 1111 - First Year Seminar

Restriction: Restricted to Freshman level students. 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. Note: This course assumes that students have passed CHIN 1020 or equivalent, or have taken two years of high school Chinese, or possess equivalent proficiency. A grade of C- or higher in CHIN 1020 is recommended for success in this course. This course is not intended for native speakers. Term offered: fall. 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. Note: This course assumes that students have passed CHIN 2110 or equivalent, or have taken three years of high school Chinese, or possess equivalent proficiency. A grade of C- or higher in CHIN 2110 is recommended for success in this course. This course is not intended for native speakers. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHIN 2840 - Independent Study

Term offered: fall, spring. 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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. Prereq: Sophomore standing. 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. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHIN 3010 - Advanced Intermediate Chinese

This course capitalizes on students' already acquired knowledge to further develop

language skills in Mandarin Chinese. Students learn to make a transition from reading pedagogically prepared materials to more authentic ones. Note: this course assumes that students have passed CHIN 2120 or equivalent, or possess equivalent proficiency. A grade of C- or higher in CHIN 2120 is recommended for success in this course. This course is not intended for native speakers. Term offered: spring. Max hours: 3 Credits.

Semester Hours: 3 to 3

CHIN 3130 - Special Topics in Chinese

Varying topics in Chinese language, literature and culture appropriate to the 3000 level, not otherwise covered by regular courses. Note: This course assumes that students have passed CHIN 2120 or equivalent, or possess equivalent language proficiency. Note: May be taken more than once, provided that the topic is different each time. Term offered: spring. Max hours: 9 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

Term offered: fall, spring. Max hours: 6 Credits. **Semester Hours:** 1 to 3

CHIN 3939 - Internship - CHIN

- **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 4690 - Methods of Teaching Modern Languages

Studies the methods and practices of teaching modern languages. Note: requirement for language majors in the teacher certification program, School of Education, CU Denver. Cross-listed with MLNG 4690, MLNG 5690, SPAN 4690, SPAN 5690, FREN 4690, FREN 5690, GRMN 4690, GRMN 5690, CHIN 5690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHIN 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. Cross-listed with MLNG 4691, MLNG 5691, SPAN 4691, SPAN 5691, FREN 4691, FREN 5691, GRMN 4691, GRMN 5691, CHIN 5691. Prereq: MLNG 4690 or SPAN 4690 or FREN 4690 or GRMN 4690 or CHIN 4690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHIN 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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

CHIN 5690 - Methods of Teaching Modern Languages

Studies the methods and practices of teaching modern languages. Note: requirement for those wishing to be teaching assistants in the Department of Modern Languages, and for language majors in the teacher certification program, School of Education, CU Denver. Cross-listed with MLNG 4690, MLNG 5690, SPAN 4690, SPAN 5690, FREN 4690, FREN 5690, GRMN 4690, GRMN 5690, CHIN 4690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHIN 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. Cross-listed with MLNG 4691, MLNG 5691, SPAN 4691, SPAN 5691, FREN 4691, FREN 5691, GRMN 4691, GRMN 5691, CHIN 4691. Prereq: MLNG 5690 or SPAN 5690 or FREN 5690 or GRMN 5690 or CHIN 5690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CHIN 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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 1067 - Introduction to Civil Engineering

Introduces civil engineering and the many career choices in this broad field. Covers the history of the profession, current civil engineering projects, societal and global implications, technologies used, professional ethics, sustainability, and licensure. Max hours: 1 Credit. **Semester Hours:** 1 to 1

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 - Engineering Surveying

Survey observations used by engineers and surveyors using levels and total stations; adjustment of measured loops, traverses, areas and volumes; analysis of error sources; and presentation of results. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CVEN 2800 - Special Topics

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 3141 - Introduction to Structural Materials

To learn the fundamental characteristics of structural materials, including steel, concrete, masonry, timber, and composites; to learn how to test structural materials in the laboratory; and to learn how to interpret test data for engineering applications. After completing this course, students are expected to understand the behavior of structural materials and establish necessary background for structural design courses. Coreq: CVEN 3121. 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 - Fluid Mechanics

Fundamentals of fluid mechanics. Topics include fluid properties, hydrostatics, the continuity principle, the energy principle, the momentum principle, similitude and dimensional analysis, drag, and friction for laminar and turbulent flow in closed conduits. Prereq: CVEN 2121. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 3323 - Hydrosystems Engineering

This course covers hydrologic cycle, rain gage and stream gage, basics of rainfall and runoff data analysis, Rational method for peak flow predictions, culvert hydraulics with consideration of inlet and outlet control, sanitary sewer sizing, basics of open channel hydraulics. This course also includes a session of hydraulic experiment to measure the turbulent flow distribution in a steel pipe. 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 CHEM 2031 or ENGR 1130. Cross-listed with CVEN 5401. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 3414 - Water Supply and Distribution Systems

Planning and design for potable water supply and distribution. Topics include the civil engineering design process, pressurized pipe networks, pump selection, water demand estimation, surface- and groundwater resources, and reservoir operation. Design project and field trip required. Prereq: CVEN 3313 with a C- or higher. Coreq: CVEN 2200. 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: C- or better in MATH 1401 or Junior Standing or instructor permission. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 3611 - Engineering Statistics

Covers statistical methods for engineering studies. Topics include common probability distributions, sample design, descriptive statistics, hypothesis testing of one or two populations, tests of discrete versus continuous random variables, analysis of variance, linear and non-linear multiple regression models, non-parametric tests of fit. Prereq: Math 1401 Calculus I and Math 2411 Calculus II. 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

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 one 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: approved 30 credit hour check. Max hours: 0 Credits.

Semester Hours: 0 to 0

CVEN 4025 - Autocad Civil 3d & Advanced Civil Engineering Graphics

Lectures target civil engineering industry specific site information modeling software and geospatial industry specific geographical information systems software to elevate students' knowledge of each software to an in-depth understanding. Laboratory exercises will focus on civil drafting and design, producing documentation, and general project workflows. Additional laboratory exercises will focus on geospatial data creation, data management, and cartographic display. Prereq: CVEN 1025. 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. Cross-listed with CVEN 5087. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4230 - Construction Engineering Systems

Course provides an introduction to construction engineering management including building mechanical and electrical systems. Restrictions: Restricted to Junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4231 - Construction Materials and Methods

This course presents information regarding the primary materials and methods used to design and construct the majority of buildings in the United States including concrete, wood and steel. Students explore processes related to the specification, ordering and installation of various construction materials, as well as analyze various materials' performance characteristics. Two important themes are incorporated throughout discussions: sustainability and ethics. In addition to lectures and class activities, students will be asked to research, define, and present information regarding a wide range of material properties and construction processes. Max hours: 3 Credits.

Semester Hours: 3 to 3

CVEN 4232 - Construction Planning and Control

This course presents knowledge on planning and controlling of construction projects. Students will learn the basics of construction planning to develop work breakdown structure and activity list, estimate activity cost and duration, and identify job logic and precedence relationships. Several scheduling techniques will be presented in this class, including bar chart, network scheduling, uncertainty in scheduling (PERT), limited resources scheduling, resource leveling, line of balance, and time-cost tradeoff analysis. Furthermore, this class will provide knowledge on construction control techniques, including cash flow analysis, integrated time-cost control, and value engineering. Students will acquire skills on the use of currently available computer scheduling and planning software such as Primavera 6 and Navisworks Manage to create 4D models and visualize the sequence of the construction activities. In addition, students will form teams and work on a project throughout the semester to apply the skills that they learn in class. Prereq: jr. standing or higher. Cross-listed with CVEN 5232. Max hours: 3 Credits.

Semester Hours: 3 to 3

CVEN 4236 - Project Management Systems

Address the basic nature of managing projects and the advantages and disadvantages to this approach. Introduce the characteristics, techniques, and problems associated with initiating, planning, executing, controlling, and closeout of projects. Learn about the International Standards of PM and how to use them. Develop a management

perspective about projects to help develop future project managers. 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 4424 - Field Methods for Sustainable Development: Colombia

Course will introduce students to international sustainable development in both lab and field work in Colombia, partnering with communities on sustainable development projects across cultures and disciplines both within and outside of engineering, and emphasizing community interaction. Travel fees are required. Note: Personal essay, letter of recommendation, and interview with instructor required. Cross-listed with CVEN 5424. 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 3708/3718. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4612 - 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: CVEN 3602. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 4621 - 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: CVEN 3602. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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. Prereq: CVEN 3708/3718. 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 3708/3718 and CVEN 3141. Coreq: CVEN 4718/4728. 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

Supervised study of special topics of interest to students under guidance of instructor. Prereq: Permission of instructor. Max hours: 9 Credits. **Semester Hours:** 3 to 3

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 5025 - Autocad Civil 3d & Advanced Civil Engineering Graphics

Lectures target civil engineering industry specific site information modeling software and geospatial industry specific geographical information systems software to elevate students' knowledge of each software to an in-depth understanding. Laboratory exercises will focus on civil drafting and design, producing documentation, and general project workflows. Additional laboratory exercises will focus on geospatial data creation, data management, and cartographic display. Prereq: CVEN 1025. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5087 - 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. Cross-listed with CVEN 4087. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5110 - Advanced Structural Classical Analysis

Understanding classical hand-solved analysis techniques in civil and structural engineering. Methods to be studied include: Moment Area, Conjugate Beam, Virtual Work, Stiffness Method, Force Method, Slope Deflection, and Moment Distribution. Prerequisite: CVEN 3505 with B- or better or graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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 5112 - Structural Design Loads

The course will review the probabilistic approach for load determination used in modern building codes from theoretical and applied perspectives. The course is intended to study dead loads, live loads, snow loads, earthquake loads, wind loads, and load combinations for buildings; and selected topics on bridge loads. Other topics may be treated as time permits. Prereq: CVEN 3505 with a C- or higher. 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 5231 - Construction Materials and Methods

This course presents information regarding the primary materials and methods used to design and construct the majority of buildings in the United States including concrete, wood and steel. Students explore processes related to the specification, ordering and installation of various construction materials, as well as analyze various materials' performance characteristics. Two important themes are incorporated throughout discussions: sustainability and ethics. In addition to lectures and class activities, students will be asked to research, define, and present information regarding a wide range of material properties and construction processes. Max hours: 3 Credits.
Semester Hours: 3 to 3

CVEN 5232 - Construction Planning and Control

This course presents knowledge on planning and controlling of construction projects. Students will learn the basics of construction planning to develop work breakdown structure and activity list, estimate activity cost and duration, and identify job logic and precedence relationships. Several scheduling techniques will be presented in this class, including bar chart, network scheduling, uncertainty in scheduling (PERT), limited resources scheduling, resource leveling, line of balance, and time-cost tradeoff analysis. Furthermore, this class will provide knowledge on construction control techniques, including cash flow analysis, integrated time-cost control, and value engineering. Students will acquire skills on the use of currently available computer scheduling and planning software such as Primavera 6 and Navisworks Manage to create 4D models and visualize the sequence of the construction activities. In addition, students will form teams and work on a project throughout the semester to apply the skills that they learn in class. Cross-listed with CVEN 4232. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5233 - Construction Cost Estimating

This course presents the application of scientific principles to rough and detailed cost estimating; cost indexing; bidding document, process and contract documents; quantity take off; concepts and statistical measurements of the factors involved in direct costs; overhead costs, cost markups and profits; project financing and cashflow analysis; cost control; computerized estimating and building information modeling; life cycle cost; and value engineering. Students are expected to use RSMeans building construction cost data to develop a detailed cost estimate of a project during the semester. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5234 - Sustainable Construction

This course will serve as an introduction to major components and technologies used in sustainable design and construction to create healthy, environmentally-sensitive built environments. Content focuses on construction processes, renewable energy systems, healthy buildings, natural and cultural resources, and traditional as well as cutting-edge building techniques. Course participants will gain knowledge about effective sustainable practices through active learning by engaging in case studies, class presentations, and group activities. Numerous guest speakers will share first-hand experience regarding implementation and professional practice of sustainable principles in the real-world. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5236 - Project Management Systems

Address the basic nature of managing projects and the advantages and disadvantages

to this approach. Introduce the characteristics, techniques, and problems associated with initiating, planning, executing, controlling, and closeout of projects. Learn about the International Standards of PM and how to use them. Develop a management perspective about projects to help develop future project managers. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5237 - Advanced Project Management

A survey of advanced topics in project management building on the Project Management Systems course and utilizing the Project Management of Knowledge. Case studies, complex problems, and a class project will be utilized in the course to bring a practical perspective to the conceptual lessons. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5240 - Building Information Modeling (BIM)

Building Information Modeling is an advanced approach to facility design and construction using object-oriented 3-D models. It can be integrated in the design and construction for analytical purposes, including design, visualization, quantity takeoff, cost estimating, planning, and facility management. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5242 - Construction Safety

This course is a study of safety practices in the construction industry and the specific safety procedures used in safety management of a construction project. Topics include safety risks inherent in construction projects, the roles of government, the judicial system, the insurance industry, designers and project owners in safety management and the economic impact of injuries. Advanced topics include safety risk quantification and analysis, design for safety and emerging technologies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5246 - Construction, Business and Innovation

AEC professionals rely on technical and soft (social) skills to solve complex challenges. The interdisciplinary nature of project delivery, to an increasing extent, requires professionals to collaborate across disciplines. This course explores innovation and collaboration at the interface of construction and business. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5333 - Surface Water Hydrology

Fundamentals of hydrology emphasizing surface water processes. Topics include the hydrologic cycle, frequency analysis, drought management, flood routing, rainfall-runoff relationships (rational method, unit hydrograph, and hydrologic software) and hydrologic design. Prereq: B- or better in CVEN 3313 or graduate standing or instructor permission. 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: B- or better in CVEN 3313 or graduate standing or instructor permission. 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. Prereq: B- or better in CVEN 3313 or graduate standing or instructor permission. 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 3323 with a C- or higher and graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5337 - Sustainable Hydraulic System Design

This course applies the low-impact-development (LID) principles to design stormwater hydraulic structures in urban areas. The major topics in this course will cover storm water quality capture volume, filtering process for water quality control, and infiltration process for on-site stormwater disposal, including porous pavements, vegetation beds,

bio swales, rain gardens, and landscaping detention. The computer model, EPA SWMM-LID, will be employed to guide the selection of design parameters and to evaluate the structural performance. 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5382 - Geospatial Data 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: CVEN 5381. 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: CVEN 5381. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5384 - GIS Project Management

This fourth course addresses aspects of GIS planning and development. These include topics of benefit-cost and financial analysis, scheduling, project management, internal and external marketing. Also, addressed are issues of GIS institutional acceptance, the role of computerized spatial data systems in decision making, application of planning techniques for accomplishing resource goals, administrative structure which enhances efficiency of use, and legal considerations involved with development and use of such databases. Prereq: CVEN 5381. 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. Coreq: CVEN 5381. 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: CVEN 5381. 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 5382. 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 5389 - Open Source Desktop Mapping, Modeling & Data Processing

This graduate-level course covers the open source tools and procedures that students can use for desktop GIS mapping, modelling, and data analysis and preparation that are unique in comparison to other GIS software used in the industry. Prereq: CVEN 5381 Intro to GIS or equivalent permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5390 - Interactive Web Mapping GIS

This course introduces students to designing, creating, delivering, and using interactive web maps. Many people rely daily on web maps to direct us from point A to point B and more. After starting with a broad introductory background, this is a technical hands-on course in which students use several open source (FOSS) technologies. Prereq: CVEN

5381 Introduction to GIS or equivalent or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5391 - Introduction to Geomatics

This course presents the concepts of Geomatics along with spatial data, tools, and their connection. This course covers spatial data collection methods, data assessment, and processing. The course also covers projections, methods of coordinate conversion and transformation, and data transfer across different spatial analysis platforms. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5392 - Unmanned Aerial Systems

This course presents concepts and practical methods of using Unmanned Aerial Vehicles for engineering projects. The course covers mission planning, operations, field data collection and processing, and data analysis. Legal and ethical considerations are also covered, as well as the relative costs and benefits of using UAV. Prereq: CVEN 5391. 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 5395 - GPS/GNSS

This course presents the practical concepts and implications of using GPS/GNSS for engineering projects. The course covers a variety of techniques for field data collection, processing, and data analysis. The course emphasis is on changes that are occurring because of using GPS/GNSS in the field. Prereq: CVEN 5391. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5396 - HDS/LiDAR Tools & Data Analyses

High Definition Surveying (HDS) scanners are extremely reliable and accurate geospatial data collection devices for surveyors, GIS analysts, engineers, and planners. The goal of this unique course is to present the instrumentation and technological principals used in data collection, project phases, data processing and analyses. This

course is designed to provide information and practical skills for students wanting to learn how to plan and execute terrestrial LIDAR data collection projects with HDS scanners and HDS data processing software. Prereq: CVEN 5381 and CVEN 5395 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5397 - Unmanned Aerial Systems Data processing

This course will provide information and practical skills for unmanned aerial systems data processing and analyses. The course focuses on sensor selection, ground control, data processing, and data analyses. Prereq: CVEN 5391 and CVEN 5392. 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: CHEM 1130, CHEM 2031, or ENGR 1130, and 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 5406 - Engineering and Science Informatics

Students will learn applied, basic statistics & probability concepts and provide experience in the correct use and interpretation of those techniques. The course is designed in such a way that any graduate or undergraduate level student wanting to learn data analysis will benefit. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5407 - Complex Systems Modeling for Sustainability Analysis

This graduate course introduces nonlinear dynamics, information theory, and network analysis in an environmental engineering, earth sciences, and sustainability context. Techniques will be applied to analyze environmental and weather data in addition to other examples relevant to engineering and critical zone science. Prereq: Graduate standing or CVEN 3313 with a B- or better. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5424 - Field Methods for Sustainable Development: Colombia

Course will introduce students to international sustainable development in both lab and field work in Colombia, partnering with communities on sustainable development projects across cultures and disciplines both within and outside of engineering, and emphasizing community interaction. Travel fees are required. Note: Personal essay, letter of recommendation, and interview with instructor required. Cross-listed with CVEN 4424. 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 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 5464 - Fundamentals of Sustainability and Climate Change

This course explores environmental sustainability including a number of key themes: Climate-Water-Energy-Food-Ecosystem. A range of exercises and assignments are designed to encourage students to test their own assumptions and abilities to develop competencies in these areas. 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 ENV5 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 5540 - Masonry Design

Structural analysis and design of masonry structures, combining theoretical principles of mechanics and applied structural engineering. The Strength Method of design will be emphasized. Coreq: CVEN 4585. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5550 - Highway Bridge Design

Design of highway bridges in accordance with the ASSHTO LRFD Bridge Design Specification. Topic coverage includes bridge planning, construction materials in bridges, bridge systems, design loads, structural modeling and analysis, design of concrete deck system, and design of concrete and steel superstructures. Prereq: CVEN 4575 and CVEN 4585 or graduate standing. 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 5580 - Design of prestressed concrete structures

To learn the basic concepts of analysis and design of prestressed concrete, which is essentially reinforced concrete in which steel reinforcement is tensioned against the concrete, thereby introducing compression in concrete and hence overcoming the tensile weakness of concrete relative to its compressive strength. Prereq: CVEN 4585. 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 - Transportation Engineering Statistics

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 Simulation Modeling

This graduate-level course introduces students to the principles, methods, and software needed to perform traffic simulations of alternative transportation modes in urban areas. Students will develop a case study simulation of their choosing. Pre-req: CVEN 5621 Highway Capacity Analysis or equivalent permission of the 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 - Travel Demand Forecasting

This course introduces students to the principles and methods of travel demand forecasting as developed over the last 50 years. It covers data needs, statistical estimation techniques, and multi-modal modeling as applied to forecast future travel

demands. The emphasis is on basic models rather than elaborate mathematics or software. 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

This course examines notable topics in sustainable transportation: demystifies conventional transportation engineering methods; and explores empirical examples of why such methods are often misguided. The intent is to enlighten engineering students and help support planning/policy students interested in transportation sustainability. Prereq: graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 5641 - Transit System Design

This course introduces students to the components of transit system planning and design including station design and accessibility. The course focuses primarily on light rail design, but provides an overview of different transit modes. The instructors of this course have hands-on experience in transit planning, design, and construction. Prereq: graduate standing or permission of instructor. **Semester Hours:** 3 to 3

CVEN 5642 - Transit Construction

This course introduces students to the fundamentals of transit construction necessary for successful project completion. It also covers how many different types of transit projects are managed and sustained. The instructors of this course have hands-on experience in transit construction, scheduling, and project control. 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

This is a graduate-level course on road safety that will: investigate contemporary safety analysis techniques; highlight the disconnect between the current safety paradigm and actual safety outcomes; cover drive, bicyclist and pedestrian safety concerns; and discuss notable efforts such as Vision Zero. 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 3708/3718 with a C- or higher, OR graduate standing. 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 or 3718, and CVEN 4718 or 4728, or Graduate Standing. 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 or 3718, and CVEN 4718 or 4728, or Graduate Standing. 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 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 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 or 3718, and CVEN 4718 or 4728, or Graduate Standing. 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 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:** 3 to 3

CVEN 5840 - 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 6

CVEN 5939 - Internship

Max hours: 3 Credits. **Semester Hours:** 3 to 3

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 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 6235 - Advanced Construction Engineering

This course starts with a quick overview of Construction Engineering Management including organizations involved, current approaches and challenges and approaches. The course then covers contracts, quality management, risk management and decision analysis, financial management, safety, and temporary construction facilities. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CVEN 6238 - Integrated Construction Leadership

The course is an integrated architecture, engineering, and construction (AEC) business course bringing together executives, principals, and managers to current industry topics to provide students an opportunity to apply management and leadership principles from the various fields to case study projects. 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 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 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 - Entering Research Internship

Max hours: 9 Credits. **Semester Hours:** 1 to 3

CLAS 3939 - Internship

Prereq: Students must have junior standing and at least a 2.75 GPA and must work with Experiential Learning Center advising to complete a course contract and gain approval. Max hours: 9 Credits. **Semester Hours:** 1 to 6

CLAS 4840 - Independent Study: CLAS

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Max hours: 12 Credits. **Semester Hours:** 1 to 3

Commodities

CMDT 4582 - Commodity Supply Chain Management

This course introduces the design, analysis, management, and control of supply chains as applied to commodities. The course covers integration of processes and systems, relationship management of upstream and downstream supply chain players, and commodity-specific supply chain strategies. Cross-listed with CMDT 6582. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CMDT 4682 - Trading in Commodity and Financial Markets

This course puts students at the leading edge of designing, testing and applying trading strategies across commodities, equities, fixed income and alternative assets, in the Business School's unique, state-of-the-art J.P. Morgan Commodity and Finance Lab. Cross-listed with CMDT 6682. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CMDT 4782 - Commodity Data Analysis

This course is an applied introduction to commodity data analysis. Students will learn how to analyze commodity prices using quantitative techniques. Relationships between commodities and the global economy will be investigated. In addition, commodities will be looked at as an asset class and cross-asset relationships will be studied. Students will be introduced to forecasting techniques and be able to develop and evaluate various forecasting models. Students will work with the open source R software environment throughout the course and gain proficiency. Cross-listed with CMDT 6782. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CMDT 6582 - Commodity Supply Chain Management

This course introduces the design, analysis, management, and control of supply chains as applied to commodities. The course covers integration of processes and systems, relationship management of upstream and downstream supply chain players, and commodity-specific supply chain strategies. Cross-listed with CMDT 4582. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CMDT 6682 - Trading in Commodity and Financial Markets

This course puts students at the leading edge of designing, testing and applying trading strategies across commodities, equities, fixed income and alternative assets, in the Business School's unique, state-of-the-art J.P. Morgan Commodity and Finance Lab. Note: Students cannot receive credit for both CMDT 6482 or FNCE 6482. Cross-listed

with CMDT 4682. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CMDT 6782 - Commodity Data Analysis

This course is an applied introduction to commodity data analysis. Students will learn how to analyze commodity prices using quantitative techniques. Relationships between commodities and the global economy will be investigated. In addition, commodities will be looked at as an asset class and cross-asset relationships will be studied. Students will be introduced to forecasting techniques and be able to develop and evaluate various forecasting models. Students will work with the open source R software environment throughout the course and gain proficiency. Cross-listed with CMDT 4782. 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. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 1 to 3

COMM 1071 - Introduction to Journalism

Introduction to Journalism provides students a broad overview of the histories of, debates within, and best practices for journalism in print, digital, and other media. This is a writing intensive course. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 1111 - First Year Seminar

Restriction: Restricted to Freshman level students. Term offered: fall. 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 2017 - Dialog, Debate, and Disagreement

Cultivates academic American English knowledge/skills merging cultural, rhetorical, and linguistic theories with experiential learning. The course is designed for bilingual and non-native English speakers. 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. Issues may include democratic participation, electoral politics, community engagement, and civil rights. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 2030 - Digital Democracy

Constant technological innovation means most Americans experience democracy in online formats; this class equips students with tools for living in our digital age. Topics include analyzing websites, studying online political organizing, and learning how to produce materials for online advocacy. Term offered: spring. 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. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 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. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 2051 - Introduction to Strategic Communication

Provides students foundational skills of marketing & public relations, targeted political messaging, and organizational communication, merging theory & practices to study how strategic communication works in different media environments. Students will not receive credit for this class if they have already received credit for COMM 4635. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 2071 - Media Writing Skills

A survey course covering the major media writing types including: hard or straight news, features, review, editorials, web content, and social media, plus notetaking, interviewing, and editing skills, and an examination of media bias. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 2081 - New Media Production and Management

This course develops knowledge and skills in producing, distributing, and managing engaging new media content using the latest digital communication platforms. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 2082 - Introduction to Environmental Communication

Intro to Environmental Communication provides students with the foundations for analyzing public debates about environmental sustainability, global warming, economic development, corporate responsibility, and activist movements. Emphasis is placed on representations of these issues in TV, films, music, blogs, and public deliberation. Term offered: fall, spring. 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 2500 - Introduction to Health Communication

The health industries are among the fastest growing sectors of the U.S. economy; this class enables students to begin thinking about their health, the health of their communities, and the health of the nation as systems of language and power. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 3071 - Advanced Media Writing Skills

This class builds upon the skills learned in COMM 1071, Introduction to Journalism, and COMM 2071, Media Writing Skills, by focusing on long-form writing that is suitable for magazines and websites. Prereq: Students must have completed COMM 2071, or receive permission from the instructor, to enroll in this course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 3230 - Chinese Communication & Culture in Context

This course is designed for CU Denver students studying at the ICB program in Beijing. For such students, the course introduces Chinese communication practices & cultural expectations, easing the student's transition into life in Beijing. Field trips are required & will be announced 1st day of class. Term offered: fall. 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. Term offered: spring. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 3640 - TV, Culture, & Communication

This course examines television theories and histories, from broadcast TV to internet streaming. Investigating TV industries and representations, students will gain an understanding of TV's role in contemporary culture. Term offered: spring. 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. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 3660 - Social Media for Social Change

Students analyze new social media platforms in terms of their textual and visual content, their software structure, and their interactive features, thus learning how to analyze and produce online content intended to spur social change. Prereq: COMM 1011 and COMM 2020. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 3840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 3

COMM 3939 - Internship

Applies communication or technical communication concepts and skills in supervised employment situations. Note: This course fulfills the communication department's exit class requirement. Prereq: Students must have completed 15 credit hours at CU Denver and have a 2.75 GPA overall and must work with the Experiential Learning Center

advising to complete a course contract and gain approval. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 6

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. Term offered: fall, spring. 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. Term offered: fall, spring, summer. 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. Strongly Recommended: COMM 2020. Cross-listed with COMM 5040. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4051 - Advanced Strategic Communication

Provides senior-level training in hands-on communication environments where targeted messaging seeks specific outcomes. All students complete projects for community group, media outlet or corporation they choose. Students will not receive credit for this class if they have already received credit for COMM 4640. Note: This course fulfills the communication department's exit class requirement. Prereq: Students must have taken and successfully completed COMM 2051 or COMM 2071/3680 or receive instructor permission to register for this course. Cross-listed with COMM 5051. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4082 - Wilderness Communication

The primary goal of this course is to engage issues of wilderness, communication, and environmental sustainability. Students will read philosophical, theoretical, and academic literature on human symbolic constructions of wilderness. Cross-listed with COMM 5082. 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 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 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 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

Addresses the relationships among such communication factors as flow, media, channel, diversity, information delivery and organization functioning, morale, and productivity. Stresses functional workplace skills and practices. Cross-listed with COMM 5240. Term offered: fall, spring. 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. Term offered: summer. 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. Cross-listed with COMM 5260. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4265 - Gender and Communication

Examines gender as it is constructed, performed, evaluated, and negotiated through communication. Topics covered include the nature of gender, the gender binary, scientific research on gender, gender stories in popular culture, the process of crafting and performing gender stories, and responses to gender performances. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Cross-listed with COMM 5270. Term offered: fall, spring. 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. Cross-listed with COMM 5280. 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. Term offered: spring. 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. 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 4430 - Communication, China, and the US

This course provides a seniorlevel opportunity to study how China & the USA have spoken about and to each other, from the Opium War through the Cyber Wars, thus situating this nations in a world of globalizing communication. Note: this course fulfills the communication department's exit class requirement. This course may count for the International Studies major or minor. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Cross-listed with COMM 5430. Term offered: fall. 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. Note: This course fulfills the communication department's exit class requirement. Cross-listed with COMM 5500. Term offered: fall, spring. 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. Note: this course fulfills the communication department's exit class requirement. Term offered: spring. 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. Note: This course fulfills the communication department's exit class requirement. Cross-listed with COMM 5550. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4558 - Digital Health Narratives

This course blends readings, discussions and activities about health narratives with digital media production skills to teach students how to create compelling digital stories about health-related topics. Cross-listed with COMM 5558. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4575 - Designing Health Messages

Examines the roles of communication in the design and impact of health messages/campaigns. We will design and assess health communication messages/campaigns in a participatory, process-oriented way using varied communication tools. Prereq: COMM 2500 with a C- or higher or instructor permission. Cross-listed with COMM 5575. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Cross-listed with COMM 5601. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4610 - Communication, media, and sexuality

Develop the tools to think critically about representations of sexuality and to understand the social construction of sexuality, the role of sexual representations in mass media and society, and the complex relationships between sexual acts, identities, and desires. Restriction: Restricted to class level Junior, Senior, or permission of instructor. Cross-listed with WGST 4610. Term offered: fall, spring. 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. Strongly Recommended: COMM 4500. Cross-listed with COMM 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. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4660 - Queer Media Studies

Queer Media Studies is a discussion-based, writing-intensive seminar that examines the history and development of U.S. LGBTQI media by focusing on media texts and production, sociocultural context, and media reception. Cross-listed with COMM 5660, WGST 4660, WGST 5660. Term offered: fall, spring. 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. Term offered: fall, spring, summer. 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. Strongly Recommended: ENGL 2030. 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. Cross-listed with COMM 5682. Term offered: fall. 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4700 - Writing Practicum

Focuses 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. Note: This course fulfills the communication department's exit class requirement. 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. Term offered: fall, spring. 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. Term offered: fall, spring, summer. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Cross-listed with COMM 5720. Term offered: fall, spring. 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. Strongly Recommended: ENGL 1020, ENGL 2030 and any 3000 level English course. Cross-listed with COMM 5750, PSCI 4757, 5747. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4760 - New Media and Society

This course examines the relationship between new media (such as the internet and mobile phones) and society. Students will investigate the social and cultural aspects of communication technologies. Cross-listed with COMM 5760. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 4840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed

by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Prereq: Permission of instructor. Term offered: fall, spring, summer. Max hours: 12 Credits. **Semester Hours:** 1 to 3

COMM 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

COMM 4995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. Term offered: fall, spring, summer. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Term offered: fall, spring. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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. Cross-listed with COMM 4040. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll with Permission of instructor. COMM 2020 is recommended preparation for this course. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5051 - Advanced Strategic Communication

Provides senior-level training in hands-on communication environments where targeted messaging seeks specific outcomes. All students complete projects for community group, media outlet or corporation they choose. Students will not receive credit for this class if they have already received credit for COMM 5640. Cross-listed with COMM 4051. Restriction: Restricted to Graduate and Graduate Non-Degree majors.

Undergraduates with senior standing may enroll with Permission of instructor. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5082 - Wilderness Communication

The primary goal of this course is to engage issues of wilderness, communication, and environmental sustainability. Students will read philosophical, theoretical, and academic literature on human symbolic constructions of wilderness. Cross-listed with COMM 4082. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll with Permission of instructor. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4221. Term offered: spring. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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

Addresses the relationships among such communication factors as flow, media, channel, diversity, information delivery and organization functioning, morale, and productivity. Stresses functional workplace skills and practices. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4240. Term offered: fall, spring. 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.

Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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). Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4260. Term offered: fall, spring. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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

Examines gender as it is constructed, performed, evaluated, and negotiated through communication. Topics covered include the nature of gender, the gender binary, scientific research on gender, gender stories in popular culture, the process of crafting and performing gender stories, and responses to gender performances. Cross-listed with COMM 4265. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll with permission of instructor. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4270. Term offered: fall, spring, summer. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4280. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4282. Term offered: fall, spring. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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 5430 - Communication, China, & the US

This course provides a seniorlevel opportunity to study how China & the USA have spoken about and to each other, from the Opium War through the Cyber Wars, thus situating this nations in a world of globalizing communication. Note: this course fulfills the communication department's exit class requirement. This course may count for the International Studies major or minor. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll with Permission of instructor. Cross-listed with COMM 4430. Term offered: fall. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4500. Term offered: fall, spring. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Cross-listed with COMM 4550. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5558 - Digital Health Narratives

This course blends readings, discussions and activities about health narratives with digital media production skills to teach students how to create compelling digital stories about health-related topics. Cross-listed with COMM 4558. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll with Permission of instructor. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5575 - Designing Health Messages

Examines the roles of communication in the design and impact of health messages/campaigns. We will design and assess health communication messages/campaigns in a participatory, process-oriented way using varied communication tools. Restriction: Restricted to Graduate and Graduate Non-Degree majors (NDGR-NHL and NDGR-NLA). Cross-listed with COMM 4575. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll with Permission of instructor. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates

with senior standing may enroll with Permission of instructor. Cross-listed with COMM 4601. Term offered: fall, spring, summer. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4620, 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll with permission of instructor. Cross-listed with COMM 4621. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5660 - Queer Media Studies

Queer Media Studies is a discussion-based, writing-intensive seminar that examines the history and development of U.S. LGBTQI media by focusing on media texts and production, sociocultural context, and media reception. Cross-listed with COMM 4660, WGST 4660, WGST 5660. Prereq: Graduate standing (Grad or Non-Degree Grad). Term offered: fall, spring. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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. Restriction: Restricted to Graduate and Graduate Non-Degree

majors. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll by permission of instructor. Cross-listed with COMM 4682. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 5700 - Writing Practicum

Focuses 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll with Permission of instructor. Term offered: fall, spring. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Undergraduates with senior standing may enroll by permission of instructor. Cross-listed with COMM 4710. Term offered: fall, spring. Max hours: 15 Credits. **Semester Hours:** 1 to 3

COMM 5720 - 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Cross-list COMM 4720. Term offered: fall, spring. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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 5760 - New Media and Society

This course examines the relationship between new media (such as the internet and mobile phones) and society. Students will investigate the social and cultural aspects of communication technologies. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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 5840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Prereq: Permission of instructor. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 3

COMM 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School

for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

COMM 5939 - Internship

Applies communication or technical communication concepts and skills in supervised employment situations. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 6

COMM 5995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. Term offered: fall, spring, summer. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Term offered: fall, spring. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Max hours: 3 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Restriction: Restricted to

Graduate and Graduate Non-Degree majors. Max Hours: 3 Credits. **Semester Hours:** 3 to 3

COMM 6950 - Master's Thesis

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

COMM 6960 - Master's Project

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 1 to 3

Computer Science

CSCI 1001 - Computer Forensics I

Topics covered: how to conduct a computer forensic exam; how an individual can hide data on a computer; how the investigator can find that hidden data. This course will also incorporate hands-on learning through the use of a forensic software package. (Non-CS majors) Max hours: 3 Credits. **Semester Hours:** 3 to 3

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 a modern 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. 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. This course requires the level of mathematical maturity of students ready for Calculus I. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 1800 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

CSCI 2002 - Computer Forensics II

This is a continuation of CSCI 1001 This course will cover: computer forensics for advanced operating systems (Mac, Linux, and Unix) and mobile device forensics. This course will incorporate hands-on-learning by utilizing a computer forensics software package. (Non CS majors) Max hours: 3 Credits. **Semester Hours:** 3 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 - Object Oriented 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: ENGL 1020, CSCI 1410 and CSCI 1411 with a grade of C- or higher. 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: 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 with a C- or higher (Calculus I). 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 and 1411 with a C- or better. 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 2940 - NAND to Tetris: Foundations of Computer Systems

Introduces the principles of computer systems that underlie the global information age. Starting from first principles, students gradually construct a simple hardware platform and a modern software hierarchy, yielding a working basic yet powerful computer system. Only introductory programming experience is required. Prereq: CSCI 1410 and CSCI 1411 with a minimum grade of C-. Cross-listed with IWKS 3300. Max hours: 3 Credits. **Semester Hours: 3 to 3**

CSCI 2941 - Game Design and Development I

Introduces principles of computer game development, building on the rich interplay of computer science, graphics design, physics, music, and narrative. Students develop interactive 2D and 3D games and a final project. Substantial software development involved, but requires only introductory programming experience. Prereq: CSCI 1410 and CSCI 1411 with a minimum grade of C. Cross-listed with IWKS 3400. Max hours: 3 Credits. **Semester Hours: 3 to 3**

CSCI 2942 - IoT: The Internet of Things

In a world where everything is connected to everything else, how does that work? This course introduces techniques for (1) designing systems that can sense the environment and respond to humans in meaningful ways and (2) creating networks of physical objects that collect and exchange data. Such systems might include wearable sensors,

interactive art, and Internet-connected home devices. Working individually and in teams, students will develop projects using Inworks' materials, devices, and fabrication tools. The course involves considerable prototyping and software development but requires only introductory programming and prototyping experience. Prereq: CSCI 1410 and CSCI 1411 with a minimum grade of C-. Cross-listed with IWKS 4120. 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: ENGL 1020, CSCI 2312 and CSCI 2421. Restricted to CSCI-BS or MIN. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 3320 - Advanced Programming

The course will cover a wide range of advanced programming topics via focusing on development of cross-platform applications. The focus will be on problem solving and developing applications with modern languages (such as C++, Java, Objective-C) & frameworks, including Xcode, Angularjs (with Javascript, HTML5, CSS), Phonegap, & Webstorm. 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 2312, 2421 and 2511. Restricted to undergraduate Computer Science Majors and Minors. 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 2312, 2421 and CSCI 2525. Restricted to undergraduate Computer Science Majors and Minors. 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 and CSCI 2525 with a C- or better. Restricted to undergraduate Computer Science Majors and Minors. 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: CSCI 3412. Restricted to undergraduate Computer Science Majors and Minors. 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. Restricted to undergraduate Computer Science Majors and Minors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 3560 - Probability and Computing

Events and probability. Discrete random variables. Moments of random variables. Conditional probability and expectation. The probabilistic method. Markov chains and random walks. Continuous distributions and the Poisson process. Entropy, randomness and information. Randomized algorithms. Prereq: CSCI 2511 Discrete Structures and MATH 2411 Calculus II. Restricted to undergraduate Computer Science Majors and Minors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 3761 - Introduction to Computer Networks

Introduction and overview of computer networks. Topics include Internet protocols, network devices, network security, and performance issues. Prereq: CSCI 2312 and

2421 with a C- or higher. Restricted to undergraduate Computer Science Majors and Minors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 3800 - Special Topics

Credit and subject matter to be arranged. Restriction: Restricted to undergraduate Computer Science Majors and Minors. Max hours: 9 Credits. **Semester Hours:** 3 to 3

CSCI 3840 - Independent Study: CSCI

Restriction: Restricted to undergraduate Computer Science Majors and Minors. Max hours: 9 Credits. **Semester Hours:** 1 to 3

CSCI 3916 - Web API

JavaScript Web technologies for front-end development and back-end development. Building a full end to end solution with a mobile or web front-end, Web API and NoSQL database. Prereq: C- or higher in CSCI 2421: Data Structures and Program Design. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 3920 - Advanced Programming with Java and Python

This course introduces the fundamental concepts to develop programs and projects using modern software engineering techniques using two different programming languages (Java and Python). It will cover and apply pattern design approaches, reusable components driven by everyday needs within many software developments, the relationships between object oriented programming concepts and software design concepts. It will dig deeper into techniques to program single threaded applications as well as advanced techniques to construct concurrent and distributed applications. Prerequisite: CSCI 2421. Restricted to undergraduate Computer Science Majors and Minors. 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. Restricted to undergraduate Computer Science Majors and Minors. 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. Restricted to undergraduate Computer Science Majors and Minors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4110 - Applied Number Theory

Every year, Topics include divisibility, prime numbers, congruences, number theoretic functions, quadratic reciprocity, special diophantine equations, cryptography, computer security, and engineering applications. Prereq: Grade of C- or better in MATH 3000 or CSCI 2511. Cross-listed with CSCI 5110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4172 - Complexity and Problem Solving

Theoretical and practical aspects of solving complex problems, in particular, but not limited to, NP-complete and PSPACE-complete problems. Various heuristic and approximation algorithms, including greedy, ant, and Genetic Algorithms will be studied. This course is by instructor's permission only. Prereq: CSCI 4034 or 5446. Restricted to undergraduate Computer Science Majors and Minors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4173 - Computational Complexity and Problem Solving

Solid, in-depth theoretical foundation in computing, computational complexity, and algorithmics. Additional topics include various algorithms for both discrete and non-discrete problem domains. Models of Computation, Computational Complexity, Time Complexity Classes, Space Complexity Classes, The Theory of NP-completeness. Prereq: CSCI 4034. 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. Restricted to undergraduate Computer Science Majors and Minors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4211 - Mobile Computing and Programming

This course contains two main simultaneous tracks, namely mobile computing and mobile programming. A series of lectures on various aspects of mobile computing provides an understanding of challenges and solutions in design and implementing mobile systems. The main topics include mobile sensing, human mobility and its technical implication. Prereq: CSCI 3453. Restricted to undergraduate Computer Science Majors and Minors. 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. Restricted to undergraduate Computer Science Majors and Minors. 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. Restricted to undergraduate Computer Science Majors and Minors. 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. Cross-listed with CSCI 5411. Prereq: CSCI 3412. Restricted to undergraduate Computer Science Majors and Minors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4455 - Data Mining

Introduces concepts, techniques and methodologies to discover patterns in data. Topics

include (but are not limited to) data preprocessing and cleansing, data warehousing, pattern mining, classification, prediction, cluster analysis, outlier detection, and online data analytics. Prerequisite: MATH 3195, CSCI 3287 and CSCI 3412. Restricted to CS Majors and Minors. Cross-listed with CSCI 5455. 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 4551 - Parallel & 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: Math 3195, CSCI 3415 & CSCI 3453. Cross-listed with CSCI 5551. 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 4580 - Data Science

Introduces concepts and techniques that enable data cycle from data extraction to knowledge discovery, including but not limited to data exploration, hypotheses testing, data organization, data featurization, supervised and unsupervised data modeling and

learning, scaling-up analytics, and data visualization. Prereq: MATH 3195, CSCI 3287 and CSCI 3412. Restricted to CS Majors & Minors. Cross-listed with CSCI 5580. 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. Restricted to undergraduate Computer Science Majors and Minors. 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. Restricted to undergraduate Computer Science Majors and Minors. 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. Restricted to undergraduate Computer Science Majors and Minors. 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. Restricted to undergraduate Computer Science Majors and Minors. 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. Restricted to undergraduate Computer Science Majors and Minors. 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: C- or better in CSCI 3287, CSCI 3415, CSCI 3453, and CSCI 3508. Restricted to undergraduate Computer Science Majors and Minors. 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. Restricted to undergraduate Computer Science Majors and Minors. 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 4741 - Principles of Cybersecurity

Focuses on the most common threats to cybersecurity as well as ways to prevent security breaches or information loss. Topics will include: understanding and thwarting hacker methods, authentication, cryptography, programming security, malware analysis, web, database and file server security, network and enterprise security methods. Prereq:

CSCI 3412 and CSCI 3287. Restricted to undergraduate Computer Science Majors and Minors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4742 - Cybersecurity Programming and Analysis

Focuses on cybersecurity related programming and analysis skills. Topics include: network and security application development, intrusion detection, automating security hardening. Students will design and develop security applications in multiple programming languages. Undergraduate algorithms and programming knowledge expected. Pre-Req: CSCI 3415. Restricted to undergraduate Computer Science Majors and Minors. Cross-listed with CSCI 5742. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4743 - Cyber and Infrastructure Defense

Presents analytical study of state-of-the-art attack and defense paradigms in cyber systems and infrastructures. Analysis will focus on: theoretical foundations of cybersecurity, practical development of novel technical defense techniques and analysis of alternatives. Knowledge of undergraduate-level networking. Pre-Req: CSCI 3761. Restricted to undergraduate Computer Science Majors and Minors. Cross-listed with CSCI 5743. 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. Restriction: Restricted to undergraduate Computer Science Majors and Minors. Max hours: 9 Credits. **Semester Hours:** 3 to 3

CSCI 4840 - Independent Study

Restricted to undergraduate Computer Science Majors and Minors with senior standing. 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. Restricted to undergraduate Computer Science Majors and Minors. 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 3412 with a C- or higher. Restricted to undergraduate Computer Science Majors and Minors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4930 - Machine Learning

Provides theoretical and computational foundations in machine learning to design and develop intelligent applications to perform object recognition, personalized recommendations, improve cybersecurity, fact-checking, forecasting and finding communities based on three classes of algorithms: supervised, unsupervised, semi-supervised and reinforcement learning. Restriction: Graduate Standing. Cross-listed with CSCI 5930. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4930 - Machine Learning

Provides theoretical and computational foundations in machine learning to design and develop intelligent applications to perform object recognition, personalized recommendations, improve cybersecurity, fact-checking, forecasting and finding

communities based on three classes of algorithms: supervised, unsupervised, semi-supervised and reinforcement learning. Prereq: MATH 3195, CSCI 3412 and CSCI 3560. Restricted to CS Majors and Minors. Cross-listed with CSCI 5930. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 4931 - Deep Learning

Provides a foundation on deep learning; a sought-after skill in machine learning. Topics include neural network design & learning, restricted Boltzmann machine, convolution neural network, recurrent neural network, LSTMs, deep reinforcement learning, autoencoders, and evolving computation frameworks like TensorFlow, Keras. Prereq: MATH 3195 and CSCI 3412. Restricted to CS Majors and Minors. Cross-listed with CSCI 5931. 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. Restricted to undergraduate Computer Science Majors and Minors. Max hours: 9 Credits. **Semester Hours:** 1 to 3

CSCI 4951 - Big Data Systems

Presents a practical while in-depth review of the principles of a series of modern data processing systems (e.g., Hadoop, Spark, TensorFlow) designed to address the Big Data challenges. In combination, these systems enable the data to knowledge (Big) data lifecycle. Prereq: MATH 3195, CSCI 2312, CSCI 3287 and CSCI 3412. Restriction: Restricted to Computer Science Majors and Minors. Cross-listed with CSCI 5951. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5010 - Software Architecture

This course will focus on two major areas. The first part of the course will cover Software Requirements Analysis and Development as well as Software Architecture and the Soft Skills needed by high level Software Architects. The second part of the course will cover how Persistent Data fits into different types of Software Systems. The primary focus of the second part of the course will be on incorporating larger scale Enterprise Data Systems into Software Systems and will be an application of the first part of the course material. Prereq: BS in Computer Science or equivalent experience or instructor permission, or Graduate Standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5011 - Software Project Management Support

Large Software Systems must be Planned, Scheduled, and Staffed. To accomplish these tasks Software Engineers must understand the Software Architecture, the Software System Dependencies, Effort Estimation and the various Project Development Models that might be used. This course will look at different Project Models, Project Management Needs, and various Effort Estimation tools and techniques. Prereq: CSCI 5010 and graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 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 5110 - Applied Number Theory

Every year, Topics include divisibility, prime numbers, congruences, number theoretic functions, quadratic reciprocity, special diophantine equations, cryptography, computer security, and engineering applications. Cross-listed with CSCI 4110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5172 - Complexity and Problem Solving

Theoretical and practical aspects of solving complex problems, in particular, but not limited to, NP-complete and PSPACE-complete problems. Various heuristic and approximation algorithms, including greedy, ant, and Genetic Algorithms will be studied. This course is by instructor's permission only. Prereq: CSCI 4034 or 5446. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5211 - Mobile Computing and Programming

This course contains two main simultaneous tracks, namely mobile computing and mobile programming. A series of lectures on various aspects of mobile computing provides an understanding of challenges and solutions in design and implementing mobile systems. The main topics include mobile sensing, human mobility and its technical implication. Students are expected to have undergraduate knowledge of

operating systems and computer networks. 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 and graduate standing. 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 5455 - Data Mining

Introduces concepts, techniques and methodologies to discover patterns in data. Topics include (but are not limited to) data preprocessing and cleansing, data warehousing, pattern mining, classification, prediction, cluster analysis, outlier detection, and online data analytics. Restriction: Graduate Standing. Cross-listed with CSCI 4455. 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 4551 and 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 and graduate standing. 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 5575 - Cyber-Physical Systems

Cyber-physical systems (CPS) bridge the cyber-world of computing, communication and control with the physical world. This course offers an interdisciplinary perspective of CPS within computer science and its applications to understand the issues in the full lifecycle of CPS. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5580 - Data Science

Introduces concepts and techniques that enable data cycle from data extraction to knowledge discovery, including but not limited to data exploration, hypotheses testing, data organization, data featurization, supervised and unsupervised data modeling and learning, scaling-up analytics, and data visualization. Restriction: Graduate Standing. Cross-listed with CSCI 4580. 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. Restriction: Restricted to students with graduate standing. 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 and graduate standing. 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 - Big Data Mining

Introduces techniques to discover patterns in Big Data. Selected topics: time-series analysis at scale, big graph mining, big scientific data mining, and spatiotemporal data mining, with applications in precision medicine, social network analysis, transportation, scientific data analysis, and geospatial analytics. Prereq: CSCI 3412 and MATH 3191/3195. Cross-listed with CSCI 7702. 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 5741 - Principles of Cybersecurity

Focuses on the most common threats to cybersecurity as well as ways to prevent security breaches or information loss. Topics will include: understanding and thwarting hacker methods, authentication, cryptography, programming security, malware analysis, web, database and file server security, network and enterprise security methods. Restriction: Restricted to students with graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5742 - Cybersecurity Programming and Analysis

Focuses on cybersecurity related programming and analysis skills. Topics include: network and security application development, intrusion detection, automating security hardening. Students will design and develop security applications in multiple programming languages. Undergraduate algorithms and programming knowledge expected. Cross-listed with CSCI 4742. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5743 - Cyber and Infrastructure Defense

Presents analytical study of state-of-the-art attack and defense paradigms in cyber systems and infrastructures. Analysis will focus on: theoretical foundations of cybersecurity, practical development of novel technical defense techniques and analysis of alternatives. Knowledge of undergraduate-level networking. Restriction: Restricted to students with graduate standing. Cross-listed with CSCI 4743. 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 5772 - Mobile and IoT Security

This course concentrates on the computing of emerging mobile and IoT systems security in the Computer Science domain. The seminar will discuss recent research on computing for mobile user authentication, vulnerability risk detection of mobile/IoT systems, and software based defense mechanism. Restriction: Restricted to graduate school standing. 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 - Cloud Computing

This course studies fundamental designs and key technologies in Cloud Computing by reading technical articles, and conducting a semester group project. Topics include cloud computing design and architectures, service models, virtualization, advanced computer networks, programming, often software, and security. Note: Operating System, Computer Networks, and programming experience are recommended for success in this course. 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. Restriction: Restricted to students with graduate standing. 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 5866 - Advanced Mobile and Ubiquitous Systems

This course covers various aspects of mobile and ubiquitous systems to provide an in-depth understanding of principles, state-of-the-art solutions and challenges in design and implementation of such systems. Prereq: CSCI 3453 and CSCI 4761. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5920 - 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, level design, scripting, texture mapping, and sound effect. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5930 - Machine Learning

Provides theoretical and computational foundations in machine learning to design and develop intelligent applications to perform object recognition, personalized recommendations, improve cybersecurity, fact-checking, forecasting and finding communities based on three classes of algorithms: supervised, unsupervised, semi-supervised and reinforcement learning. Restriction: Graduate Standing. Cross-listed with CSCI 4930. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5931 - Deep Learning

Provides a foundation on deep learning; a sought-after skill in machine learning. Topics include neural network design & learning, restricted Boltzmann machine, convolution neural network, recurrent neural network, LSTMs, deep reinforcement learning, autoencoders, and evolving computation frameworks like TensorFlow, Keras. Restriction: Graduate Standing. Cross-listed with CSCI 4931. Max hours: 3 Credits. **Semester Hours:** 3 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 5951 - Big Data Systems

Presents a practical while in-depth review of the principles of a series of modern data processing systems (e.g., Hadoop, Spark, TensorFlow) designed to address the Big Data challenges. In combination, these systems enable the data to knowledge (Big) data lifecycle. Restriction: Restricted to Graduate standing. Cross-listed with CSCI 5951. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 5952 - Big Data Science

Introduces methodologies that enable Big Data lifecycle. Selected topics: topic modeling, causality analysis, structure learning, learning with less supervision, and massive-scale data analytics, with applications in social media analysis, computational biology, climate modeling, health care, and traffic monitoring. Restriction: Graduate standing. Cross-listed with CSCI 7952. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 6010 - Principles of Programming

This course introduces students to fundamental principles and techniques in the design and implementation of modern programming such as C++, Java. Students learn how to write programs in an object oriented high level programming language. Weekly laboratory assignments will provide hands-on experience in this course. (non-CS majors) Prereq: meet MAPS requirements and familiarity with computer use. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 6020 - Data Structures and Algorithms

This course introduces students to fundamental skills in computer science such as data structures and computer algorithms. Students will learn how to design efficient algorithms and analyze them. (non-CS majors) Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 6030 - Computer Systems & Application

This course surveys essential technologies such operating systems, database systems, and the Internet. Students study the basic of operating systems, database systems, and

the Internet. Weekly laboratory experiments will provide hands-on experience. (non-CS majors) Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 6040 - Teaching Practice of Computer Science

This course provides students the opportunity for practicing and developing courses for adolescents using previously acquired knowledge. Students will design and develop a computer science class of their interest and appropriate to their area of expertise which they will offer at their school. (non-CS majors) 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 5446. 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 7702 - Big Data Mining

Introduces techniques to discover patterns in Big Data. Selected topics: time-series analysis at scale, big graph mining, big scientific data mining, and spatiotemporal data mining, with applications in precision medicine, social network analysis, transportation, scientific data analysis, and geospatial analytics. Cross-listed with CSCI 5702. 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 - Cloud Computing

This course studies fundamental designs and key technologies in Cloud Computing by reading technical articles, and conducting a semester group project. Topics include cloud computing design and architectures, service models, virtualization, advanced computer networks, programming, often software, and security. Note: Operating System, Computer Networks, and programming experience are recommended for success in this course. 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 7866 - Advanced Mobile and Ubiquitous Systems

This course covers various aspects of mobile and ubiquitous systems to provide an in-depth understanding of principles, state-of-the-art solutions and challenges in design and implementation of such systems. Prereq: CSCI 3453 and CSCI 4761. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 7952 - Big Data Science

Introduces methodologies that enable Big Data lifecycle. Selected topics: topic modeling, causality analysis, structure learning, learning with less supervision, and massive-scale data analytics, with applications in social media analysis, computational biology, climate modeling, health care, and traffic monitoring. Restriction: Graduate standing. Cross-listed with CSCI 5952. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CSCI 8990 - Doctoral Dissertation

Max hours: 9 Credits. **Semester Hours:** 1 to 9

Counseling

COUN 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: COUN 5010. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 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. Restriction: Restricted to COUN, SPSY-EdS and SPSY-PsyD majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 5050 - Foundations of Student Affairs

This course examines theories of college student development including student learning and growth during the postsecondary years. This course will provide an introduction to psychosocial, cognitive, moral, and social identity development theories used to explain college student development. Cross-listed with HDFR 4050. Max hours: 6 Credits. **Semester Hours:** 3 to 3

COUN 5070 - Law and Ethics in Higher Ed and Student Affairs

This course will introduce students to the laws that impact college students and institutions of higher education. Graduate students will obtain knowledge of and the necessary skills to apply a code of ethics to their practice in student affairs. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 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: COUN 5010 and 5810. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 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: COUN 5010, COUN 5100 and 5810. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 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

COUN 5130 - College Student Development

This course examines theories of college student development including student learning and growth during the postsecondary years. This course will provide an introduction to psychosocial, cognitive, moral, and social identity development theories used to explain college student development. Cross-listed with HDFR 4130. Max hours: 6 Credits. **Semester Hours:** 3 to 3

COUN 5150 - Family Counseling/Therapy

Introduces systemic and family theories and intervention strategies. Emphasis on historical development of systems theory. Prereq: COUN 5010 and 5810. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 5160 - Techniques in Family Counseling/Therapy

This didactic and experiential course presents an overview of techniques and theories in family therapy. It will help students continue to develop a theoretical framework for engaging in theory driven therapeutic interventions via practice family therapy role plays
Prereq: COUN 5010, 5100 and 5150. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits **Semester Hours:** 3 to 3

COUN 5180 - Counseling Couples

This course is didactic and experiential dealing with therapeutic techniques applied to the improvement of intimate/couple relationships. Emphasis is placed on empirically based assessment, diagnosis, and treatment of couples' problems. Special topics include: co-habiting couples, gay and lesbian couples, remarried couples, cross-cultural couples, ethical and moral dimensions of couple counseling, unique couple issues, and the effectiveness of couple therapy. Prereq: COUN 5010, 5100 and 5150. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 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. Restricted to Graduate level students in the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 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: COUN 5010 and 5810. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 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.

Restricted to Graduate level students in the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 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: COUN 5010 and 5815, EDHD 6200, RSEM 5110 and 5120. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 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

COUN 5810 - Multicultural Counseling Issues for Individuals and Families

Offers introduction to competent multicultural and social justice counseling. Students develop the awareness, knowledge, skills and action competences necessary for culturally responsive interventions with diverse communities. The course explores issues of ethnicity, culture, age, disability, and sexual orientation and learn about multicultural and social justice interventions for addressing these issues in counseling. Restricted to Graduate level students in the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 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: COUN 5010. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 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: COUN 5010 and 5810. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 6 Credits. **Semester Hours:** 3 to 6

COUN 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

COUN 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. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 6 Credits. **Semester Hours:** 1 to 6

COUN 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

COUN 5840 - Independent Study: COUN

Individually directed research activity on special topics not covered by course offerings. Degree students only, with advance approval by major, professor and department chair. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 9 Credits. **Semester Hours:** 1 to 4

COUN 5910 - Practicum in COUN

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.

Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 6 Credits. **Semester Hours:** 6 to 6

COUN 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: COUN 5010, COUN 5110, COUN 5400, COUN 5425, COUN 5810, COUN 5815, COUN 6230. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 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: COUN 5910. Restriction: Restricted to COUN majors within the School of Education and Human Development. Students must register for 3 or 6 credit hours. Max hours: 12 Credits. **Semester Hours:** 3 to 6

COUN 5940 - Internship in Higher Education and Student Affairs

The internship is the final academic experience in the acquisition of the Master's degree in counseling. This course builds on the theoretical and skill-building courses and is intended to give students practical experience in higher education and student affairs. Emphasis on personal and professional development as higher education and student affairs professionals. Students must register for 3 or 6 credit hours. Prereq: COUN 5050 and COUN 5500. Max hours: 6 Credits. **Semester Hours:** 3 to 6

COUN 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: COUN 5010, COUN 5100, COUN 5110, COUN 5150. Prereq or Coreq: COUN 5160. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 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. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 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: COUN 5010, COUN 5100, COUN 5150 and EDHD 6200. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 6150 - Introduction to Emotionally Focused Couple Therapy

This course is designed to help students conceptualize couple distress from an attachment perspective and gain foundational knowledge in Emotionally Focused Therapy (EFT). The organization of the course includes observation of therapy sessions, presentations of theory and clinical techniques, skills training exercises, and discussion of specific cases, clinical material and issues. Prereq: COUN 5010, COUN 5100, COUN 5150, COUN 5160. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 6160 - Advanced Assessment: Theory and Treatment in Family Systems

This is a didactic and experiential course focusing on family assessment instruments and their use in family therapy. Emphasis is placed on the role of assessment in family therapy, the relationship of assessment to treatment planning and evaluation, gaining familiarity with a variety of assessment instruments, and learning to apply assessment skills to real-world clients. Prereq: COUN 5010, 5100, 5150, 5160, and RSEM 5110. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits **Semester Hours:** 3 to 3

COUN 6170 - Issues In Family Studies

This is a family studies course that is both didactic and experiential. It is designed to assist you to become more informed about contemporary family issues that affect you, your clients, and society. The course major components include: theories of "normal" family processes and life cycle development, family composition, and social issues that impact families and family therapy. Prereq: COUN 5010. Restriction: Restricted to COUN majors within the School of Education and Human Development. Cross-listed with COUN 7170. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 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: COUN 5100, 5110, 5400, 5810, EDHD 6200, RSEM 5110 and 5120. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 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: COUN 5010 or permission of instructor. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 6250 - Mental Health Diagnosis

This course addresses individual diagnosis from a variety of perspectives: Biological, developmental, medical, neurological, psychosocial, cultural and interpersonal. It will provide students with a broad theoretical base for understanding psychopathology, from not only an individual, descriptive, symptom-based perspective as presented in the DSM-5, but also from a contextual systemic perspective including developmental hallmarks, familial patterns and socio-cultural contributors. Prereq: COUN 5010 and 5810. Restriction: Restricted to COUN and EDHD majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 6310 - Facilitating Sociopolitical Development Theory & Actn

Participants will learn to use dialogic instructional strategies to create student-teacher partnerships that respect student voice and affirm the lived experiences of students. Participants will learn strategies to engage students and themselves in critical inquiry about identity, privilege, and social justice. Cross listed with COUN 7310. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 6320 - Participatory Research Methods in Context

This course will introduce students to participatory research methods, including Youth Participatory Action Research (YPAR), PAR, youth participatory evaluation, and design based research. Graduate students will study current examples of this work, design, and conduct a study in their professional context. Cross listed with COUN 7320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 6330 - Advanced Seminar in Counseling and Psychotherapy

Professional analysis of major trends in counseling and psychotherapy. Specific emphasis topics identified. Prereq: COUN 5010, 5100 and 5330. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 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. Restriction: Restricted to COUN majors within the School of Education and Human Development. Cross-listed with EDHD 6350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 6810 - Advanced Multicultural Counseling

Offers essential preparation for competent multicultural and social justice counseling practice with culturally diverse clients, and families. Students learn about effective multicultural counseling and advocacy skills. The course explores the impact of ethnicity, culture, age, disability, sexual orientation, etc., on individual behavior, interpersonal relationships, and learn about multicultural and social justice interventions and techniques for addressing these issues in counseling. Prereq: COUN 5010, 5100 and 5810. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 6840 - Independent Study

Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 4 Credits. **Semester Hours:** 1 to 4

COUN 6910 - Advanced Practicum in Counseling

Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 12 Credits. **Semester Hours:** 3 to 6

COUN 6950 - Master's Thesis

Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 4 Credits. **Semester Hours:** 4 to 4

COUN 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: COUN 5010, 5100 and 5820.

Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 7170 - Issues in Family Studies

This is a family studies course that is both didactic and experiential. It is designed to assist you to become more informed about contemporary family issues that affect you, your clients, and society. The course major components include: theories of "normal" family processes and life cycle development, family composition, and social issues that impact families and family therapy. Cross-listed with COUN 6170. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 7310 - Facilitating Sociopolitical Development Theory & Actn

Participants will learn to use dialogic instructional strategies to create student-teacher partnerships that respect student voice and affirm the lived experiences of students. Participants will learn strategies to engage students and themselves in critical inquiry about identity, privilege, and social justice. Cross listed with COUN 6310. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 7320 - Participatory Research Methods in Context

This course will introduce students to participatory research methods, including Youth Participatory Action Research (YPAR), PAR, youth participatory evaluation, and design based research. Graduate students will study current examples of this work, design, and conduct a study in their professional context. Cross listed COUN 6320. Max hours: 3 Credits. **Semester Hours:** 3 to 3

COUN 7800 - Supervision in Counseling and Psychotherapy

Examines training principles, processes, and practices in clinical supervision. Emphasis on individual and family therapy supervision. Prereq: COUN 5010, 5100, 5910 and 5930. Restriction: Restricted to COUN majors within the School of Education and Human Development. Max hours: 12 Credits. **Semester Hours:** 3 to 3

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 5050 - Foundations of Student Affairs

This course examines theories of college student development including student learning and growth during the postsecondary years. This course will provide an introduction to psychosocial, cognitive, moral, and social identity development theories used to explain college student development. Cross-listed with HDFR 4050. Max hours: 6 Credits. **Semester Hours:** 3 to 3

CPCE 5070 - Law and Ethics in Higher Ed and Student Affairs

This course will introduce students to the laws that impact college students and institutions of higher education. Graduate students will obtain knowledge of and the necessary skills to apply a code of ethics to their practice in student affairs. 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 and 5810. 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, CPCE 5100 and 5810. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5130 - College Student Development

This course examines theories of college student development including student learning and growth during the postsecondary years. This course will provide an introduction to psychosocial, cognitive, moral, and social identity development theories used to explain college student development. Cross-listed with HDFR 4130. Max hours: 6 Credits. **Semester Hours:** 3 to 3

CPCE 5150 - Family Counseling/Therapy

Introduces couple and family theories and intervention strategies. Emphasis on historical development of systems theory. Prereq: CPCE 5010 and 5810. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 5160 - Techniques in Family Counseling/Therapy

Intervention strategies with families. Emphasis on application of techniques evolving

from treatment models. Video-taped role plays are utilized. Prereq: CPCE 5010, 5100 and 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. 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 and 5150. 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 5810. 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 and 5815, EPSY 6200, RSEM 5110 and 5120. 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 and 5810. 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 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 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: CPCE 5910. Restriction: Restricted to CPCE-MA majors. Students must register for 3 or 6 credit hours. Max hours: 12 Credits. **Semester Hours:** 3 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 and CPCE 5150. 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 5110. 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 5100, 5110, 5400, 5810, EPSY 6200, RSEM 5110 and 5120. 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 5810. Cross-listed with EPSY 6250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 6310 - Facilitating Sociopolitical Development Theory & Actn

Participants will learn to use dialogic instructional strategies to create student-teacher partnerships that respect student voice and affirm the lived experiences of students. Participants will learn strategies to engage students and themselves in critical inquiry about identity, privilege, and social justice. Cross listed with CPCE 7310. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CPCE 6320 - Participatory Research Methods in Context

This course will introduce students to participatory research methods, including Youth Participatory Action Research (YPAR), PAR, youth participatory evaluation, and design based research. Graduate students will study current examples of this work, design, and conduct a study in their professional context. Cross listed CPCE 7320. 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 5010, 5100 and 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 and 5820. Max hours: 3 Credits. **Semester Hours: 3 to 3**

CPCE 7310 - Facilitating Sociopolitical Development Theory & Actn

Participants will learn to use dialogic instructional strategies to create student-teacher partnerships that respect student voice and affirm the lived experiences of students. Participants will learn strategies to engage students and themselves in critical inquiry about identity, privilege, and social justice. Cross listed with CPCE 6310. Max hours: 3 Credits. **Semester Hours: 3 to 3**

CPCE 7320 - Participatory Research Methods in Context

This course will introduce students to participatory research methods, including Youth Participatory Action Research (YPAR), PAR, youth participatory evaluation, and design based research. Graduate students will study current examples of this work, design, and conduct a study in their professional context. Cross listed CPCE 6320. 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

Courses in the One Year MBA

AMBA 5939 - Internship for MBAs

Supervised experiences involving the applications of concepts and skills in an employment setting. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 6 Credits. **Semester Hours:** 1 to 6

AMBA 6201 - Leading in Organizations

This course addresses core leadership challenges, such as motivating a diverse employee base, working in and managing teams, designing an organization and building a healthy culture, leading organizational change, and managing power and politics in the workplace. Restrictions: Restricted to AMBA majors within the Business School. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6202 - Workforce Management

This course focuses on the management and deployment of human resources in organizations. Students learn how leaders can utilize recruitment and staffing strategies, performance management, compensation and benefits, data and analytics, and training and leadership development programs to foster a successful workforce. Restrictions: Restricted to AMBA majors within the Business School. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6210 - Data Analytics I

This course covers basic statistical concepts and methods including descriptive and graphical tools, exploratory data analysis, statistical inference, and bivariate methods. Emphasis is placed on proper choice of methods and interpretation of the results. Lectures, assignments, and projects are grounded in real data taken from business applications. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6211 - Data Analytics II

This course allows decision-makers to understand relationships among key business metrics. Applications of these methods may be found throughout the organization from human resources management and marketing to accounting and finance. Multiple regression provides the methodological framework. Business case studies are used extensively throughout the course. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6220 - Business Law and Ethics

This course provides the One Year MBA student with a working knowledge of the legal and ethical issues involved in business decision-making in four areas: 1) tort law, 2) business organizations, 3) employment law, 4) intellectual property law. The influence of legal and ethical issues on an organization's decision-making is stressed. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6230 - Financial Accounting

This course emphasizes the use of external financial reporting information when making business decisions, particularly to assess a firm's overall financial condition and performance for investment and credit decisions. To understand the underlying basis of financial reporting the concepts and mechanics of generating financial statements is addressed in a nontechnical manner. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6231 - Management Accounting

This course emphasizes the use of management accounting information when making business decisions within organizations. Topics include product and service costing, planning profitability and controlling operations through budgeting techniques and short-term non-routine decision making. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6240 - Marketing Principles

This course focuses on marketing theory and its application, emphasizing the study of core principles that can be applied to a wide range of marketing situations, both large and small. The course encourages critical analysis via a case-based approach to learning. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6241 - Marketing Strategy

This course focuses on applying the fundamentals of marketing theory in real-world settings. Guest-speakers, company site visits, and developing a marketing plan are used to emphasize marketing principles. The distinction between small-business-oriented lean marketing and large-scale marketing effort of corporations will be drawn out thru the course experience. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6250 - Digital Leadership and Governance

This course examines strategic issues involved with the effective management of information technology (IT) in businesses including the role of IT as a driver of business innovation and strategy. By examining how an organization makes IT investment decisions, implements new IT assets, delivers services, assesses risk and measures its own performance, a Digital Leadership and Governance portfolio can assure the organization is meeting its compliance and security responsibilities, along with fulfilling strategic objectives. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6251 - Data Management Strategy

This course provides students with an overview of the key concepts for establishing an organizations data management strategy, ensuring that its operational and analytical

needs are efficiently, effectively, and securely addressed. The course emphasizes real-case scenarios that companies face when addressing global operational and analytical data challenges. The course also addresses current trends in managing structured data as organizations move to the Cloud-based computing services. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6260 - Applied Microeconomics

This course provides an overview of "thinking like an economist". The course covers an introduction to supply and demand and the basic forces that determine an equilibrium in a market economy. Students learn to understand: consumer behavior, firm behavior, and analyze different types of market structures (monopoly, oligopoly and a competitive market). Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6261 - Applied Macroeconomics

This course explores the causes and effects of unemployment, interest rates, and inflation. The roles of the central bank and the government in implementing policy are discussed. The course provides models of macroeconomics will be introduced and illustrated using historical US data. The course prepares a student to take intermediate macroeconomics. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6270 - Operations Management

This course is concerned with sales and operations planning through coordination of resource planning, inventory control, logistics management, network configurations, demand management and work flow efficiencies with an operations strategy perspective. Computer-based operations analytics to support decision making is emphasized. Current innovations and future trends in operations are included. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6271 - Supply Chain Management

This course is concerned with the design, analysis, management and control of supply chains. Because of advances in globalizations, sustainability and technology, course emphasis includes integration of processes and systems, relationship management of

upstream and downstream players, configuration of network designs and evaluation of strategies that incorporate current and future trends. Computer-based analytics and the Supply Chain Operations Reference (SCOR) model are addressed. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6280 - Finance Management I

This two-part course deals with decisions a business firm takes to maximize stakeholder value. Students learn to use theories and techniques to examine and understand business and security valuation, the cost of capital, capital budgeting and capital structure, and other related issues. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6281 - Finance Management II

This two-part course deals with decisions a business firm takes to maximize stakeholder value. Students learn to use theories and techniques to examine and understand business and security valuation, the cost of capital, capital budgeting and capital structure, and other related issues. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6290 - Strategy Foundations

This course is a graduate level introduction to the topic of strategic management – definitions, core ideas, and a broad understanding of what is required for the firm to build a competitive advantage that is sustainable over the medium to long term. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6291 - Strategic Management

The capstone of the MBA and a deeper dive into strategic management - covering the essential tools used to formulate a firm's strategy, but also building on the core functional area courses to tackle strategy in practice via an in-depth, group-based, simulation. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6301 - Global Business

This course examines the dynamic context of global business from both a multinational and entrepreneurial perspective. Topics covered include the cultural, political-legal, technological, economic, financial, and sustainability aspects of the international business environment. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 1.5 to 1.5

AMBA 6310 - International Business Abroad

The One Year MBA International Business Study Abroad is an experiential learning course conducted abroad. Available for One Year MBA students. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 3 Credits. **Semester Hours:** 3 to 3

AMBA 6320 - Career and Professional Development

This course focuses on preparing students to successfully seek their next position and develop the professional skills to excel in their long-term career. Sample topics include: Personal Brand Readiness; Business Communication Skills; Business Professionalism; and Interview Skills. Restrictions: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 1.5 Credits. **Semester Hours:** 0.5 to 1

AMBA 6330 - Introduction to Business Consulting for MBAs

The course is designed to expose students to the real-world application of project and client management. The course includes partnerships with external organizations, and provides students the platform to conduct strategic consulting on specific initiatives within those organizations. Restriction: Restricted to graduate majors within the Business School with the AMBA major code. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Criminal Justice

CRJU 1000 - Criminology and 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 2000 - Professional Development in Criminal Justice

In this course, students will explore, examine, and reflect on their strengths, interests, and personality assessments as they relate to the criminal justice field and professional development. Participants will conduct career-related research and develop individualized action plans designed to bridge the gap between their current skills and experiences and those desired by employers in the criminal justice field. Prereq: UNIV 1110. Restriction: Restricted to Criminal Justice majors. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CRJU 2041 - Criminological Theory

This course examines the nature and causes of crime and policies within and outside the criminal justice system to predict, prevent, and correct criminal, delinquent, and deviant behavior. It involves a critical appraisal of biological, psychological, economic, and sociological theories and frameworks that explain crime, delinquency, and deviance. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3100 - Research Methods

This course teaches students how to formulate research questions related to criminology and crime and justice. It addresses how to design research in the field, including choosing an appropriate method and sampling strategy and collecting, analyzing, interpreting, and reporting data and findings. Specific substantive elements are included in research design (e.g., various types of probability and non-probability sampling; strengths and weaknesses of surveys, interviews, and other methodological approaches; experimental and non-experimental designs; qualitative techniques; etc.) Other substantive topics are addressed, including research ethics, consuming research, and writing in different settings. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3150 - Statistics for Criminal Justice

This course introduces descriptive and inferential statistics and the use of computer software to analyze criminal justice data. Course content includes hypothesis testing and the basic analysis of continuous and discrete dependent variables related to criminology and criminal justice. Prereq: CRJU 3100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3160 - White-Collar Crime

Employs social science and legal approaches to examine crime committed by corporations as well as by individuals in white-collar occupations. Topics include how such crimes are socially defined, who commits them, which social contexts promote them, who is victimized, and how society and the criminal justice system respond.

Cross-listed with CRJU 5574. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3220 - Community 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 surveys the relationships between mass media, crime, offenders, victims, and criminal justice. It explores how the criminal justice system and its agents, accused and convicted offenders, and victims, are portrayed in the media and the influence of these depictions on society, public policy, and the criminal justice system. Max hours: 3

Credits. **Semester Hours:** 3 to 3

CRJU 3251 - Crime and the Media

This course surveys the relationships between mass media, crime, offenders, victims, and criminal justice. It explores how the criminal justice system and its agents, accused and convicted offenders, and victims, are portrayed in the media and the influence of these depictions 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 3270 - Case Studies in Criminal Justice

This seminar examines the lives of people who live on the margins of a society that perceives them as outsiders. Ethnographic studies that utilize 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 constantly on the edge of the law. Cross-listed with CRJU 5270. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3280 - Trauma Among Correctional Populations

This course provides a comprehensive overview of trauma and the relationship of trauma to criminal offending. Topics includes the definition of trauma, the impact of trauma on development, lifelong consequences of chronic exposure to adverse events, and how to integrate knowledge about trauma into organizational policies in correctional settings. The class focuses on understanding the components of a trauma-responsive environment in correctional settings and incorporating trauma recovery principles into practice. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3285 - Trauma in the Criminal Justice System

This course examines trauma as widely prevalent among those who are served by the criminal justice system and experienced disproportionately among criminal justice professionals. Trauma prevalence, theory, prevention, and interventions through a trauma stewardship lens for victims of multiple forms of trauma, including vicarious traumatization and secondary traumatic stress, will be emphasized through an all-inclusive view across the criminal justice continuum. Cross-listed with CRJU 5285. Max Hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3290 - Capital Punishment

This course examines in-depth a comprehensive range of issues surrounding capital punishment. Specifically, it looks at the history of capital punishment, methods of execution, legal issues and case law, deterrence, miscarriages of justice, discrimination in the capital charging and sentencing system, and the role of the death penalty internationally. The coverage of these issues relies on many sources, including scholarly readings, non-fiction books, court cases, websites, videos and documentaries, speeches, and media. Cross-listed with CRJU 5290. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3310 - Contemporary Issues in Law Enforcement

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 3330 - Serial Killers

This course looks at various aspects of serial killing, including definitions, statistics, and demographics of serial killers and their victims. It examines factors that are correlated with serial killing, as well as criminal justice responses to serial killers (e.g., investigative techniques, prosecuting and defending accused killers, etc.) It also includes cases of serial killers. 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. Substantive topics, including the presentence investigation report, privatization, and the roles and responsibilities of probation and parole officers, are discussed. Particular attention is paid to research on the effectiveness of probation and parole, factors that contribute to the successful completion of probation and parole, and the role that the community and citizens play in these community corrections processes. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3420 - Pleas, Trials and Sentences

This course analyzes case materials involving pleas, trials, and sentences. Course content includes the dimensions of criminality, the specific elements of major crimes, plea bargaining, the use of confessions, fair trial procedures, and various aspects 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. It explores the connection between drugs and crime within the socio-historical context of contemporary U.S. drug policy. Special emphasis is placed on the relationship between drugs and alcohol abuse and criminal offending, including the criminal justice system responses to possessing, distributing, and using illegal substances. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3520 - Juvenile Justice

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 juvenile law and methods of dealing with youthful offenders. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 3530 - Juvenile Delinquency

This course looks at deviant and delinquent behavior committed by minors in American society. It explores the social construction of juvenile delinquency and factors and conditions contributing to at-risk and delinquent behavior. Finally, it examines the control and treatment of juvenile offenders prevention programs. 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 3575 - Mentally Disordered Offenders

Examines the offender who may be mentally disordered. Special attention is paid to 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. Cross-listed with CRJU 7575 and 5575. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4010 - Public Service in Emergency Management and Homeland Security

Introduces emergency management and homeland security including: management of hazards, emergencies, disasters, and the networks of government and nonprofit organizations providing services. Focuses on principles of emergency management and homeland security at state and local jurisdictional levels. Cross-listed with PUAD 4010, PUAD 5650, and CRJU 5650. Prereq: CRJU 1000. 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, institutional corrections, 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 the police role in a sociological 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 systems, with special attention on the criminal court system. It looks at the courtroom workgroup and agents within it, including the prosecutor, defense attorney, and judge. It 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 Justice

This course examines the relationships between race, social class, and crime. Attention is given to theoretical explanations, empirical research, and patterns of criminal behavior. The class focuses on historical frameworks that are relevant to current perspectives on the impact and interactions of race, class, and crime in the field. It examines race, class, and race-by-class disparities and discriminatory practices at different phases of the justice system from detainment through sentencing and appeals. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4121 - Ethics in Criminal Justice

This course is designed to prepare students to identify and critically examine ethical issues in the criminal justice system by applying ethical decision models. It also provides students with the 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 formal and informal professional ethics. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4130 - Poverty, Crime, and Justice

This course analyzes theories and empirical research related to the causes of criminal behavior committed by individuals of lower socio-economic status. Further, it examines the economic and social costs of crimes committed by under-resourced individuals and crime-prevention strategies that are connected to crimes committed by under-resourced individuals. 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 components of the criminal justice system. By exploring the dynamics of intimate partner violence, this course addresses the theories, history, research, legislation, and policy implications related to the criminal justice system's response to intimate partner violence. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4150 - Sex Offenders and Offenses

This course explores 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 assessment, and

treatment/supervision approaches to sex offenders and offenses. Prereq: CRJU 1000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4170 - Victimology

This course involves the scientific study of crime victims and focuses on the physical, emotional, and financial harm people suffer at the hands of offenders. Emphasis is placed on victim-offender relationships, interactions between victims and the criminal justice system, and connections between victims and other social groups and institutions. Theories, 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 - Homicide Studies

This class examines criminal homicide from all angles: the offenders, the victims, the police, prosecution, defense, jurors, and judges. It looks at investigative techniques and the latest science involved in criminal investigation, jury selection, and other criminal justice system issues. It focuses on what is arguably the most serious form of homicide, murder, exploring sensational cases that involve delving into the psyche of murderers. 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 responses to crime across countries. Special emphasis is placed on 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, Crime, and Justice

This course explores issues surrounding women as offenders and victims. It investigates explanations for women's involvement in illegal activities and looks at gender-based disparities and discrimination in the criminal justice system's treatment of women who are accused and convicted of crimes. The class also examines women's participation in criminal justice professions, including law enforcement, corrections, judicial processes, and law. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4200 - Wrongful Convictions

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 or sentenced to death row and erroneously executed. Cross-listed with CRJU 5200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4230 - Treatment Approaches in American Corrections

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 and other socially differentiated variations in the practice of punishment. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4252 - Criminal Offenders: Evidence-Based Decision-Making

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 among criminal justice professionals. 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 the legal elements of major crimes. It also addresses legal aspects of investigation, search and seizure, arrest, custodial interrogation, the appointment of counsel, and constitutional rights that apply during trials (e.g., right to confront witnesses, be protected against self-incrimination, be tried by a jury of one's peers, etc.) Rules governing the admissibility of evidence in court are also examined. 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 scientific perspectives of the law, legal institutions, the legal process, and the impact of law on behavior. Particular emphasis is placed on the interplay between the social construction of crime through law, criminal behavior and individuals targeted in criminal justice processes in America. Additional topics include theories of law and legality, comparative legal systems, police, lawyers, judges, juries, and the use of social science expertise in the justice system. 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 Violence

This course focuses on the family as the primary institutional mechanism of social control. Structured around social learning theory, it explores the relationships between

exposure to childhood violence and violence later in life, including dating relationships during adolescence and adulthood and violence in marital relationships. The course also looks at the impact of childhood violent victimization on juvenile delinquency, adult criminality, and violent behavior in general. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4540 - Evidence-Based Approaches in Law Enforcement

This course provides an introduction to the uses and applications of analysis within law enforcement, including the role of analysis in law enforcement, theories that guide analysis and police practices, commonly used data sources, technology, and a practical introduction to the techniques for various types of analysis utilized in law enforcement. Prereq: CRJU 1000, 3100, and 4043. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4600 - Special Topics in Criminology and Criminal Justice

This highly specialized seminar addresses cutting-edge and emerging developments in the fields of criminology and 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 1000. Max hours: 18 Credits. **Semester Hours:** 3 to 3

CRJU 4700 - Community-Based Field Experience and Seminar

Students work in small groups to complete substantive projects for government agencies and community organizations, led by faculty instructor. Topics addressed will vary depending on the needs of the community partner. Prerequisite: Completion of CRJU 1000 and CRJU 3100. Restriction: Restricted to SPA students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 4840 - Independent Study: CRJU

This course consists of instructor-guided research in an area of mutual interest to the student and instructor or a student-driven project supervised by the instructor. Students are responsible for selecting their area of inquiry prior to contacting the instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 6

CRJU 4939 - Internship

Internships involve a career-related supervised experiential course in a criminal justice

or related agency. Permission to enroll must be preceded by an application for an internship. Prereq: Permission of instructor and advisor is required for undergraduate students. Max hours: 6 Credits. **Semester Hours:** 1 to 6

CRJU 5001 - Criminal Justice Systems, Policies, and Practice

Examines current critical issues in the justice system affecting law enforcement, courts, corrections, and recent social developments related to personnel. The development, implementation, and analysis of public policy in the field of criminology are explored in depth. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5002 - Criminological Theory

Explores the origins of criminal behavior and impact of crime on society. Theories of deviant, delinquent, and criminal behavior are examined, and practical implications and application of theoretical constructs are analyzed through current research paradigms and empirical research. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5003 - Research Methods

Examines applied research designs and analytical models. Research problems in the system are utilized to illustrate the application and interpretation of alternative research strategies. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5004 - Statistics for Criminal Justice

Introduces 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5005 - Law & Society

Introduces a variety of topics related to the functions and societal implications of law. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5010 - Seminar Nonprofit Management

Provides an overview of principles and concepts unique to nonprofit management. Topics include executive management, funding diversity, human resource management, marketing, volunteer management and ethics. Students also are introduced to the history and importance of the nonprofit sector. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with PUAD 3110 and 5110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5100 - Administration of Criminal Justice

Analyzes the policies and practices of agencies involved in the criminal justice process, from the detection of crime and arrest of suspects through prosecution, adjudication, sentencing and imprisonment, to release. The patterns of decisions and practices are reviewed in the context of a systems approach. Cross-listed with CRJU 7100. **Semester Hours:** 3 to 3

CRJU 5140 - Nonprofit Financial Management

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 4140 and 5140. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5150 - 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 5220 - The American Jury System

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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5240 - Gang Patterns and Policies

Focuses on gangs, gang members, and gang activity in the United States. Topics include the origins and historical development of gangs, gang migration, gang related crime and violence, gang victimization, and the effects of gang involvement on communities and families. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5250 - Criminal Offenders

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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5260 - Crime and Literature

This seminar focuses on nonfiction literature as it relates to criminality and the criminal justice system. Samples of social commentary, biographies/autobiographies, and other accounts presented within various types of nonfiction literature are examined in order to more fully understand and appreciate their impact in shaping public opinion of the criminal justice system. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5270 - Case Studies in Criminal Justice

This seminar examines the lives of people who live on the margins of a society that perceives them as outsiders. Ethnographic studies that utilize 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 constantly on the edge of the law.

Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with CRJU 3270. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5290 - Capital Punishment

This course examines in-depth a comprehensive range of issues surrounding capital punishment. Specifically, it looks at the history of capital punishment, methods of execution, legal issues and case law, deterrence, miscarriages of justice, discrimination in the capital charging and sentencing system, and the role of the death penalty internationally. The coverage of these issues relies on many sources, including scholarly readings, non-fiction books, court cases, websites, videos and documentaries, speeches, and media. Cross-listed with CRJU 3290. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5301 - Crime and the Media

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. 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5331 - Crime Analysis and GIS

Serves as an introduction to the uses and applications of analysis within law enforcement, including the role of analysis in law enforcement, theories that guide analysis and police practices, commonly used data sources and technology, and techniques for various types of analysis utilized in law enforcement. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5361 - Capstone Seminar

Synthesizes competencies gained throughout the course of study into a client-based research project. Students conduct independent research, complete a final written project demonstrating their qualifications and expertise, and orally present findings to a

committee of faculty and criminal justice professionals. Prereq: CRJU 5000, CRJU 5100, CRJU 5120, CRJU 5321. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5391 - Sex Offenders and Offenses

Focuses on challenges practitioners face in managing sex offenders, including the development of programs and partnerships that can effectively assess, track, control, and treat sex offenders through all phases of the system. Max hours: 3 Credits.

Semester Hours: 3 to 3

CRJU 5410 - Victimology

Examines victim-offender relationships, interactions between victims and the criminal justice system, and connections between victims and other social groups and institutions among various populations. The course addresses the theory, history, research, legislation and policy implications related to the social construction of "the victim." 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. 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 responses of the criminal justice system. Special attention is paid to the socially constructed nature of illegal substances and connections with U.S. drug policy. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Max hours: 3 Credits. **Semester Hours: 3 to 3**

CRJU 5520 - Corrections

Examines the development and implementation of correctional systems in America. Topics include the origins of correctional efforts and the evolution of the prison system, punishment and rehabilitation rationales in the context of sentencing models, the social organization of the prison, including inmate subcultures and staff work strategies, and the inmates' rights movement and the impact of judicial intervention in correctional settings. Max hours: 3 Credits. **Semester Hours: 3 to 3**

CRJU 5530 - Community Corrections

Analyzes 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. Max hours: 3 Credits. **Semester Hours: 3 to 3**

CRJU 5540 - Juvenile Justice

Examines 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. 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. 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. 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5553 - Women, Crime, and 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5555 - Profiling Criminal Behavior

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. Topics include homicide, serial crime, stalking. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5571 - The Social Organization of Crime

Explores the relationship between neighborhood social disorganization and 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5572 - Race, Crime, and Justice

Examines the influence of race in the administration of justice. Special attention is paid to the policy implications of racial disparities in the criminal justice system. Restrictions:

Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5574 - White Collar Crime

Employs social science and legal approaches to examine crime committed by corporations as well as by individuals in white-collar occupations. Topics include how such crimes are socially defined, who commits them, which social contexts promote them, who is victimized, and how society and the criminal justice system respond.

Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with CRJU 3160. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5575 - The Mentally Disordered Offender

Examines the offender who may be mentally disordered. Special attention is paid to 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with CRJU 7575 and 3575. 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 change law. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5644 - Environmental and Hazards Law

This course provides a broad overview of issues in all hazards management as well as natural resource and environmental health law. It will convey knowledge of the statutes, regulations and court decisions governing the management of hazards by governmental agencies. The course will also cover aspects of environmental policy implementation and enforcement including the legal aspects of natural resource allocation and management and environmental protection. Restrictions: Restricted to Graduate and

Graduate Non-Degree majors within CU Denver. Cross-listed with PUAD 5644. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5650 - Public Service in Emergency Management and Homeland Security

Introduces emergency management and homeland security including: management of hazards, emergencies, disasters, and the networks of government and nonprofit organizations providing services. Focuses on principles of emergency management and homeland security at state and local jurisdictional levels. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with PUAD 4010, PUAD 5650, and CRJU 4010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5655 - Principles of Emergency Management

Introduces the discipline and practice of emergency management. Topics include administrative practice and processes by which public policy shapes governmental responses to hazards, emergencies, and disasters. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with PUAD 5655. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5720 - Public Policies for Hazards and Disasters

Examines public policymaking and administration related to homeland security and disasters in the United States, including the interplay between security and traditional hazards management concerns. Assesses the role of institutional processes, governmental and nongovernmental organizations in policy development and implementation. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with PUAD 5720. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5910 - Nature and Scope of Interpersonal Violence

Analyzes the social, historical, political, legal, and psychological aspects of gender-based violence. Topics include definitions of the problem, demographics, children and youth exposure, and national and global perspectives. Strategies for prevention, intervention, treatment, and social change are explored. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with PUAD 5910. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5920 - The Psychology of Interpersonal Violence

Addresses the contributions and limitations of current empirical and clinical psychological literatures on interpersonal violence (IPV). Special attention is paid to the effects of IPV on adult and child survivors, their psychological needs, and the contribution of psychological knowledge to understanding and addressing the problem of IPV. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with PUAD 5920. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5930 - Interpersonal Violence Law and Public Policy

Examines public policy and law related to interpersonal violence (e.g., welfare reform, child maltreatment, criminal and civil court responses). Topics include the role of law enforcement agents, victim advocacy, and methods to change law and policy. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with PUAD 5930. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 5940 - Interpersonal Violence Leadership, Advocacy, and Social Change

Examines different models of social change and various approaches to public address, including social movements and campaigns. Strategies for engaging diverse individuals, systems and communities to address interpersonal violence will be emphasized. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with PUAD 5940. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 6171 - Homicide Studies

This class examines criminal homicide from all angles: the offenders, the victims, the police, prosecution, defense, jurors, and judges. It looks at investigative techniques and the latest science involved in criminal investigation, jury selection, and other criminal justice system issues. It focuses on what is arguably the most serious form of homicide, murder, exploring sensational cases that involve delving into the psyche of murderers. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CRJU 6600 - Special Topics in Criminal Justice

Specialized seminar intended to provide students and faculty with the opportunity to explore significant themes, issues, and problems in the field of criminal justice. Topics vary from semester to semester. Course may be taken for credit more than once, provided subject matter is not repeated. Restrictions: Restricted to Graduate and

Graduate Non-Degree majors within CU Denver. Max hours: 18 Credits. **Semester Hours:** 3 to 3

CRJU 6840 - Independent Study: CRJU

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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 9 Credits. **Semester Hours:** 1 to 3

CRJU 6910 - Internship in Criminal Justice

For students who have not had practitioner experience, a full- or part-time internship is required. Note: Masters students must have completed a minimum of 18 credit hours at the graduate level to take this course. Dual Degree students must have completed a minimum of 6 credit hours at the graduate level. Minimum cumulative GPA of 3.0 required to take this course. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 6 Credits. **Semester Hours:** 3 to 6

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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 10 Credits. **Semester Hours:** 1 to 10

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CLDE 1000 - Language, Identity, & Power: International Perspectives

This course explores the relationship between language, identity, and power in various international contexts. The course considers how legacies of inequality for particular communities are reflected in societal attitudes about languages and language users and subsequent language planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 1030 - Introduction Language Development of Multilingual Learners

This course provides an overview of how languages are learned and used in day-to-day life. It focuses on the complexities and variations in registers, dialects and languages as an essential part of human communication in the context of power and privilege in the larger society. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 2000 - CLDE Foundations

This CLDE foundations course includes an overview of history and legislation related to bilingual education and second language education, and provides an overview of essential linguistics for educators and bilingual language development and assessment. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 3680 - Spanish for Educators

This course is designed to help teacher candidates advance their Spanish skills. Teacher candidates will clarify their motivations and purposes for studying Spanish and gain a greater understanding of language assessments and of their own Spanish abilities and increase insight and empathy for emergent bilingual students. Cross-listed with CLDE 5680. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 3830 - Culturally and Linguistically Responsive Teaching through STEM

In this course, you will develop your ability to plan for the opportunities and challenges for language development during science and math learning in preK-12 education settings. In doing so, you will develop linguistically responsive teaching practices for all subjects. Prereq or coreq: EDHD 3930 and SPED 4030. Max hours: 3 Credits.

Semester Hours: 3 to 3

CLDE 3840 - Independent Study in CLDE

Max hours 6 Credits. **Semester Hours:** 1 to 6

CLDE 4020 - 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. Cross-listed with CLDE 5020. Prereq: EDFN 4010. Restriction: Restricted to students in Education and Human Development with between 40 and 180 cumulative credit hours, or students in the Education Minor EDST-MIN. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 4030 - Language Development of Multilingual Learners

This course is designed to help future teachers understand language as a social process and how to support multilingual language development in classrooms. The focus is on both monolingual and bilingual language development as well as the development of multiliteracies in children. Restriction: Restricted to students in Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 4160 - History & Law of Bilingual & Immigrant Education

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. Restriction: Restricted to students in Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 4700 - Social Studies for Multilingual Learners

Participants will use a social justice lens to investigate the content and language demands of the four disciplines of social studies: History, Civics, Geography and Economics. This class focuses on Social Studies methods as well as essential practices for teaching multilingual students. Restriction: Restricted to students in Education and Human Development with between 40 and 180 cumulative credit hours. Cross-listed with CLDE 5700. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 4820 - Teaching Multilingual Learners

This course is designed to help future teachers develop strategies to support the language, academic and identity development of bilingual/multilingual students. This is an applied course, where teachers experiment with and reflect upon teaching practices. Restriction: Restricted to students in Education and Human Development with between 57 and 180 cumulative credit hours. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5010 - Foundations of Language & Culture in Education

Designed for veteran and novice teachers to gain an understanding of schooling and language education. Participants examine key social theories based on the writings of important scholars in the field, on topics such as the politics of race, schooling, language, and cultural identity. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5020 - 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. Cross-listed with CLDE 4020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5030 - Language Development of Multilingual Learners: Advanced

This course offers a deep investigation of the relationship between language and literacy acquisition. In the context of first and second language development across the lifespan, the course focuses on bilingual and second language development, and on the acquisition of literacy by young children. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5032 - English Linguistic Foundations for SLA & TESOL

Investigates Second Language Acquisition (SLA) theories and new developments in the field relevant to adult learners of English, factors that influence outcomes, and key structures in English grammar and pronunciation. Lab time with ESL learners involves teaching listening/ speaking and applying grammar in writing. Max hour: 3 Credits.

Semester Hours: 3 to 3

CLDE 5035 - Connecting Multilingual Theories to Practice

This course supports students in synthesizing research and theory on learning and multilingual development, and identifying their own theoretical orientation in the field. There is a specific emphasis on connecting classroom practice to their theoretical stance. Prereq: CLDE 5030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5042 - Techniques for Teaching Adult ESL

This course provides principles of language assessment and progress monitoring strategies for teachers of adult ESL learners to help inform their practices and decisions related to appropriate instruction and placement of, and programming for, learners. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5050 - Assessment & Advocacy for Multilingual Learners

Students learn to gather and use assessment results within a strengths-based framework to advocate for appropriate programming, placement, instruction, and ongoing progress monitoring of multilingual students. Special attention is paid to linguistic and cultural bias in the field of assessment. Cross-listed with SPED 5050. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5070 - Linguistic Analysis of English

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 critical applied linguistic 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). Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5140 - Language, Culture & Educational Equity

Develops an understanding of the pluralistic and intersectional nature of U.S. society (race, class, gender, sexuality, language, migration status), 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5160 - History & Law of Bilingual & Immigrant Education

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. 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 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. 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. Cross-listed with CLDE 7430. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5680 - Spanish for Educators

This course is designed to help teacher candidates advance their Spanish skills. Teacher candidates will clarify their motivations and purposes for studying Spanish and gain a greater understanding of language assessments and of their own Spanish

abilities and increase insight and empathy for emergent bilingual students. Cross-listed with CLDE 3680. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5700 - Social Studies for Multilingual Learners

Participants will use a social justice lens to investigate the content and language demands of the four disciplines of social studies: History, Civics, Geography and Economics. This class focuses on Social Studies methods as well as essential practices for teaching multilingual students. Cross-listed with CLDE 4700. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5800 - Language Variation & 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. Cross-listed with CLDE 7800. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5810 - Literacy for Bilingual Learners offered for Student Teacher Residency (STR)

This course, for residents in the STR program, highlights the best practices for language and literacy development for culturally and linguistically diverse learners, including bilinguals, multilinguals, and speakers of non-standard varieties of English. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5820 - Teaching Multilingual Learners, Advanced

This course focuses on the hands-on practical application of methods and techniques that support language, academic and identity development for bilingual learners. Course work includes critical perspectives on teaching techniques, investigations into the research on teaching techniques in multilingual education, as well as an emphasis on teachers taking leadership in the field of CLDE. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5824 - Theories and Methods of Bilingual Education

Prereq: Take at least one of the Spanish department courses that are also part of the

Bilingual Specialist endorsement. These are: SPAN 5020, 5060, 5076, 5080, 5099, and 5980. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5825 - Methods of Content Teaching for Bilingual Learners

Provides an in-depth study of curriculum options for learners developing English in schools. Participants examine and apply strategies and materials for developing linguistic and academic capabilities of language learners, with optional extensions for bilingual program educators. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5827 - Developing Content Teaching Methods for Bilingual Learners through PLC

Through this flexible start course, students will synthesize the professional development work done through district offered e-workshops, and relate it to the literature on best practices for culturally and linguistically diverse classrooms. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5830 - STR Culminating Experience

This class provides support for students in the CLDE district-based teacher residency. Students create summaries of their year-long learning and reflect upon artifacts that show their learning in relation to the state standards in Culturally and Linguistically Diverse Education. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5835 - Special Topics: Literacy for Bilingual Learners

"This course prepares teachers to meet the specific language and literacy needs of bilingual learners. Students design literacy blocks and content lessons to engage and elevate the literacy of the diverse learners in their classrooms. This class is designed for CLDE endorsement district-based cohorts. Max hours: 15 Credits. **Semester Hours:** 0.5 to 3

CLDE 5840 - Independent Study: CLDE

Max hours: 4 Credits. **Semester Hours:** 1 to 4

CLDE 5850 - Culminating Experience: Bilingual Specialist

In this capstone, students compose a 3-5 minute video, plus provide artifacts from teaching and coursework with explanations of how these artifacts show mastery of CDE Standards 8.23 for Bilingual Education Specialist competencies. Prereq: Completion of CLDE endorsement AND 9 units in Bilingual Specialist pathway CLDE 5824, SPAN 5020, SPAN 5060, SPAN 5076, SPAN 5080, SPAN 5099, and 5980. Max hours: 1 Credit. **Semester Hours:** 1 to 1

CLDE 5910 - Improving Student Outcomes: Interdisciplinary Inquiry

This course operates from three distinct disciplinary perspectives: urban planning (community and schools), education (quality teaching), and public policy (accountability). Students explore important factors related to improving K-12 student outcomes: resources, leadership, teaching and parent/community involvement from three disciplinary perspectives. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 5920 - Immigration through Children's Literature

This class explores themes of immigration and multilingualism by examining children's and young adult literature. Combines techniques for teaching literacy in multilingual environments with foundational themes in the study of immigration and multilingualism. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 6912 - Teacher Inquiry in Multilingual Classrooms

This seminar provides opportunities for advanced students in the M.A. program to apply an inquiry lens to the concepts of CLDE. Students design an inquiry project, where they focus on a problem of practice, create an action research question, collect student work as data, and analyze findings and results. Students work in research teams, providing feedback and observing each other's classrooms. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 6950 - Master's Thesis

This class provides the opportunity for CLDE MA students to complete a Masters' thesis in place of the CLDE Culminating Experience. This class is open to students with advisor support and approval. Max hours: 4 credits **Semester Hours:** 4 to 4

CLDE 7090 - 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 7210 - Introduction to Leadership for Latin@ Learners

In this introductory module, students will move beyond typical discussions of leadership that are neutral with regards to the students and families being served to one that puts linguistic and cultural diversity at the center of the discussion. Students will first survey the current state of Latin@s in education and communities from a local and national perspective. We will then co-construct a set of broad questions and examine theoretical frameworks that set the stage for the remaining courses in the program. Max hours: 1 Credit. **Semester Hours:** 1 to 1

CLDE 7220 - Legal And Policy Foundations For Latin@ Students

This course is a comprehensive survey of the highlights and lowlights of federal, state, and local history, legislation and policy regarding the education and rights to education and language for Latin@ students. The readings and discussion are around various ideologies, philosophies, and theoretical underpinnings of education. In this class you will develop skills in critical consideration of the rights of all in US society and the responsibilities of the public institution of schools. As the performance assessment for this course you will have an opportunity to focus on a Colorado school district, community or community organization of your choosing. You will outline history, legislation, and policy for that site. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CLDE 7230 - Language and Literacy in Bilingual Learners

This course focuses on first and second language acquisition, and its impact on literacy in young children, elementary and secondary students, and students with special needs. Topics are literacy and language development, assessment, culturally responsive teaching, and school reform policies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 7250 - Systems, Policy, and Advocacy in Latin@ Communities

This hybrid, 2-credit module introduces participants to methods of policy research and analysis across levels (federal, state, local) and the historical contexts behind key policies. Participants apply studied forms of policy analysis to investigate and engage with policies affecting their communities. Max hours: 2 Credits. **Semester Hours:** 2 to 2

CLDE 7260 - Synthesizing Research in Latin@ Learners and Community

In this final module, students will revisit the theoretical frameworks and research questions they have examined throughout their coursework and: a) identify a problem of practice and research questions they wish to explore in greater depth; b) identify theoretical framework(s) that will guide your research; and, d) develop a comprehensive literature review. Max hours: 1 Credit. **Semester Hours:** 1 to 1

CLDE 7410 - Communication & Control: Systemic 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 7430 - 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. Cross-listed with CLDE 5430. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 7713 - 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 7800 - Language Variation & 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. Cross-listed with CLDE 5800. Max hours: 3 Credits. **Semester Hours:** 3 to 3

CLDE 7840 - Independent Study: CLDE

Max hours: 4 Credits. **Semester Hours:** 1 to 4

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 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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 7810 - 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: 16 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 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 7840 - Independent Study: DSEP

Max hours: 9 Credits. **Semester Hours:** 1 to 4

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 2000 - Early Childhood Education as a Profession

This course provides an overview of the ECE profession and its philosophical and historical foundations. Trends in early childhood care and education and professionalism are examined. Topics include developmental domains and appropriate practices, curriculum models, guidance strategies, family and community relationships, diversity and inclusion, and leadership skills to support quality early care and education work settings. Restriction: Restricted to students in Education and Human Development with between 27 and 180 cumulative credit hours. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 2930 - Infant & Toddler Field Experience & Seminar

ECED 2930 is designed to support teacher candidates in making theory-to-practice connections, focused on understanding infant and toddler development. Students will spend one day per week in an infant-toddler classroom and engage in a weekly seminar to mediate learning. Prereq or coreq: ECED 4070. Restriction: Restricted to students in Education and Human Development with between 27 and 180 cumulative credit hours. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4010 - Inquiry and the Disciplines

This course introduces students to the role, value and practices of inquiry in early childhood education and explores the integration of the visual arts and creative expression with the disciplines of mathematics, literacy, science, social studies, as well as young children's approaches to learning. Restriction: Professional Year Admission required for licensure students. 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. Restriction: Professional Year Admission required. 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. Restriction: Restricted to students in Education and Human Development with between 27 and 180 cumulative credit hours. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4040 - Administrative Seminar

Emphasizes topics required of administrators to effectively lead and manage early childhood inclusive classrooms or other related programs including leadership capacity, professionalism, administration, teaming/collaboration, communities of practice, staff management, safety, and professional development. Cross-listed with ECED 5040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4060 - Working with Families, Professionals, and Communities

The focus of this course is on the human relations component of an early childhood professional's responsibilities. Course content includes family-centered practice, culturally-responsive practices, home-school partnerships, staff development and communication, collaborative teaming and community interaction. Restriction: Restricted to students in Education and Human Development with between 27 and 180 cumulative credit hours. 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. Prereq or coreq: ECED 2930. Restriction: Restricted to students in Education and Human Development with between 27 and 180 cumulative credit hours. 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4200 - Assessment for Early Childhood Classrooms

This course reviews observation/assessment of young children—purpose, tools, and methods for children birth-age 8. Defines measurable outcomes, progress monitoring and use of assessment data to improve early intervention, curriculum planning, intentional teaching, instructional design, and monitor child outcomes. Restriction: Restricted to students in Education and Human Development with between 57 and 180 cumulative credit hours. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4202 - Child Guidance and Classroom Community

This course presents evidence-based classroom strategies to promote social competence, build classroom community and reduce or prevent behavior problems. Emphasis is placed on understanding child development and observing behavior to make decisions for children ages birth through age 8. Restriction: Restricted to students in Education and Human Development with between 57 and 180 cumulative credit hours. 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. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 4410 - Using Coaching Skills in Early Childhood Settings

This course focuses on the fundamentals and recommended practices of relationship-based coaching using a systematic, individualized, reflective approach. Throughout the course students will apply these strategies to fieldwork experiences in early childhood settings, applicable to any ECE curriculum or model. 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. 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. Cross-listed with ECED 5430. Max hours: 3 Credits. **Semester Hours: 3 to 3**

ECED 4650 - Dual Language Learners Learning and Development

The course will review current research on the learning and development of young dual language learners (birth through 8) and the classroom environments and instruction that can promote their learning. The course uses a socio-cultural framework to view children's learning. Cross-listed with ECED 5650. Restriction: Restricted to students in Education and Human Development with between 57 and 180 cumulative credit hours. Max hours: 3 Credits. **Semester Hours: 3 to 3**

ECED 4800 - Workshop: Topics in Early Childhood Education

Topics and credit hours vary from semester to semester. Cross-listed with ECED 5800. Max hours:12 Credits. **Semester Hours: 1 to 4**

ECED 4931 - Internship I & Collaborative Learning Community

ECED 4931 is the first of 3 internships in the professional year of the ECE program plan that provides the necessary learning opportunities for candidates to gradually develop their practice in order to be licensed as an early childhood educator. Restriction: Professional Year Admission required. Max hours: 2 Credits. **Semester Hours: 2 to 2**

ECED 4932 - Internship II & Collaborative Learning Community

ECED 4932 is the second of 3 internships in the professional year of the ECE program plan that provides the necessary learning opportunities for candidates to gradually develop their practice in order to be licensed as an early childhood educator. Restriction: Professional Year Admission required. Max hours: 2 Credits. **Semester Hours: 2 to 2**

ECED 4933 - Internship III & Collaborative Learning Community

ECED 4933 is the final internship in a series of three completed during the professional year of the ECE program plan that provides the necessary learning opportunities for

candidates to gradually develop their practice to be licensed as an early childhood educator. Restriction: Professional Year Admission required. Max hours: 8 Credits.
Semester Hours: 2 to 8

ECED 4934 - Extended Internship & Collaborative Learning Community

ECED 4934 is an extended internship that supports students who need extended time in an internship in order to complete their ECE program and fully develop their practice in order to be licensed as an early childhood educator. Max hours: 8 Credits. **Semester Hours:** 4 to 8

ECED 5010 - Curriculum 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 and literacy, mathematics, motor, social-emotional, science, social studies and aesthetic development. Max hours: 6 Credits.
Semester Hours: 3 to 3

ECED 5040 - Administrative Seminar

Emphasizes topics required of administrators to effectively lead and manage early childhood inclusive classrooms or other related programs including leadership capacity, professionalism, administration, teaming/collaboration, communities of practice, staff management, safety, and professional development. Cross-listed with ECED 4040. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 5060 - Working with Families and Communities

Theories, practices and research related to working with families and communities. Topics include: social systems perspective, family structures and forms; family support systems; family-centered practice; family/professional partnerships; effective communication; and working with parents of children with special needs. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 5070 - Social Competence and Classroom Supports

Emphasizes prevention, positive behavioral interventions and support, and social/emotional development for children birth to eight. Focus on the practical

application of intervention strategies based on current research and evidence-based practices. Cross-listed with ECED 7070. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5080 - Language and Literacy in Young Children

Overview of theories and research in early language and literacy development. Emphasis on sociocultural beliefs and practices associated with the use of language and literacy in the different contexts. Information about language disorders found in early childhood settings is discussed. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 5091 - Educators as Social Change Agents

Focus on developing knowledge, skills and dispositions to advance equity and social justice in classrooms, programs, and communities to activate educators as social change agents and implement quality inclusive practices for young children from diverse backgrounds. Max hours: 3 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. Max hours: 4 Credits. **Semester Hours:** 1 to 3

ECED 5110 - Advanced Infant and Toddler Development:

Focuses on development of infants/toddlers to inform responsive caregiving practices. Develop observation skills to understand infant/toddler behavior. A relationship-based approach to curriculum is emphasized. State requirements for licensed infant/toddler programs, accreditation and quality standards are discussed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5200 - Screening and Assessment of Young Children

Provides knowledge and field-based experience in the administration and scoring of screening and assessment for infants, toddlers, and preschool children. Understand and administer a variety of formal and informal measures including screening, evaluation, play-based and curriculum-based assessments. 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 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 5301 - Child Development: Theory to Leadership Practices

This course will provide an introduction to theories of child development from an interdisciplinary perspective. It examines development in the cognitive and socioemotional domains utilizing biological, social, psychological and anthropological perspectives and how theory is used to shape program models. Max hours: 3 Credits.
Semester Hours: 3 to 3

ECED 5311 - Equity for Leadership in Early Childhood Programs

This course is designed to provide early childhood leaders with an understanding of the equity issues present in early childhood systems and how these issues are reflected in individual identities and programs. Theories from the academic community will be used to facilitate student growth in understanding how these issues interact with them at a personal, professional and leadership level. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5312 - Leading Learning Organizations

This course will deepen student's capacity to lead effectively and learn how to create an adaptive, flexible learning organization well positioned for delivering effective and sustainable programs and services on behalf of young children and families. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5320 - Community-Based Action Research: Capstone

This course is designed to foster the leader's appreciation, skills, and practice as a participatory action researcher. Students will learn these concepts by leading a participatory action-research project in their community around a challenging early childhood issue and will present their action research project culminating at a Capstone Celebration. Prereq: Must be admitted to the Buell Early Childhood Leadership Program (BECLP). Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5330 - Introduction to Transformational Leadership

This course outlines the evolution of leadership theory over the past half-century and immerses students in an exploration of the values, leadership capacities, and practices

that define transformational leadership as they apply to effecting change to support the success and well-being of young children and their families and communities. 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 5410 - Using Coaching Skills in Early Childhood Settings

This course focuses on the fundamentals and recommended practices of relationship-based coaching using a systematic, individualized, reflective approach. Throughout the course students will apply these strategies to fieldwork experiences in early childhood settings, applicable to any ECE curriculum or model. 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. 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. Cross-listed with ECED 4430. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 5650 - Dual Language Learners Learning and Development

The course will review current research on the learning and development of young dual language learners (birth through 8) and the classroom environments and instruction that can promote their learning. The course uses a socio-cultural framework to view

children's learning. Cross-listed with ECED 4650. 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. Cross-listed with ECED 4800. Max hours:12 Credits. **Semester Hours:** 1 to 4

ECED 5840 - Independent Study

Max hours: 9 Credits. **Semester Hours:** 1 to 4

ECED 5850 - Capstone in Early Childhood Education

Capstone is a final project that demonstrates your academic and professional development. It explains professionally who you are, where you have been, how you have developed in ECE. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 6010 - Literacy and Mathematics K-2

Principles of early reading and mathematical development for grades K-2 including diverse instructional strategies and differentiation for children with disabilities. Linkages are made between child development and learning expectations for mathematics, reading and writing and curriculum planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 6100 - Medical and Physiological Aspects of Development

Presents medical and physiological aspects of development including an understanding of chronic illness/medical fragility in young children and the effects on families, school, and community. Examination and professional responses to cultural interpretation of medical issues are discussed. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ECED 6200 - Early Intervention Strategies

Explores current research, knowledge, and skills related to evidence-based intervention strategies and service delivery in high quality inclusive settings for young children with special needs from infancy through age eight. Cross-listed with ECED 7200. 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 6910 - Early Childhood Special Education Infancy Practicum

Supervised field-based experiences in settings for children with disabilities and at-risk infants, toddlers, and their families. Prereq: ECED 5010, 5070, 5080, 5200, 6100, and 6200. Max hours: 12 Credits. **Semester Hours:** 1 to 4

ECED 6911 - Initial Practicum and Field Experience in Early Childhood Education

In this experience, you will be introduced to an array of skills/practices that support working effectively with young children and families in the context of their local community. You will work within the community to support children's academic/social development. Max hours: 8 Credits. **Semester Hours:** 1 to 4

ECED 6912 - Early Childhood Special Education Preschool Practicum

Supervised field-based experiences in settings for young children with disabilities and their families, including school districts and community agencies. Prereq: ECED 5010, 5070, 5080, 5200, 6100, and 6200. Max hours: 8 Credits. **Semester Hours:** 1 to 4

ECED 6914 - Early Childhood Special Education Primary Practicum

Supervised field-based experiences in kindergarten through second grade settings with typically developing children, children with special needs and special education teams. Prereq: ECED 5010, 5070, 5080, 5200, 6100, and 6200. Max hours: 8 Credits. **Semester Hours:** 1 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 and Classroom Supports

Emphasizes prevention, positive behavioral interventions and support, and social/emotional development for children birth to eight. Focus on the practical application of intervention strategies based on current research and evidence-based practices. 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 evidence-based intervention strategies and service delivery in high quality inclusive settings for young children with special needs from infancy through age eight. Cross-listed with ECED 6200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECED 7500 - Screening and Assessment of Young Children

Provides knowledge and field-based experience in the administration and scoring of screening and assessment for infants, toddlers, and preschool children. Understand and administer a variety of formal and informal measures including screening, evaluation, play-based and curriculum-based assessments. 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 - First Year Seminar

Restriction: Restricted to Freshman level students. 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. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. 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 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. Term offered: fall, spring, summer. 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. Term offered: summer. 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. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 3415 - Issues in International Trade and Finance

A survey of International Trade and Finance is provided and then applied to contemporary issues such as gains from trade, global and local economic inequality,

trafficking, global capital markets, debt, the Eurozone and transmission of inflations and recessions internationally. This course is for non-economics majors & economics minors. Students may not receive credit if they take it after they have completed ECON 4410 or ECON 4420. Prereq: Econ 2012 and Econ 2022 with a C- or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 3770 - Issues in Economic Development

This is a survey course in development economics intended to provide a basic understanding of the economies of developing nations. Topics include issues and policies in economic development, comparative economic growth, demographic change, poverty, inequality, and migration. This course is for non-economics majors & economics minors. Students may not receive credit if they take it after they have completed ECON 4770. Prereq: Econ 2012 or Econ 2022 with a C- or higher. Term offered: summer. 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: ECON 2012 (can be taken concurrently), ECON 2022, and College Algebra or higher. Term offered: fall, spring. 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 or co-req: ECON 2022 AND Prereq: College Algebra or higher (MATH 1110, MATH 1070, MATH 1401, MATH 2411, MATH 2421, MATH 1130, or ECON 3801) with a C- or higher. Term offered: fall, spring. 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: Students must have junior standing and at least a 2.75 GPA and must work with Experiential Learning Center advising to complete a course contract and gain approval. Term offered: fall, spring, summer. 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. Term offered: fall, spring. 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. Term offered: fall, spring. 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 3801 with a C- or higher or Calculus II or Calculus III with a B or higher. Term offered: fall, spring. 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 3801 with a C- or higher or Calculus II or Calculus III with a B or higher. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4090 - 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. Note: Students may not receive credit for this course if they have already received credit for ECON 4091. Prereq: ECON 2012 and ECON 2022. Cross-listed with ECON 5090. Term offered: summer. 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. Term offered: fall, spring. 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: ECON 4811 or permission of instructor. Cross-listed with ECON 5150. Term offered: spring. 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. Term offered: spring. 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 4318 - Urban Economics

Why do cities form and why are they so productive? How does the value of land change as the urban landscape develops? How do we address the difficulties that challenge modern cities, such as affordable housing, congestion, and crime? Prereq: ECON 3811 and ECON 4071 with a C- or higher. Term offered: fall. 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, 3801 or Calculus II or Calculus III with a B or higher, and ECON 3811. Term offered: spring. 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 3811. Cross-listed with ECON 5410. Term offered: fall, spring. 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 3811. Term offered: spring. 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. Term offered: fall. 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. Term offered: spring. 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. Term offered: fall. 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 4811. Term offered: spring. 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. Term offered: spring. 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. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4670 - Economics of Population and Growth

Theoretical modeling and data analysis will be used to analyze the economic causes, consequences and policy responses to population change through changes in fertility, marriage, health, mortality and migration. Prereq: ECON 2022 and (ECON 3811 or ECON 4811) with a C- or higher or instructor approval. Term offered: fall. 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. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4770 - Economic Development--Theory and Problems

This course provides a theoretical and empirical framework for analyzing economic problems in developing countries focusing on the role of individuals, families and institutions. Topics include poverty traps, human capital accumulation, gender discrimination, microcredit and violent conflict. Prereq: ECON 4811. Term offered: fall. 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. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 4840 - Independent Study: ECON

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 12 Credits. **Semester Hours:** 1 to 3

ECON 4850 - Honors Independent Study: ECON

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 1 to 3

ECON 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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. Restriction: Restricted to students with Graduate standing. Statistics with Computer Applications(ECON 3811) or a similar course is strongly recommended as preparation for this course. Cross-listed with ECON 4030. Term offered: fall, spring. 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 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. Coreq: ECON 5803. Restriction: Restricted to students with graduate standing. Term offered: fall. 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. Coreq: ECON 5803. Restriction: Restricted to students with graduate standing. Term offered: spring. 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. Restriction: Restricted to students with Graduate standing. Microeconomics (ECON 2022) and Macroeconomics (ECON 2012) or similar coursework is strongly recommended as

preparation for this course. Cross-listed with ECON 4090. Term offered: spring. 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. Restriction: Restricted to students with Graduate standing. Statistics with Computer Applications (ECON 3811) or similar coursework is strongly recommended as preparation for this course. Cross-listed with ECON 4150. Term offered: spring. 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 with a B- or better and restricted to students with Graduate standing. 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. Restriction: Students must be admitted to the MA in ECON in order to enroll ECON 5083. Term offered: fall, spring. 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. Coreq: ECON 5803. Restriction: Restricted to students with graduate standing. Term offered: fall. 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 5813 with a B- or better and restricted to students with Graduate standing. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 5840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ECON 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School

for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

ECON 5939 - Internship

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 6

ECON 5950 - Master's Thesis

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. 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 5073 and ECON 5813 must be complete before students enroll in ECON 6053. Coreq: ECON 5823 (Students must enroll in both

courses concurrently). Restriction: Restricted to students with graduate standing. Max hours: 6 Credits. **Semester Hours:** 2 to 2

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 5073 and ECON 5813 must be complete before students can enroll. Coreq: ECON 5823 is a co-requisite with ECON 6054. Students must enroll in both courses concurrently. Restriction: Restricted to students with graduate standing. Term offered: spring. 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. Restriction: Restricted to students with Graduate standing. Introduction to Mathematical Economics (ECON 3801) or similar coursework is strongly recommended as preparation for this course. 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. ECON 5073 and ECON 5823 and either ECON 6053 or ECON 6054 must be complete before students can enroll in ECON 6073. Restriction: Restricted to students with graduate standing. Term offered: fall. 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. Restriction: Restricted to students with Graduate standing. Term offered: spring. Max hours: 3 Credits. **Semester Hours: 3 to 3**

ECON 6666 - The Economics of Health Behaviors

This course teaches an economic approach to studying health behaviors and the policies that affect them. Special attention will be paid to analyzing the effects of excise taxes and to understanding the quasi experimental approach to doing applied research in economics. Prereq: ECON 5073 and ECON 5813 or permission of instructor. 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. Restriction: Restricted to students with Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 6840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ECON 7073 - Advanced Microeconomic Theory II

This is a second-semester Ph.D. level course in microeconomics. The first semester course discussed consumer and producer theory; this course will discuss game theory, market equilibrium, and information economics. Prereq: ECON 5073 with a B- or better. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 7661 - Health Economics I

This is the first course in the Ph.D field sequence for Health Economics. The goal of this course is to familiarize you with the basic theory and empirical findings in the part of health economics which focuses on the market for medical care and the policy that surrounds it. Pre-req or co-req ECON 5823. Students must enroll in both courses concurrently or have completed ECON 5823 with a B- or better. Restricted to students with graduate standing. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 7662 - Health Economics II

This course teaches an economic approach to studying the various policies that affect these risky health behaviors. The extensive economic literature on the causes and consequences of risky health behaviors will be studied. Prerequisite or co-requisite ECON 5823. Students must enroll in both courses concurrently or have completed ECON 5823 with a B- or better. Restricted to students with graduate standing. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ECON 8990 - Doctoral Dissertation

Designed to allow doctoral students to conduct research for course credit prior to advancement to candidacy. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Note: Students must be in the Health Economics PhD program and have permission from the instructor to be eligible for this course. Term offered: fall, spring. Max hours: 50 Credits. **Semester Hours:** 1 to 10

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 5001 - Special Topics: Administrative Leadership and Policy Studies

Max hours: 40 Credits. **Semester Hours:** 1 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). 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 5651 - Foundations of Leadership

This courses focuses on leadership and the characteristics and foundational elements of what the leaders need to think about and do while providing the opportunity for students to apply this foundational learning to leadership in their own organization. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 5652 - Leadership for Equity/Social Justice

Understand our own experiences and experiences of historically marginalized groups, with the historical and philosophical forces that have led to inequities, critically analyze current conditions and to work to develop school policies, curriculum and relationships to create access and opportunities. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 5653 - Leadership Practices for Responsive Change

This course focuses on leadership and the change process of individual and organizational responsive change with opportunity for students to learn about/apply this learning to the process of leading responsive change in the context of an organization. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 5654 - Leadership Practice Capstone

The Capstone Experience is a culminating project that provides a way for students to demonstrate the knowledge and skills they acquired during the MA program, linked to issues of equity or social interest related to the United States educational system. Prereqs: EDUC 5651, EDUC 5652, and EDUC 5653. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 5655 - Leadership Practices for Transformative School Reform

This course will create a community of learners who can work together to investigate constructs and principles for school turnaround and transformation. The course will draw on previous learning for the practical application of intentional leadership practices for school reform and transformation. Change theory will be considered and applied to reform and transformation. Students will have the opportunity to study current reform efforts. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 5751 - Principal/Administrator Licensing I

This program section (1 of 4) combines foundational learning in leadership, school improvement, instructional leadership and equity via hybrid sessions. Clinical-practice experiences are required. Assessment is performance-based and submitted to LIVETEXT. Prereq: admission to the program. Max hours: 9 Credits. **Semester Hours:** 3 to 9

EDUC 5752 - Principal Administrator Licensing II

This program section (2 of 4) combines continued learning in leadership, school improvement, instructional leadership and equity via hybrid sessions. Clinical-practice experiences are required. Assessment is performance-based and submitted to LIVETEXT. Prereq: admission to the program. Max hours: 9 Credits. **Semester Hours:** 3 to 9

EDUC 5753 - Principal/Administrator Licensing III

This program section (3 of 4) combines Continued learning in leadership, school improvement, instructional leadership and equity via hybrid sessions. Clinical-practice experiences are required. Assessment is performance-based and submitted to LIVETEXT. Prereq: admission to the program. Max hours: 9 Credits. **Semester Hours:** 3 to 9

EDUC 5754 - Principal or Administrator Licensing IV

This program section (4 of 4) combines foundational learning in leadership, school improvement, instructional leadership and equity via hybrid sessions. Clinical-practice experiences are required. Assessment is performance-based and submitted to LIVETEXT. Prereq: admission to the program. Max hours: 9 Credits. **Semester Hours:** 3 to 9

EDUC 5840 - Independent Study: EDUC

Master's. Max hours: 9 Credits. **Semester Hours:** 1 to 4

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 6840 - Independent Study

Max hours: 4 Credits. **Semester Hours:** 1 to 4

EDUC 6951 - Master's Thesis

Max hours: 16 Credits. **Semester Hours:** 4 to 4

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 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

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. 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. 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7530 - Strategic 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 7600 - Higher Education Policy and Governance

In this course, students are challenged to explore the governance and policy environment of Higher Education, to understand the multiple layers of governance and the complex web of policy-making, to analyze the differences among systems of governance, and to evaluate the essential components and consequences of policies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7610 - Strategic Enrollment Management in Higher Education

Course is designed to deepen the understanding of the complexities of strategic enrollment management as research and practice, delving into the breadth of its critical issues and rapidly developing context, including the student lifecycle; the focus on equity and inclusion; emerging models for student success; and financial implications. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7620 - Contemporary Issues in Higher Education

This course is a study of the critical, contemporary issues in higher education and the impact on institutions' goals for equity and student success. Students in the course will reach beyond the current context, understanding the origins of critical questions, and the impact of these issues on leadership decision-making. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7640 - Higher Education Finance and Strategic Resource Allocation

This course is designed to introduce students to the complexity of higher education funding, the vast variations across systems, and the critical role of data informed decision making in strategic resource allocation its impact on student access and success. Students will enhance their own capacity to contextual decisions and consider parameters. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDUC 7840 - Independent Study: EDUC

Doctoral. Max hours: 12 Credits. **Semester Hours:** 1 to 4

Education and Human Dvelopment

EDHD 1000 - Doing College Right

This course supports students by fostering academic skills and strategies, university engagement, personal strengths and goals, and diversity awareness and inclusion. Students will learn to navigate the university system and utilize its support mechanisms and offices. The course will also feature a number of learning experiences, including out-of-class engagement, self-reflection, and collaborative learning. The goal is to create capable, confident, and conscientious citizens of the CU Denver community. Restriction: Restricted to students in the School of Education and Human Development. Max hours: 1 Credit. **Semester Hours:** 1 to 1

EDHD 1019 - Introduction to Urban Education

In this course you will examine the sociological issues related to urban schools, communities, and teaching. We will look at such topics as school culture, diversity, ethnicity, and social realities in American schools. Students will critically examine current education issues that affect their lives, their local community, and P-12 classrooms throughout the state and the country. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDHD 1930 - Community Based Field Experience & Seminar

Students learn the dispositions of a community-grounded educator and develop an asset-based lens for working with students, families, & communities through 60 hours of required field experience and a mediated seminar. Prereq: Must have one semester successfully completed at UCD prior to enrollment unless a transfer student; must have completed CBI Background Check & Oath & Consent process prior to enrolling. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDHD 2050 - Current Topics in Education and Human Development

Current topics that explore community and educational settings in Education and Human Development (EDHD) to be selected by the instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 3

EDHD 2840 - Independent Study in Education & Human Development

Max hours: 12 Credits. **Semester Hours:** 1 to 6

EDHD 2910 - Service Learning in Education and Human Development

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: 8 Credits. **Semester Hours:** 1 to 4

EDHD 2930 - Learning & Development Field Experience & Seminar

Teacher candidates engage in field experience 2, half-days per week in early childhood and primary classrooms working with children to support literacy learning while also observing, documenting and reflecting on how learning & development is facilitated. Prereq or coreq: LCRT 3720 and LCRT 4710. Restriction: Restricted to students in Education and Human Development with between 27 and 180 cumulative credit hours. Max hours: 3 Credits. **Semester Hours:** 2 to 3

EDHD 3930 - Diverse Learners Field Experience & Seminar

EDHD 3930 is a comprehensive clinical block field experience designed to support teacher candidates' learning of issues and practices relevant to students with disabilities and English language learners. A seminar will mediate teacher candidates' experiences from their various classroom settings. Prereq or coreq: CLDE 3830 and SPED 4030. Restriction: Restricted to students in Education and Human Development with between 40 and 180 cumulative credit hours, or students in the Education Minor EDST-MIN. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDHD 4050 - Special Topics in Education and Human Development

Advanced study of special topics that examine community and educational settings in

Education and Human Development (EDHD) to be selected by the instructor. Maybe repeated for credit. Max hours: 6 Credits. **Semester Hours:** 1 to 3

EDHD 5020 - Leading Social Emotional Learning in P-12 Schools

In this course, scholars will learn the various definitions, purposes and value of socialemotional learning (SEL) in order to lead social-emotional learning in P-12 schools. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDHD 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. Cross-listed with HDFR 4110. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EDHD 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

EDHD 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

EDHD 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. Cross listed with HDFR 4240. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EDHD 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

EDHD 5840 - Independent Study

Max hours: 12 Credits. **Semester Hours:** 1 to 6

EDHD 5910 - Practicum in Education and Human Development

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

EDHD 5930 - Education and Human Development Internship

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). Max hours: 4 Credits. **Semester Hours:** 2 to 4

EDHD 6100 - 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. Cross-listed with EDHD 7100. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EDHD 6140 - Social Contexts of Adolescence and Schooling

Systematic study of the major theories of adolescent growth in social contexts, emphasizing the social and cultural construction of the adolescent experience. Focuses on current research regarding adolescents and the implications of the research for education. Cross-listed with EDHD 7140. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EDHD 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. Cross-listed with EDHD 7200. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EDHD 6220 - Adult Development

Surveys theories and principles of adult development through an ecological perspective with an emphasis on community and educational contexts. Cross listed with EDHD 7220. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EDHD 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. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EDHD 6320 - Mind, Brain, and Education

An introductory survey into contemporary theory and research in developmental cognitive neurosciences and their potential applications to education, aiming to explore how the brain learns, and what it means for learning and development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDHD 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 COUN 6350. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EDHD 6600 - Motivation in Contexts

Theories of human motivation are examined through social and cultural lens directed at phenomena of engagement and disengagement in activities at different levels of scale. Applications are considered for both educators and learners in various social and cultural learning contexts. Cross listed with EDHD 7600. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EDHD 6750 - Designing Environment for Learning and Development

Introduction to concepts, findings, and research methods relevant to theory and research in the Learning Sciences, with specific focus on how those concepts and findings apply to design learning across settings. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDHD 6840 - Independent Study: EDHD

Max hours: 12 Credits. **Semester Hours:** 1 to 6

EDHD 6919 - EDHD Applied Project

This course provides a learning environment for students to complete an applied project in education and human development contexts as part of their final capstone experience in the Master's in Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDHD 6950 - Master's Thesis

Max hours: 3 Credits. **Semester Hours:** 1 to 3

EDHD 7100 - 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. Cross listed with EDHD 6100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDHD 7120 - 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. Cross-listed with HDFR 6120. Max hours: 6 Credits. **Semester Hours:** 3 to 3

EDHD 7140 - Social Contexts of Adolescence and Schooling

Systematic study of the major theories of adolescent growth in social contexts,

emphasizing the social and cultural construction of the adolescent experience. Focuses on current research regarding adolescents and the implications of the research for education. Cross-listed with EDHD 6140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDHD 7200 - 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. Cross-listed with EDHD 6200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDHD 7220 - Adult Development

Surveys theories and principles of adult development through an ecological perspective with an emphasis on community and educational contexts. Cross-listed with EDHD 6220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDHD 7600 - Motivation in Contexts

Theories of human motivation are examined through social and cultural lens directed at phenomena of engagement and disengagement in activities at different levels of scale. Applications are considered for both educators and learners in various social and cultural learning contexts. Cross-listed with EDHD 6600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDHD 7712 - Learning and Human Development

Students apply major issues from learning and human development theories to problems of practice and research related to education and community contexts. Prereq: EDHD 5110 or 5220 or (recommended: EDHD 5100 or 5140). Restriction: Restricted to EDHD-PhD, LDRE-EDd, EDLI-PhD and SPSY-PsyD majors within the School of Education and Human Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDHD 7840 - Independent Study

Max hours: 12 Credits. **Semester Hours:** 1 to 6

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 1111 - Freshman Seminar

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 4001 - Problematizing Whiteness: Educating for Racial Justice

Critical Whiteness Studies provides a deeper analysis of race that accounts for both sides of the race coin: the plight of people of color AND how Whites are complicit. This class looks deeper into how race operates within White contexts and how that impacts people of color so we bridge how Whites AND people of color can work together towards a racially equitable society. Cross listed with ETST 4010 and EDFN 5001. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDFN 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 EDFN 5010. Restriction: Restricted to students in Education and Human Development with between 27 and 180 cumulative credit hours or students in the Education Minor EDST-MIN. 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

EDFN 5001 - Problematizing Whiteness: Educating for Racial Justice

Critical Whiteness Studies provides a deeper analysis of race that accounts for both sides of the race coin: the plight of people of color AND how Whites are complicit. This class looks deeper into how race operates within White contexts and how that impacts people of color so we bridge how Whites AND people of color can work together towards a racially equitable society. Cross listed with ETST 4010 and EDFN 4001. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDFN 5010 - 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 EDFN 4010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDFN 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

EDFN 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

EDFN 5240 - Culture of Education Policy

This course examines major issues in education policy analysis. Students will be required to critically analyze an educational policy issue uncovering the context, determining how the policy was implemented and what the outcomes were, intended as well as unintended. Course is cross-listed with EDFN 7240. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDFN 5700 - Global Education and 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

EDFN 5800 - Special Topics

Topics will vary. Max hours: 9 Credits. **Semester Hours:** 1 to 3

EDFN 7240 - Culture of Education Policy

This course examines major issues in education policy analysis. Students will be required to critically analyze an educational policy issue uncovering the context, determining how the policy was implemented and what the outcomes were, intended as well as unintended. Course is cross-listed with EDFN 5240. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDFN 7250 - School and Society

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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDFN 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

EDFN 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

EDFN 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. Emphasizing historical, political, and sociological perspectives, this course explores the interplay of social systems in education (economic, political, social, health, legal), analyze education policies, and the intended and unintended consequences of these processes. Prereq: Doctoral Student Status. Max hours: 3 Credits. **Semester Hours:** 3 to 3

EDFN 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

EDFN 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

EDFN 7840 - Independent Study: EDFN

Max hours: 4 Credits. **Semester Hours:** 1 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. 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. 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, impluses, 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 or 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. Restriction: Restricted to majors within the College of Engineering, Design and Computing. 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 with a grade of C- or higher, PHYS 2331 with a grade of C- or higher and CHEM 1130 OR ENGR 1130 with a grade of C- or higher. 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 4134 - Introduction to Microwave Circuit Design

This course provides the basic principles of microwave circuit design, including transmission line theory, network parameters, signal flow graphs, design of high frequency matching networks, filters, hybrids and couplers using waveguide elements,

high frequency amplifier and mixer design. Prereq: ELEC 3133. Cross-listed with ELEC 5134. 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

Offers hands-on experience on rotating electric machine drive simulations and commercial systems. Sessions include pulse-width modulation (PWM) inverter, induction, DC, and synchronous machine drives. Matlab/Simulink and a commercial inverter will be utilized. Cross-listed with ELEC 5170. Prereq or Co-req: 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. Restriction: Restricted to students within the College of Engineering, Design and Computing. 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 4333 - Introduction to Computational Electromagnetics

An intro to computational electromagnetics based on the Finite Difference Time-Domain (FDTD) covering, finite difference methods, the Yee algorithm, numerical error, stability, boundary conditions, source excitations, hands-on programming experience and application of FDTD to real problems. Prereq: ELEC 3133. Cross-listed with ELEC 5333. 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 4375 - Engineering Neuroscience

In this course, mathematical models and data processing strategies will be introduced as well as other cutting-edge research techniques to help students understand how these techniques can be applied to solve modern neuroscience problems. Prereq: ELEC 3316 or graduate standing. Cross-listed with ELEC 5735 and NRSC 7674 (Anschutz Medical Campus course). 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 4136 or ELEC 4276 or 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. Prereq: ELEC 3133, 3225 and 3735. 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 3651. 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. Prereq: ELEC 3651 and 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. 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 focuses on the modeling, analysis and control of grid-connected wind and photovoltaic energy systems. Prereq: ELEC 3164. 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 5134 - Introduction to Microwave Circuit Design

This course provides the basic principles of microwave circuit design, including transmission line theory, network parameters, signal flow graphs, design of high frequency matching networks, filters, hybrids and couplers using waveguide elements, high frequency amplifier and mixer design. Prereq: ELEC 3133. Cross-listed with ELEC 4134. 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 - Electric Drives Systems Laboratory

Offers hands-on experience on rotating electric machine drive simulations and commercial systems. Sessions include pulse-width modulation (PWM) inverter, induction, DC, and synchronous machine drives. Matlab/Simulink and a commercial inverter will be utilized. Cross-listed with ELEC 4170. Prereq: ELEC 4164 or equivalent. Max hours: 1 Credit. **Semester Hours:** 1 to 1

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 graduate standing. 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

The course focuses on the design, modeling, modulation, control and simulation of three-phase two-level voltage sourced inverters with emphasis on applications. Student will also be introduced to advanced topologies including diode clamped multilevel inverters, modular multilevel inverters and matrix converters. Prereq: ELEC 4174 or ELEC 5174. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5333 - Introduction to Computational Electromagnetics

An intro to computational electromagnetics based on the Finite Difference Time-Domain (FDTD) covering, finite difference methods, the Yee algorithm, numerical error, stability, boundary conditions, source excitations, hands-on programming experience and application of FDTD to real problems. Prereq: ELEC 3133 or grad standing. cross-listed with ELEC 4333. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5334 - Advanced Computational Electromagnetics

This course on advanced computational electromagnetics covers Green's theorems and identities, vector potential theory, equivalence principles, numerical linear algebra, numerical integration, method of weighted residuals, integral equation methods, method of moments, and Prereq: ELEC 4133 or ELEC 5133 or grad standing. 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. Cross-listed with ELEC 4373. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ELEC 5375 - Engineering Neuroscience

In this course, mathematical models and data processing strategies will be introduced as well as other cutting-edge research techniques to help students understand how these techniques can be applied to solve modern neuroscience problems. Prereq: ELEC 3316 or graduate standing. Cross-listed with ELEC 4735 and NRSC 7674 (Anschutz Medical Campus course). 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 CEDC 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 or ELEC 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: Graduate standing or permission of instructor. 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-cel 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 3133, 3215, 3225, 3316, 3817 or graduate standing. 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. Cross-listed with ELEC 6648. 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 3133. 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 focuses on the modeling, analysis and control of grid-connected wind and photovoltaic energy systems. Prereq: permission of instructor. 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 7801 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ELEC 7802 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ELEC 7803 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ELEC 7804 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ELEC 7805 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ELEC 7806 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ELEC 7807 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ELEC 7808 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ELEC 7809 - Special Topics

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

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 1130 - Chemistry for Engineers

An introductory lecture and recitation course designed to meet the general chemistry requirement for engineering students. Topics include atoms, molecules, moles, stoichiometry, chemical bonding, atomic & molecular structures, thermodynamics and kinetics. The course will highlight the application of chemistry to engineering disciplines. Note: Suggested background of one year of high school chemistry or CHEM 1000 and MATH 1110 (or high school equivalent) strongly recommended. Max hours: 5 Credits. **Semester Hours:** 5 to 5

ENGR 1208 - Special Topics

Restriction: Restricted to Engineering and pre-engineering students only. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGR 1218 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 1228 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 1238 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 1248 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 1258 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 1268 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 1278 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 1288 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 1298 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 2208 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 2218 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 2228 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 2238 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 2248 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 2258 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 2268 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 2278 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 2288 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 2298 - 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 3218 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 3228 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 3238 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 3248 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 3258 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 3268 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 3278 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 3288 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 3298 - 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 4218 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 4228 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 4238 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 4248 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 4258 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 4268 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 4278 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 4288 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 4298 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 1 to 3

ENGR 4800 - Science Engineering and Culture for Undergraduates

Course for undergraduate international and limited English proficient (LEP) students to improve success in science and engineering degree programs through senior research paper writing , advanced STEM English skills and cross cultural training. Max hours: 6 Credits. **Semester Hours:** 3 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 1000 - Special Topics

This topics course at the 1000 level is designed to offer flexibility for the English department for lower division offerings. Students may enroll up to 3 times to total no more than 9 credits but the topics must differ for each course. Max hours: 6 Credits. **Semester Hours:** 3 to 3

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. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. 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 1021 - Core Composition Workshop

Prepares students for college-level reading and writing. Students receive one-on-one and small-group instruction on analytical and argumentative writing. Max hours: 1 Credit. **Semester Hours:** 1 to 1

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 - First Year Seminar

Restriction: Restricted to Freshman level students. Term offered: fall. 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. Note: this course assumes that students have completed or are currently taking ENGL 1020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 1601 - Storytelling: Literature, Film, and Television

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? Note: this course assumes that students have completed or are currently taking ENGL 1020. Term offered: fall, spring. 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. Term offered: fall, spring, summer. 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 & Digital 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. Term offered: fall, spring. 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. Note: this course assumes that students have completed ENGL 1020. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 2156 - Introduction to Creative Writing

Reading, discussing, writing short fiction and poetry in a workshop setting. Note: this course assumes that students have completed ENGL 1020. Term offered: fall, spring, summer. 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. Term offered: fall, summer. 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: 9 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. 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. Note: this course assumes that students have completed ENGL 1020. Note: required introductory course for English majors and English education. Term offered: fall, spring. 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. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 2600 - Literary Classics

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. Term offered: fall, spring. 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

Term offered: fall, spring. 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. Restriction: Restricted to English majors only (all ENGL subplans). Term offered: fall, spring. 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. Term offered: fall, spring. 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. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3070 - Film History

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: Sophomore standing. Cross-listed with HIST 3070. Term offered: fall, spring. 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: Sophomore standing. Note: May be taken more than once when genres vary. Term offered: fall, spring. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGL 3080 - Global Cinema

Studies topics in international cinema, with particular attention to native production in Latin America, Africa, the Middle East, and Asia. Prereq: Sophomore standing. Term offered: fall, spring. 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: Junior standing or higher. Term offered: fall, spring, summer. 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: Sophomore standing. Note: May be taken more than once when directors vary. Term offered: fall. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGL 3106 - Writing for Print Media

Interested in writing for newspapers, magazines, or new media? Get real-world and practical experience with this introduction to working in modern journalism. Students will work closely with the CU Denver student newspaper "The Sentry", have the chance to get their writing published, and get involved with student media. It's the best way to start writing professionally: with hands-on training. No previous experience necessary--just a passion for journalism and a desire to see your work in print! Term offered: fall. 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: Sophomore standing. Term offered: fall, spring. 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: Sophomore standing. Term offered: fall, spring. 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: Sophomore standing. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3180 - Writing in the Social Sciences

Teaches students to analyze and produce types of writing common to the sub-disciplines of the social sciences. Emphasizes the dialogic nature of academic writing, and thus foregrounds the importance of understanding, evaluating, and responding to existing scholarship. Prereq: ENGL 2030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3190 - Writing Center Theory & Practice

An introduction to writing centers and to theories of composition, education, and writing pedagogy with a focus on collaborative learning practices and the dynamics of the consulting relationship. Students will have opportunities to research, observe, and engage in the teaching practices of the Writing Center at CU Denver. Prereq: ENGL 2030 with a B 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: Sophomore standing. Term offered: fall, summer. 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: Sophomore standing. 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 3330 - Topics in Literature

Courses supplement the department's regular course offerings. Recent topics have included Tolkien and international short stories. Prereq: Sophomore standing. Note: Open to both majors and non-majors. Can be taken more than once when topics vary. Term offered: fall, spring. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGL 3355 - Genre Topic

Through class discussion and various projects, students will delve in to a specific genre of literature such as memoir, drama, horror, speculative or detective fiction. Note: repeatable with a different topic title. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGL 3405 - Topics in Writing

Term offered: fall, spring. 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. 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 or Co-req: ENGL 2030. Term offered: spring. 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. Note: this course assumes that students have completed ENGL 1020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3450 - Contemporary 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: Sophomore standing. Cross-listed with WGST 3450. Term offered: fall, spring. 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: Sophomore standing. Term offered: spring. 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: Sophomore standing. Cross-listed with RLST 3720. Term offered: spring. 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: Sophomore standing. Term offered: fall, spring. 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. Note: this course assumes that students have completed 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. Note: this course assumes that students have completed ENGL 1020. Term offered: spring. 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. Term offered: fall, spring. 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. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 3840 - Independent Study: ENGL

Prereq: Sophomore standing. Term offered: fall, spring. 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 or higher. Before enrolling, students should contact the Career Center. Note: Up to six hours may be counted toward the major. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. Term offered: fall, spring. 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: Sophomore standing. Cross-listed with ENGL 5000. Term offered: fall, spring. 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. Term offered: fall, spring. 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. Term offered: fall, spring. 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. Note: this course assumes that students have completed ENGL 2070 or one year of college level coursework in a 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. Term offered: spring. 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. Note: this course assumes that students have completed ENGL 2450. Cross-listed with ENGL 5160. Term offered: spring. 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: Sophomore standing. Cross-listed with ENGL 5166. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4175 - Writing in the Sciences

Provides rhetorical analyses of scientific discourse and student practice in writing research reports and proposals. Prereq: Sophomore or higher standing and ENGL 2030 with a C- or higher. Cross-listed with ENGL 5175. Students will not receive credit for this class if they have already received credit for ENGL 3175. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4177 - Technical Editing

Provides instruction in the conventions of editing in the genre of technical communication. Students develop skills they can use to edit a variety of technical documents. Prereq: ENGL 2030 with a C- or better. Cross-listed with ENGL 5177. Term offered: spring. 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. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4190 - Advanced Topics in Writing & Digital Studies

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. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGL 4200 - Survey of the English Novel to 1900

Rise and development of the English novel from its beginnings in the 18th century through the end of the 19th century, including such writers as Defoe, Fielding, Austen, Shelley, the Brontes, Thackeray, and Dickens. Prereq: Sophomore standing. Cross-listed with ENGL 5200. Term offered: fall, spring. 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: Sophomore standing. 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: Sophomore standing. 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: Sophomore standing. Cross-listed with ENGL 5230. Term offered: spring. 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: Sophomore standing. Cross-listed with ENGL 5235. Term offered: spring. 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: Sophomore standing. Cross-listed with ENGL 5236. Term offered: spring. 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: Sophomore standing. 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: Sophomore standing. Cross-listed with ENGL 5250. Term offered: spring. 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. Term offered: spring. 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: Sophomore standing. Cross-listed with ENGL 5300. Term offered: spring. 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. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4308 - Contemporary Feminist Thought

This course explores contemporary feminist thought in philosophy and literature in the 20th and 21st centuries. Topics include lesbianism, black feminism, Chicana feminism, transgender identity, women and work and others. Cross-listed with ENGL 5308, PHIL 4308, PHIL 5308, WGST 4308, WGST 5308. Term offered: spring. 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: Sophomore standing. 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: Sophomore standing. 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. Note: this course assumes that students have completed ENGL 2070 or one year of college level coursework in a foreign language. Prereq: Sophomore standing. 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. Cross-listed with ENGL 5410. Note: this course assumes that students have completed ENGL 4400 or 5400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4416 - Advanced Magazine Writing

An intensive, practical continuation of the journalistic nonfiction techniques learned in Magazine Writing with an added emphasis on analytical reading, publication research, story reporting and pitching/writing for publication. Prereq: ENGL 3416 with a grade of C or better. 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. Note: this course assumes that students have completed ENGL 2250, ENGL 3070, ENGL 3080. Cross-listed with ENGL 5420. Term offered: fall. 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: Sophomore standing. Note: Texts read in English. Cross-listed with ENGL 5460. Term offered: spring. 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: Sophomore standing. Cross-listed with ENGL 5500. Term offered: fall. 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. Note: this course assumes that students have completed at least 9 hours of literature coursework. Cross-listed with ENGL 5510, RLST 4730/5730, WGST 4510/5510. Term offered: spring. 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: Sophomore standing. Cross-listed with ENGL 5520. Term offered: spring. 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: Sophomore standing. Cross-listed with ENGL 5530. Term offered: fall. 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: Sophomore standing. 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: Sophomore standing. Cross-listed with ENGL 5560. Term offered: spring. 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: Sophomore standing. 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: Sophomore standing. Cross-listed with ENGL 5600. Term offered: fall. 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. Term offered: fall. 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. Term offered: spring. 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. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 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: Sophomore standing. Cross-listed with ENGL 5730. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4735 - Philosophy and Literature

Considers the philosophical dimensions of literature. Prereq: Sophomore standing. 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. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 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: Sophomore standing. Cross-listed with ENGL 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: Sophomore standing. Cross-listed with ENGL 5770. Term offered: spring. 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. Note: this course assumes that students have completed ENGL 2154. Term offered: fall. 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 4025. Term offered: spring. 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

Term offered: fall, spring. 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. Prereq: ENGL 4055. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty.

Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Term offered: fall, spring. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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 standing. 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. Term offered: fall, spring. 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. Term offered: fall, spring. 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. Prereq: Graduate standing. Cross-listed with ENGL 4000. Term offered: fall, spring. 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. Prereq: Graduate standing. 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. Note: this course assumes that students have completed ENGL 2070 or one year of college level coursework in a foreign language. Prereq: Graduate standing. 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. Prereq: Graduate standing. Term offered: summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5100 - Introduction to Graduate Studies

Introduces students to scholarly methods & key debates in English Studies. Familiarizes students with department's specializations in film, linguistics, literature & rhetoric. Offers new MA students training in the primary forms of scholarly writing within the discipline (journal article, conference abstract, synopsis, book review). Restriction: Graduate standing or instructor permission is required for students to enroll in this course. Term offered: fall. 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. Prereq: Graduate standing. Term offered: summer. 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." Prereq: Graduate standing. Term offered: summer. Max hours: 9 Credits. **Semester Hours:** 1 to 1

ENGL 5135 - English Language Study

Introduces students to varieties of English in use today, while tracing range of "new Englishes" back to origins of language. Students will develop an understanding of English as a global language, why it spread throughout the world and how, paying specific attention to print history of English and relationship to other print languages. Prereq: Graduate standing. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5145 - Theory

Designed to enrich students' understanding of a variety of modes of theoretical discourse that have influenced modern critical practice in English studies. While the course explores the evolution of criticism, it gives primary emphasis to recent developments. Prereq: Graduate standing. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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 standing. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5155 - Genres of Writing

Explores work of major contributors to genre and narrative theory. Offers students exposure to emergent genres in new media, while situating these new genre in relation to historical precedents. Gives students an introduction to the evolution of central genres in literary studies, such as novel, poem, political speech and western film. Prereq: Graduate standing. Term offered: fall. 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. Note: this course assumes that students have completed ENGL 1400. Prereq: Graduate standing. Cross-listed with ENGL 4160. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5165 - Literacy and Technology

Studies the material forms in which English language has circulated-e.g., the history of the oral and manuscript tradition; the history of the book; and the impact of digital technologies on print culture. Prereq: Graduate standing. Term offered: spring. 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. Prereq: Graduate standing. Term offered: spring. 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. Prereq: Graduate standing. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5175 - Writing in the Sciences

Provides rhetorical analyses of scientific discourse and student practice in writing research reports and proposals. Prereq: graduate standing or higher. Cross-listed with ENGL 4175. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5177 - Technical Editing

Provides instruction in the conventions of editing in the genre of technical communication. Students develop skills they can use to edit a variety of technical documents. Restriction: Restricted to graduate students. Cross-listed with ENGL 4177. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5190 - Advanced Topics in Writing & Digital Studies

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. Prereq: Graduate standing. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENGL 5200 - Survey of the English Novel to 1900

Rise and development of the English novel from its beginnings in the 18th century through the end of the 19th century, including such writers as Defoe, Fielding, Austen, Shelley, the Brontes, Thackeray, and Dickens. Cross-listed with ENGL 4200. Prereq: Graduate standing. Term offered: fall, spring. 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. Term offered: spring. 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. Term offered: spring. 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. Term offered: spring. 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: Graduate standing. Cross-listed with ENGL 4280. Term offered: spring. 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. Prereq: Graduate standing. Term offered: spring. 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. Prereq: Graduate standing. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5308 - Contemporary Feminist Thought

This course explores contemporary feminist thought in philosophy and literature in the 20th and 21st centuries. Topics include lesbianism, black feminism, Chicana feminism, transgender identity, women and work and others. Prereq: Graduate standing. Cross-listed with ENGL 4308, PHIL 4308, PHIL 5308, WGST 4308, WGST 5308. Term offered: spring. 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 5400 - Old English I

Instruction in the Old English language. Note: this course assumes that students have completed ENGL 2070 or one year of college level coursework in a foreign language. Prereq: Graduate standing. 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. Note: this course assumes that students have completed ENGL 4400 or 5400. Prereq: Graduate standing. 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. Note: this course assumes that students have completed ENGL 2250, 3070, and 3080 or equivalent. Prereq: Graduate standing. Cross-listed with ENGL 4420. Term offered: fall. 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. Prereq: Graduate standing. Term offered: spring. 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. Prereq: Graduate standing. Term offered: spring. 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. Note: this course assumes that students have completed at least 9 hours of literature coursework. Prereq: Graduate standing. 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. Term offered: fall. 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. Term offered: spring. 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. Term offered: fall. 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. Prereq: Graduate standing. Term offered: fall. 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. Prereq: Graduate standing. Term offered: spring. 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: Graduate standing. Cross-listed with ENGL 4730. Term offered: spring. 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. Prereq: Graduate standing. 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: Graduate standing. 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. Prereq: Graduate standing. Cross-listed with ENGL 4770. Term offered: spring. Max hours: 12 Credits. **Semester Hours:** 3 to 3

ENGL 5840 - Independent Study: ENGL

Prereq: Graduate standing. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 1 to 3

ENGL 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Prereq: Graduate standing. Term offered: fall, spring. Max hours: 6 Credits. **Semester Hours:** 1 to 6

ENGL 5913 - Practicum in Language and Rhetoric

Supervised work in applied language or rhetoric and the teaching of writing. Prereq: Graduate standing. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 1 to 3

ENGL 5939 - Internship

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments

and outcomes, to the Graduate School for approval. Prereq: Graduate standing. Term offered: fall, spring, summer. 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. Prereq: Graduate standing. Term offered: spring. 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. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENGL 6010 - Studies of Major Authors

Note: May be repeated when topics vary. Prereq: Graduate standing. 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. Prereq: Graduate standing. Max hours: 30 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. Prereq: Graduate standing. Max hours: 30 Credits. **Semester Hours:** 3 to 3

ENGL 6840 - Independent Study

Prereq: Graduate standing. Term offered: fall, spring. 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. Prereq: Graduate standing. Term offered: fall, spring. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ENGL 6950 - Master's Thesis

Prereq: Graduate standing. Term offered: fall, spring. Max hours: 6 Credits. **Semester Hours:** 1 to 6

ENGL 6960 - Master's Project

Prereq: Graduate standing. Term offered: fall, spring. Max hours: 6 Credits. **Semester Hours:** 1 to 6

ENGL 6970 - Portfolio Exam

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. Prereq: Graduate standing. Term offered: fall, spring. 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. Student may take either ENTP 3000 or ENTP 3200, but not both. Prereq: Sophomore standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 3200 - Essentials in Entrepreneurship

This introductory course informs students of concepts, skills and practical information relevant to startup companies. The materials are designed to help students anticipate HR, financial, and marketing problems through proper planning. The primary objective of the course is to teach students the real-world aspects of entrepreneurship in order to improve the odds of success. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 3201 - Lean Startup Fundamentals

This course covers everything an entrepreneur needs to know about finance when running a startup or small business. Topics include: financial and legal aspects, financial reporting and cash flow analysis, budgeting, working capital management, asset decisions, obtaining capital, business valuation, franchising, lease versus buy decisions and more. This course counts as a prerequisite to ENTP 3299. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 3210 - Visionary Leadership for New Ventures

This course provides students with an overview of key leadership principles for creating strategy and managing teams in a startup environment. 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, students will learn how to execute these concepts through measurable goals and objectives. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 3220 - 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 3222 - 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 3230 - Small Business Accounting and Finance

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. This course counts as a pre-req to ENTP 3780 and ENTP 3299. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 3240 - Developing Dynamic Concepts

This course is designed to prepare entrepreneurial-minded students to critically and objectively evaluate the feasibility of their ideas. Entrepreneurs are motivated by plethora of "the next big idea" and are often fatally optimistic about their ideas. The course work will demonstrate how to objectively test and validate the feasibility of an entrepreneurial idea through data-driven analytical and strategic planning. Additionally, this course will provide pragmatic applications of the course content by incorporating real-life case studies presented by practicing entrepreneurs as guest lecturers. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 3242 - 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 3250 - 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 3260 - High Impact Sales for Entrepreneurs

Selling one's own concept to prospective customers and investors is very different from selling products in a corporate environment. In this course, students will learn how to get their message heard, get their ideal clients to want to work with them, and use their authentic brand to sell their small-business concept successfully. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 3270 - New Venture Operations

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 3299 - Business Model Development & Planning

At the heart of every great business is a well-thought out business plan. This course teaches entrepreneurially-minded students how to create one, and students will tackle this project with a team or as an individual. Local entrepreneurs and investors will serve as guest speakers and share their experiences. Mentors and advisors associated with the Jake Jobs Center, as well as special Center-organized experiential events, will provide students with practical feedback. Prereq or Coreq: ENTP 3230 may be taken at the same time as 3299 for a coreq. If 3230 is completed as a prerequisite, a grade of C- or higher is required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 3420 - Ethics: Formula for Success

Students will learn how to spot and address red flags that foster unethical behavior in both publicly-traded and privately-held businesses. Governance and stakeholder management techniques that incentivize ethical behavior will be highlighted using examples of companies that are financially successful by "doing the right thing." Principle-based ethics are emphasized, namely, integrity, trust, accountability, transparency, fairness, respect, viability, and compliance with the rule of law. 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 3600 - Ethics of Entrepreneurship

This course focuses on ethical issues faced by entrepreneurs by emphasizing real-world application of ethical principles, namely, integrity, trust, accountability, transparency, fairness, respect, viability, and compliance with the rule of law. Presentation of course material will include guest lectures. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Max hours: 3 Credits. **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 with a grade of 'C-' or higher or BLAW 4120 or ENTP 3120 with a grade of 'C' or higher. 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 3800 - Special Topics in Entrepreneurship

A variety of topics in entrepreneurship are offered. Consult the current 'schedule Planner' for semester offerings. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ENTP 4028 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. Cross-listed with ENTP 6028, INTB 4028, and INTB 6028. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 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. Cross-listed with MKTG 4720. Entrepreneurship Cert/Minor/Emphasis students may take either ENTP 3220 or ENTP 4720, but not both. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 4730 - New Product Development for Consumer and Sports Products

The creation of new products is essential in today's business environment. It is conducive to organizational growth and long-term survival. This course addresses the new product development process in depth. It introduces students to key concepts and issues. It also provides a series of practices which will help students deliver higher value and be more competitive. Prereq: MKTG 3000. Cross-listed with MKTG 4730. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 4782 - Commodity Data Analysis

This course is an applied introduction to commodity data analysis. Students will learn how to analyze commodity prices using quantitative techniques. Relationships between commodities and the global economy will be investigated. In addition, commodities will be looked at as an asset class and cross-asset relationships will be studied. Students will be introduced to forecasting techniques and be able to develop and evaluate various forecasting models. Students will work with the open source R software environment throughout the course and gain proficiency. Cross-listed with CMDT 4782. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 4840 - Entrepreneurship Independent Study

Max hours: 3 Credits. **Semester Hours:** 1 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 6000 - The Lean Startup

Focuses on the concepts, skills, know-how, attitudes, information, and alternatives that are relevant for start-up and early-stage entrepreneurs, entrepreneurial managers, and their stakeholders. Speakers, exercises, and lectures focus on the critical role of opportunity creation and recognition, and the entrepreneur as the principal success factor in new entrepreneurial formation and building. **Semester Hours:** 3 to 3

ENTP 6020 - Business Model Development & Planning

Jointly taught by a successful Colorado entrepreneur and an experienced professor, this course familiarizes students with the key steps for preparing a business plan for a new (or existing) business venture. This course provides real-world feedback and advice and integrates coursework with THE CLIMB | Jake Jobs Business Plan Competition events to further enhance the quality of one's business concept. Several past students have won prizes at THE CLIMB and launched successful businesses from concepts developed in the course. 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 6022 - Digital Strategy for Entrepreneurs

This course focuses on how digital innovations are disrupting traditional business practices. Students will participate in a team project where they identify an industry prepared for disruption, and then develop a relevant digital strategy. Students can also expect industry leaders from some of Colorado's greatest digital and tech companies as guest speakers. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6028 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course

topic will vary based on the location and course content. Students register through the Office of Global Education. Cross-listed with ENTP 4028, INTB 4028, and INTB 6028. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6029 - Social Entrepreneurship in India: India Up Close

Visit businesses, Universities, financial institutions, Social Entrepreneurship (SE) and Corporate Social Responsibility (CSR) efforts. Through these interactions students will gain perspective as to how emerging Economies work through the challenges they face in becoming leading participants in the Global economy. Max hours: 3 Credits.

Semester Hours: 3 to 3

ENTP 6030 - Entrepreneurship in Emerging Industries

How entrepreneurs in emerging industries raise capital, find talent, attract customers, manage regulatory uncertainty, and respond to opposition. Focus on blockchain tech, renewable energy, fracking, and sharing economy, we will discuss the challenges and opportunities facing entrepreneurs pioneering new/controversial products and practices. We will also examine how these lessons generalize to innovation in other industries.

Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6420 - Ethics: Formula for Success

Students will learn how to spot and address red flags that foster unethical behavior in both publicly-traded and privately-held businesses. Governance and stakeholder management techniques that incentivize ethical behavior will be highlighted using examples of companies that are financially successful by "doing the right thing." Principle-based ethics are emphasized, namely, integrity, trust, accountability, transparency, fairness, respect, viability, and compliance with the rule of law. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6620 - New Venture Operations and Project Management

Many viable businesses have failed due to cash flow problems, poor management, and poor execution. This course presents students with an operations model for developing internal and external plans when starting new ventures. Utilizing both academic fundamentals and practical knowledge imparted by an experienced instructor, this course provides the project management knowledge and skills needed to build strong 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 - Impactful Social Innovation

Innovations in social organizations are unique and warrant equally unique startup strategies for success. This course takes students through various stages of the social enterprise development process, from building competitive business models to attracting investors to operationalizing the business concept successfully while simultaneously doing social good. 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

This course teaches students the fundamentals of life science technology in entrepreneurship. Serving as an introduction to bioinnovation and entrepreneurship, topics covered include tech transfers, accounting and finance basics, opportunity assessments, legal and regulatory environments, clinical trials, project management best practices, ethics and societal issues, and team building. Cross-listed with IDPT 6301. 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 life science technology commercialization including drugs, devices, diagnostics, and healthcare IT and platform applications. Cross-listed with IDPT 7302. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6807 - 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 6810 - High Impact Sales for Entrepreneurs

Selling one's own concept to prospective customers and investors is very different from selling products in a corporate environment. This course is about the importance of keeping one's passion alight while, at the same time, selling one's small-business concept successfully. 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 Int'l 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 - Lean Marketing

This course focuses on marketing strategies designed to make the most of shoestring budgets that typify most startup businesses. Drawing from the lean startup concept and the experiential knowledge of the instructor and guest speakers, the course presents tactics that may be employed for the greatest dollar impact in a variety of different startup structures. 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 6850 - Cyber Security Securing the Enterprise

This course examines methods and techniques used to secure an enterprise's environment. Topics include threat prioritization and mitigation; social engineering and security policies; encryption and cryptography; virtual private networks, wireless and mobile device management; antivirus, intrusion detection and protection systems; etc. 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 6855 - Cyber Security Protecting the Enterprise

This course provides the knowledge required to analyze the current enterprise environment in order to prepare a risk mitigation for security vulnerabilities encountered.

Topics include principles and concepts; threats, vulnerabilities, risks, attacks and controls; risk process and management; and enterprise security policies. 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

ENTP 6870 - Cyber Security Securing Information Assets

This course illustrates how information assets can be subjected to internal and external attacks and presents techniques used to secure them from unauthorized access. Topics include sub-networking for guest and vendor access; managing mixed operating system environments; data at rest and data in-transit; database inference; network management systems and security; information assurance tools and techniques. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENTP 6875 - Cyber Security Protecting Information Assets

This course concentrates on the identification of information assets and the techniques used to protect them. Topics include server vulnerabilities; network vulnerabilities; extranet and intranet management; incident response and management; web site and web services management; virtualization in the data center; and cloud computing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Environmental Sciences

ENVS 1044 - Introduction to Environmental Sciences

This 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. Students must also take the accompanying laboratory ENVS 1045. No co-credit with ENVS 1042. Prereq or co-req: ENVS 1045. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 1045 - Introduction to Environmental Sciences Laboratory

Introduces the basic scientific approach through investigations, observations, and experiments in environmental science. Students must also take the accompanying lecture ENVS 1044. No co-credit with ENVS 1042. Prereq or co-req: ENVS 1044. Max hours: 1 Credit. **Semester Hours:** 1 to 1

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. Term offered: fall, spring. 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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. Prereq: sophomore standing or higher. 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. Note: One college-level science course and MATH 1110 or equivalent are strongly recommended as preparation for optimal student success. Cross-listed with PHYS 3082. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 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 ENVS 1042 or (ENVS 1044 and ENVS 1045) Cross-listed with GEOG 3232. Term offered: fall, spring. 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. Note: this course assumes that students have completed one course in college science or mathematics. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 4300 - Children's Geographies

This seminar is an interdisciplinary investigation of children, childhood and environment in the context of sustainability and equity. Theoretical and methodological perspectives are applied to understand children's interactions with/in different spaces. Cross-listed with GEOG 4300, GEOG 5300 and ENVS 5300. Restriction: Restricted to students with junior standing or higher or with instructor permission. Term offered: spring. 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. Note: necessary prior coursework varies according to the topic. Students should consult with the instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 6

ENVS 4650 - Environmental Education

This course links the theory and practice of environmental education to inform curricular development and pedagogical knowledge. Cross-listed with ENVS 5650 and SCED 5650. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 4720 - Climate Change: Causes, Impacts and Solutions

Examines science behind past, present & future climate change & environmental, social & political implications & solutions. Explores recent scientific research, syntheses & mainstream literature advancing knowledge about causes & consequences of natural & anthropogenic climate change. Prereq: GEOG 3232. Cross-listed with GEOG 4720/ GEOG 5720/ ENVS 5720. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 4740 - Geography of Soils

Reviews chemical and physical properties of soils, soil development, and geographic distributions of soil types in the context of the role that soils play in natural and human-altered ecosystems. Cross-listed with GEOG 4740, GEOG 5740, ENVS 5740. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 4840 - Independent Study: ENVS

Max hours: 6 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. Note: this course assumes that students have completed an introductory geography or environmental science course. Prereq: Junior standing or higher. Cross-listed with ENVS 5850 and GEOG 4850/5850. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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: Junior standing or higher. Cross-listed with ENVS 5900, GEOG 4900 and 5900. Max hours: 4 Credits. **Semester Hours:** 1 to 1

ENVS 4992 - Advanced Regional Field Study

Directed, hands-on study of concepts involved in understanding geographic regions.

Utilizes field observations, field techniques/methods, & data observation, collection, analysis, & interpretation related to the specific region being studied. May include physical as well as cultural phenomena. Note: Instructor permission required. Cross-listed with ENVS 5992, GEOG 4992, GEOG 5992. Max hours: 12 Credits. **Semester Hours:** 1 to 6

ENVS 4995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. 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 GEOG 1302. 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. Note: this course assumes that students have completed an introductory college-level physical geography or environmental science course. Prereq: Graduate standing. 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. Prereq: Graduate standing. 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. Note: students should be enrolled in the MSES program to take this course. All other students should consult with the instructor and obtain their permission prior to registering for this course. Prereq: Graduate standing. 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. Note: this course assumes that students have completed GEOG 1202 and one of: 1) GEOG 3232; 2) GEOG 4240/GEOL 4240/GEOG/5240; 3)GEOG 4010/GEOL 4010/ENVS 5000. Prereq: Graduate standing. Max hours: 4 Credits. **Semester Hours:** 4 to 4

ENVS 5300 - Children's Geographies

This seminar is an interdisciplinary investigation of children, childhood and environment in the context of sustainability and equity. Theoretical and methodological perspectives are applied to understand children's interactions with/in different spaces. Cross-listed with GEOG 4300, ENVS 4300 and ENVS 4300. Restriction: Restricted to graduate level students or with instructor permission. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5305 - Water Quality and 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. Prereq: Graduate standing (Grad or Non-Degree Grad). Cross-listed with GEOG 4305. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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

This course examines literature in science education related to issues of culture and

equity. Topics will be framed by an understanding of equity in diverse classrooms and how it informs research, curriculum and instruction. Cross-listed with SCED 5340. Prereq: Graduate standing. 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. Note: this course assumes that students have prior coursework in chemistry, physics, or calculus. Prereq: Graduate standing. 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. Note: this course assumes that students have completed general chemistry and/or CHEM 4700. Prereq: Graduate standing. 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. Note: this course assumes that students have completed GEOG 3401. Prereq: Graduate standing. 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. Note: this course assumes that students have completed ENVS 5450. Prereq: Graduate standing. 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. Note: this course assumes that students have completed ENVS 5450 and 5460. Prereq: Graduate standing. Cross-listed with GEOG 4470. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5480 - Urban Vegetable CSA: Planning, Production&Distribution

This course outlines the planning, production, and distribution in an active urban vegetable CSA (community supported agriculture) model. It is offered as a part of the GES Sustainable Urban Agriculture Certificate. Cross-listed with GEOG 4480. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5500 - Topics in Environmental Sciences

Topics may vary from one offering to the next. Prereq: Graduate standing. Max hours: 9 Credits. **Semester Hours:** 1 to 6

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. Note: this course assumes that students have completed college algebra and GEOG 3080 or equivalent. Prereq: Graduate standing. Cross-listed with GEOG 4770. 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 and PBHL 4620. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5650 - Environmental Education

This course links the theory and practice of environmental education to inform curricular development and pedagogical knowledge. Prereq: Graduate standing. Cross-listed with ENVS 4650 and SCED 5650. 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. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5720 - Climate Change: Causes, Impacts and Solutions

Examines science behind past, present & future climate change & environmental, social & political implications & solutions. Explores recent scientific research, syntheses & mainstream literature advancing knowledge about causes & consequences of natural & anthropogenic climate change. Cross-list GEOG 4720/ GEOG 5720/ ENVS 4720. Prereq: Graduate standing. 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 5731 - Mountain Biogeography

This course utilizes the close proximity of the Rocky Mountains to examine altitudinal influences on species distributions. Topics include species patterns and distributions, disturbance, climate impacts, forest management and sustainability. Prereq: GEOG 1202 or ENVS 1042 or graduate standing or permission from the instructor is required in order to register for this course. Cross-listed with GEOG 5731. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5740 - Geography of Soils

Reviews chemical and physical properties of soils, soil development, and geographic distributions of soil types in the context of the role that soils play in natural and human-altered ecosystems. Prereq: graduate standing or permission of instructor. Cross-listed

with GEOG 4740, GEOG 5740, ENVS 4740. 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. Note: this course assumes that students have completed an introductory geography or environmental science course. Prereq: Graduate standing. Cross-listed with ENVS 4850 and GEOG 4850/5850. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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 standing. Cross-listed with ENVS 4900, GEOG 4900 and 5900. Max hours: 4 Credits. **Semester Hours:** 1 to 1

ENVS 5939 - Internship

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Max hours: 9 Credits. **Semester Hours:** 1 to 6

ENVS 5992 - Advanced Regional Field Study

Directed, hands-on study of concepts involved in understanding geographic regions. Utilizes field observations, field techniques/methods, & data observation, collection, analysis, & interpretation related to the specific region being studied. May include physical as well as cultural phenomena. Cross-listed with ENVS 4992, GEOG 4992, GEOG 5992. Note: Instructor permission required. Max hours: 12 Credits. **Semester Hours:** 1 to 6

ENVS 5995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. Prereq: Graduate standing. 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. Note: this course assumes that students have completed GEOG 1202 and GEOG 1302, or the equivalent as determined by the instructor. Prereq: Graduate standing. 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: Graduate standing. Term offered: fall. Max hours: 2 Credits. **Semester Hours:** 1 to 1

ENVS 6002 - Research Topics in Environmental Sciences

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: Graduate standing. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ENVS 6004 - Research Methods in Environmental Science

This core MS Environmental Science course will explore a range of methods commonly encountered in environmental science fields and how to develop a research project and proposal. Prereq: Must be graduate level and have completed ENVS 6002. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 6100 - Research Topics in Environmental Management

This is one of 4 core MS Environmental Science courses that will review and apply the principles and methods involved in designing and implementing effective environmental management. Prereq: Must be graduate level and have completed ENVS 6002. Max hours: 3 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. Cross-listed with CVEN 5494, HBSC 7340. Prereq: Graduate standing. 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. Prereq: Graduate standing. 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. Note: this course assumes that students have completed one year of college chemistry and one year of

college biology. Prereq: Graduate standing. 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. Note: this course assumes that students have completed a basic statistics course. Prereq: Graduate standing. Cross-listed with HBSC 7310. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ENVS 6800 - Community-Based Research Practicum

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. Cross-listed with GEOG 6800. Max hours: 3 Credits. Prereq: Must be graduate level and have completed ENVS 6002, ENVS 6004 and ENVS 6100. **Semester Hours:** 3 to 3

ENVS 6840 - Independent Study: ENVS

Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 1 to 3

ENVS 6950 - Master's Thesis

Prereq: Graduate standing. Max hours: 11 Credits. **Semester Hours:** 1 to 6

ENVS 6960 - Master's Report

Prereq: Graduate standing. Max hours: 6 Credits. **Semester Hours:** 3 to 6

Ethnic Studies

ETST 1111 - First Year Seminar

Restriction: Restricted to Freshman level students. Term offered: fall. 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. Term offered: fall, spring. 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 2001 - Special Topics: Ethnic Studies

Topics vary from semester to semester, based upon interest and availability of Instructor in specialized areas. Max hours: 6 Credits. **Semester Hours:** 3 to 3

ETST 2010 - Introduction to Chicana/o Studies

This course introduces students to the broad range of the interdisciplinary field of Chicana/o Studies by examining the Chicana/o experience including history, identity, politics, immigration, labor, literature, and popular culture. Term offered: spring. Max hours: 3 Credits. **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 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. Term offered: fall, spring. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-H11. **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

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. 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 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. Term offered: fall. Max hours: 6 Credits.
Semester Hours: 3 to 3

ETST 3010 - Conference Participation

Max hours: 1 Credit. **Semester Hours:** 1 to 1

ETST 3036 - 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. Note: Students may not earn credit for this course if they have earned credit for ETST 2036. Term offered: fall, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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. Term offered: fall. 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. Term offered: fall, spring. 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. Term offered: spring. 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. Term offered: spring. 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. Term offered: fall, spring, summer. 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. Term offered: fall. 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 and HIST 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-listed with 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. Term offered: spring. 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. Term offered: spring. 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 Experience

Examines the contemporary Asian American experience, including the adaptation of new immigrants or refugees, economic and educational problems, ethnic identity, intermarriage, anti-Asian discrimination and other civil rights issues, and recent political activism. Cross-listed with SOCY 3697. Term offered: spring. 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. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 3794 - Ethnicity and Race in Contemporary American Culture

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

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. 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: Students must have junior standing and at least a 2.75 GPA and must work with Experiential Learning Center advising to complete a course contract and gain approval. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ETST 3995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global 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. Cross-listed with ETST 5000. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4020 - Race, Culture and Immigration

In this course, we will consider the social and legal construction of race and immigration. We will also explore how immigrants have been racialized both historically and in the current moment. In addition, we will consider the role of culture in shaping the immigrant experience and immigrant outcomes. Restriction: Junior standing or higher or instructor permission. Cross-listed with SOCY 4020, SOCY 5020 and ETST 5020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4030 - Race, Religion and Belonging in the United States

Race/ethnicity and religion are conconstitutive social and cultural formations that have played a fundamental part in determining the boundaries of belonging of the United States. In this course, students will interrogate when, why and how race/ethnicity and religion have been used to delineate borders, determine citizenship, navigate legal classifications, dictate social mobility, and regulate economic possibilities. We will analyze both primary sources ?such as sermons, reality TV shows, court cases and graphic images?as well as scholarly writing to explore how formations of race and religion have shaped notions of belonging in the US nation?state, thereby constructing

the boundaries of the state itself. Cross-listed with ETST 5030, RLST 4030 and RLST 5030. 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 4710 - Special Topics in Ethnic Studies

Students explore advanced topics in Ethnic Studies. Max hours: 3 Credits. **Semester Hours:** 1 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

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 12 Credits. **Semester Hours:** 1 to 3

ETST 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member,

describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

ETST 4960 - Capstone in Ethnic Studies

Provides a broad overview of social research methods pertinent to the study of race, ethnicity, gender, and culture. Explores theories concerning "ethnicity and race" as both social construct and constituent feature of people's identities and lived experiences. Ethnic Studies is an interdisciplinary major where students make connections across diverse fields of inquiry; this course provides a structure for integrating an interdisciplinary examination of the intellectual, cultural, and social dimensions of racial and ethnic groups. Cross-listed with ETST 5960. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 4995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. Max hours: 15 Credits. **Semester Hours:** 1 to 15

ETST 5000 - 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Cross-listed with ETST 4000. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 5020 - Race, Culture and Immigration

In this course, we will consider the social and legal construction of race and immigration. We will also explore how immigrants have been racialized both historically and in the current moment. In addition, we will consider the role of culture in shaping the immigrant experience and immigrant outcomes. Restriction: Graduate standing or instructor permission. Cross-listed with SOCY 4020, ETST 4020 and SOCY 5020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 5021 - Black and Latino Children in Families and Schools

With a focus on application of scholarship to practice, this interdisciplinary course will

introduce graduate students to scholarly literature from family sciences, sociology, education and related fields to understand Black and Latino children within family, school and community systems. Restriction: Restricted to graduate level students. Cross-listed with HDFR 5020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 5030 - Race, Religion and Belonging in the United States

Race/ethnicity and religion are conconstitutive social and cultural formations that have played a fundamental part in determining the boundaries of belonging of the United States. In this course, students will interrogate when, why and how race/ethnicity and religion have been used to delineate borders, determine citizenship, navigate legal classifications, dictate social mobility, and regulate economic possibilities. We will analyze both primary sources ?such as sermons, reality TV shows, court cases and graphic images?as well as scholarly writing to explore how formations of race and religion have shaped notions of belonging in the US nation?state, thereby constructing the boundaries of the state itself. Restriction: Graduate standing or instructor permission required to register. Cross-listed with ETST 4030, RLST 4030 and RLST 5030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

ETST 5939 - Graduate Internship in Ethnic Studies

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Restriction: Restricted to Graduate and Graduate Non-Degree majors (NDGR-NHL and NDGR-NLA). Note: Students must have graduate standing and must work with Experiential Learning Center advising to complete a course contract and gain approval. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 6

ETST 5960 - Capstone in Ethnic Studies

Provides a broad overview of social research methods pertinent to the study of race, ethnicity, gender, and culture. Explores theories concerning "ethnicity and race" as both social construct and constituent feature of people's identities and lived experiences. Ethnic Studies is an interdisciplinary major where students make connections across diverse fields of inquiry; this course provides a structure for integrating an interdisciplinary examination of the intellectual, cultural, and social dimensions of racial and ethnic groups. Prereq: Graduate standing (Grad or Non-Degree Grad). Cross-listed with ETST 4960. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ETST 6950 - Independent Study: Ethnic Studies

Independent study in ethnic studies. **Semester Hours:** 1 to 18

Film and Television

FITV 1001 - Fundamentals of Film and Television

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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 1005 - 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

FITV 1035 - Introduction to Filmmaking

Students will be introduced to the concepts and practices of filmmaking. Through a series of hands-on exercises students will gain experience production management, cinematography, editing and client/director relationships. 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. Restriction: Restricted to TFTV-BFA majors within the College of Arts & Media with the subplan FIT. 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. Prereq: FITV 1040. Restriction: Restricted to TFTV-BFA majors & FTPM minors (production) within the College of Arts & Media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 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. Prereq: FITV 1040. Restriction: Restricted to TFTV-BFA majors within the College of Arts and Media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 1115 - Horror in Western Culture and Cinema

This course is designed to analyze the history, practice and production of the horror film. By examining the horror genre students analyze how cinema is both a reflection of the time it was produced as well as it impacts on art and society. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 1120 - Contemporary World Cinema

This course will examine representative examples of films from around the world to understand the current interest and concerns of world cinema, as well as discern what concerns various countries around the world, and how those concerns are expressed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 1200 - The Culture 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. Restriction: Restricted to TFTV-BFA majors within the College of Arts & Media with the subplan FIT. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 1551 - Scriptwriting for Non-Majors

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. Prereq: TFTV-BFA: FITV 1550. Prereq: FTWM minor: no pre-req. Restriction: Restricted to TFTV-BFA majors & FTWM minors within the College of Arts and Media. 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. Prereq: TFTV-BFA: FITV 1000. Prereq: FTPM minor: FITV 1050 or FITV 1035. Restriction: Restricted to TFTV-BFA majors & FTPM minors within the College of Arts and Media. 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: BFA: FITV 1050. Prereq: FTPM minor: FITV 1050 or FITV 1035. Restriction: Restricted to TFTV-BFA majors & FTPM minors within the College of Arts and Media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 2055 - Documentary Production

Students produce non-fiction film/TV productions in collaboration with non-profit organizations while exploring and experiencing industry practices. Prereq: FITV 1050 + FITV 2090. Restriction: Restricted to TFTV-BFA majors within the College of Arts and Media. 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. Prereq: FITV 1550. Restriction: Restricted to TFTV-BFA majors within the College of Arts and Media. 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. Prereq: BFA : FITV 1050 + FITV 1550. Prereq: FTPM minor: FITV 1050 or FITV 1035. Restriction: Restricted to TFTV-BFA majors and FTPM minors in the College of Arts & Media. 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 1040. Restriction: Restricted to TFTV-BFA majors within the College of Arts and Media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 2670 - Cinematography

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. Prereq: FITV 2040 + FITV 1050. Restriction: Restricted to TFTV-BFA majors within the College of Arts and Media. 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. Prereq: BFA: FITV 3050 + FITV 3500. Prereq: FTPM minor: FITV 1050 or FITV 1035. Restriction: Restricted to TFTV-BFA majors & FTPM minors within the College of Arts and Media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 3050 - Junior Project Production

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. Prereq: FITV 2050 + FITV 1200 + FITV 2670 + FITV 2650. Restriction: Restricted to TFTV-BFA majors within the College of Arts and Media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 3060 - Junior Project Post Production

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. Prereq: FITV 3050 + FITV 3500. Restriction: Restricted to TFTV-BFA majors within the College of Arts and Media. 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 - Film History 1

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 3220 - Advanced Acting Workshop for Film and Television

Students will further explore techniques and practices in the performing for film and television projects. This is an intense workshop designed to better prepare students to perform for a variety of on-camera projects. Prereq: FITV 2220. Restriction: Restricted to TFTV-BFA majors within the College of Arts & Media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 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. Prereq: FITV 2040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 3300 - Film History 2

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. Prereq: FITV 2050. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 3400 - Feature 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. Prereq: TFTV-BFA: FITV 3400. Prereq: Non-TFTV-BFA Majors must have taken any two of ENGL 3415, ENGL 3417, ENGL 2390 or permission of instructor. 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. Prereq: TFTV-BFA FITV 1200 + FITV 2050. Prereq: FTWM minor: FITV 1550 Restriction: Restricted to TFTV-BFA majors and FTWM minors in the College of Arts & Media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 3510 - Feature 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. Prereq: TFTV-BFA: FITV 3400. Prereq: Non-TFTV-BFA Majors must have taken any two of ENGL 3415, ENGL 3417, ENGL 2390 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 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

FITV 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

FITV 3570 - 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. Prereq: TFTV-BFA: FITV 2220 + FITV 2050. Restriction: Restricted to TFTV-BFA majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 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

FITV 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

FITV 3611 - Drama of Diversity

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FITV 3770 - Advanced Production Design for Film and Television

Students will further explore design elements found in film and television, and utilize class projects in conjunction with other student film projects. Prereq: THTR 1110 or FITV 1110. Restriction: Restricted to TFTV-BFA majors within the College of Arts & Media. 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. Prereq: FITV 3060 + FITV 3040 or FITV 3090 + FITV

3200. Restriction: Restricted to TFTV-BFA majors within in the College of Arts and Media. 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. Prereq: FITV 4000. Restriction: Restricted to TFTV-BFA majors within the College of Arts and Media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 4020 - CAM Film Productions

Under the supervision of a faculty member, this class works together as a group to create broadcast quality television projects. Projects will be designed for a PBS television market and may be aired as such. Pre-requisite: FITV 2050. Restriction: Restricted to TFTV-BFA majors within the College of Arts and Media. Max hours: 9 Credits. **Semester Hours:** 3 to 3

FITV 4050 - Advanced Cinematography

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 2670. Restriction: Restricted to TFTV-BFA majors within the College of Arts and Media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 4200 - Advanced Directing for Film and Television

Students will further explore more advanced directing techniques to be utilized in film and television projects. Prereq: FITV 2570 or FITV 3570. Restriction: Restricted to TFTV-BFA majors within the College of Arts & Media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FITV 4400 - Acting for Film and TV Practicum

The practice, study and critique of acting and directing for varying film/TV projects. The class will incorporate, preparatory work, on-camera performance, directing, and an in-

depth critique of the resulting work. Pre-req: TFTV-BFA: FITV 3220. Restriction: TFTV-BFA. 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

FITV 4840 - Independent Study: FILM

Max hours: 12 Credits. **Semester Hours:** 1 to 3

Finance

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: MATH 1070 or MATH 1110 or MATH 1080 or MATH 1130 or MATH 1401, AND ACCT 2200, AND DSCI/BANA 2010 or ECON 3811 all with a grade of C- or higher, AND ECON 2012 AND ECON 2022. Restriction: Restricted to undergraduate students at a junior standing or higher. 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. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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. If completed prior must have completed with a C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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 with a grade of C or higher. Coreq: FNCE 3500. As a corequisite, FNCE 3500 can be taken concurrently or prior. If completed prior, must earn a C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 3840 - Independent Study: FNCE

Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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. To enroll in an internship, students must work with the Experiential Learning Center on campus and have a 2.40 GPA or higher. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 9 Credits. **Semester Hours:** 1 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. Cross-listed with INTB 4370. Prereq: FNCE 3000 with a C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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 with a grade of C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 4424 - 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. Cross-listed with FNCE 6420. Prereq: FNCE 3500. Restriction: Restricted to undergraduate Business majors with a junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 4470 - Behavioral Finance

Over the past several decades, the field of finance has developed a successful paradigm based on the notions that investors and managers were generally rational and the prices of securities were generally "efficient." In recent years, however, anecdotal evidence as well as theoretical and empirical research has shown this paradigm to be insufficient to describe various features of actual financial markets. In this course we examine how the insights of behavioral finance complements the traditional paradigm and sheds light on

the behavior of asset prices, corporate finance, and various Wall Street institutions and practices. Prereq: FNCE 3500 with a C or higher. 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: MATH 1070 or MATH 1110 or MATH 1080 or MATH 1130 or MATH 1401 AND DSCI/BANA 2010 AND ACCT 2200 all with a C- or higher; ECON 2012 AND ECON 2022 with a D- or higher; FNCE 3000 AND FNCE 3500 AND FNCE 3700 all with a C or higher. Restriction: Restricted to undergraduate students at a senior standing or higher. 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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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 with a grade of C- or higher, FNCE 3000 and (ISMG

3000 or ACCT 4054) all with a grade of 'C' or higher. Cross-listed with ISMG 4750.
Restriction: Restricted to undergraduate Business majors at a junior standing or higher.
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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 4840 - Independent Study: FNCE

Restriction: Restricted to undergraduate Business majors with junior standing or higher.
Max hours: 8 Credits. **Semester Hours:** 1 to 8

FNCE 4950 - Special Topics

Research methods and results, special topics and professional development in finance. Prerequisites vary according to topic and instructor requirements. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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 with a grade of C (2.0) or higher. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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 6640 and BUSN 6620 with a grade of C (2.0) or higher. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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 with a grade of C (2.0) or higher. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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 with a grade of C (2.0) or higher. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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 with a grade of C (2.0) or higher. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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 with a grade of C (2.0) or higher. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Cross-listed with INTB 6372. Max hours: 3 Credits.

Semester Hours: 3 to 3

FNCE 6372 - Time-Series 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. If you do not meet the prerequisites you may contact the instructor for permission to register. Prereq: BANA 6610 or BUSN 6530 or FNCE 6290 or (BUSN 6530 taken at CU Denver or consent of instructor - no CBK waivers of BUSN 6530 will be considered. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **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 with a C or higher. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6382 - Survey of Financial 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: BUSN 6640. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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 with a grade of C (2.0) or higher. 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 with a grade of C (2.0) or higher. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. Cross-listed with FNCE 4424. Prereq: BUSN 6640 with a grade of C (2.0) or higher. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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 with a grade of C (2.0) or higher. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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 6640. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Cross-listed with INTB 6460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 6470 - Behavioral Finance

Over the past several decades, the field of finance has developed a successful paradigm based on the notions that investors and managers were generally rational and the prices of securities were generally "efficient." In recent years, however, anecdotal evidence as well as theoretical and empirical research has shown this paradigm to be insufficient to describe various features of actual financial markets. In this course we examine how the insights of behavioral finance complements the traditional paradigm and sheds light on the behavior of asset prices, corporate finance, and various Wall Street institutions and practices. Prereq: BUSN 6640. 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 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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 6840 - Independent Study: FNCE

Instructor approval required. Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 8 Credits. **Semester Hours:** 1 to 8

FNCE 6995 - Travel Study

Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FNCE 8990 - Dissertation Development

Supports development of a dissertation in conjunction with a student's advisor. Max hours: 15 Credits. **Semester Hours:** 1 to 15

Fine Arts

FINE 1000 - Fostering Creativity

Through discussions, readings, writings and creative investigations, students will delve into theoretical and experiential approaches to creativity and consider how different kinds of creativity and passions can be identified, cultivated and leveraged in their current and future academic and professional lives. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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 - First-Year Seminar

Restriction: Restricted to Freshman level students. Max hours: 3 Credits. **Semester Hours:** 1 to 3

FINE 1120 - Photographic Fundamentals

Students 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. Restriction: Open to all students except FINE-BFA & BA. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 1125 - Photographic Genres

Students explore photographic genres through projects that investigate multiple approaches to the medium. Topics include still life, portrait, family, nature, documentary, and street photography. Students develop technical skills and insights about photographic meaning. Note: ENTP 3000 may substitute for this course if you are pursuing the Fundamentals of Business minor. This course is designed for non-art majors. Restriction: Open to all students except FINE-BFA & BA. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 1130 - Photography as a Visual Language

Through projects, readings, and discussions, students learn how photography functions as a visual language that crosses cultural boundaries. Students investigate methods to interpret and evaluate photographs in the context of our global society. This course is designed for non-art majors. Restriction: Open to everyone except Visual Arts Majors and Minors. 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, 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 - PREDAC: 3D Foundations

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 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 - PREDAC: Animation Foundations

A lecture/lab course that explores the foundations of animation. Primary focus is an introduction to foundational animation techniques and methods. Class lectures, demonstrations and hands-on application will expose the student the expectations for high-end 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. Prereq: FINE 1400. 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. Prereq: FINE 1100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2105 - PRE-DIGD – Human-Centered Design, Innovation and Prototyping

Introduces collaborative interdisciplinary design and innovation from a human perspective. Using the wide array of Inworks prototyping facilities, teams of students will design and implement human-oriented projects of increasing scale and complexity, in

the process acquiring essential innovation and problem-solving skills. 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 2420 - The Language of Design : What Makes Design Work

Through lectures, readings and discussions students explore essential contemporary design movements and designers and their effects on design, visual culture and communication. In addition, students learn and practice critical thinking skills and have the opportunity to learn and practice design processes and problem solving techniques. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 2425 - Essential Type-Design Applications

A studio devoted to learning the essential design-software needed to complete basic graphic design projects. Through lectures and creative projects students will learn how to create, manipulate, and prepare various types of art files for print or digital publishing. 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. Prereq: FINE-BFA TMS: FINE 1500. 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. Prereq: FINE-BFA TMS: FINE 1500. 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. Prerequisite applicable only for FINE-BA majors: FINE 2600. No prerequisite for all others. 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 2822 - DAC: Digital Cinematography

A lecture/lab course focuses on mastery of digital cinematography and visual storytelling. This course translates key production techniques: composition, camera craft, depth of field, camera blocking, and more, into the 3D world. This unique approach bridges the gap between traditional live-action cinematography and cutting-edge 3D animation, giving the students skills/knowledge about cinematic theory, practices and methods, as applied to digital 3D content creation. Prereq: FINE 1810, FINE 1820, Acceptance into DAC. 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 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 - Illustration I: Digital Media

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. Prereq: FINE 1100, FINE 1400, FINE 1500, FINE 2155, FINE 2405, FINE 2600, FINE 2610. Prereq: ILLS-MIN: FINE 2405. Prereq: FINE-BFA ILS: FINE 1100, FINE 1400, FINE 1500, FINE 2155, FINE 2600, FINE 2610, FINE 2405. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3002 - Illustration II: Spatial Thinking

Spatial Thinking 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. Prereq: FINE 3001. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3010 - Illustration I: Spatial Thinking

Spatial Thinking 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. Prereq: FINE 1100. 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. Prereq: FINE 1100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3040 - Color Theory: Studio and Screen-Based Practice

This hybrid course delves into how color is essential to traditional studio-based and digital media artists through focusing on visual color and light perception, color mixing with pigment and digital applications, and the interaction of color. Prereq: FINE 1100, 1400. 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. Prereq: FINE 2030 and FINE 2200. Prereq FINE-BFA PND: FINE 1100, FINE 1400, FINE 1500, FINE 2155, FINE 2600, FINE 2610. Prereq PNDW-MIN: FINE 2200. 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 3115 - Mixed Media and Photography

Students create artwork using techniques that combine photography and mixed media. Topics include expanding the photograph to a 3-dimensional form, working with light-sensitive materials, and manipulating the print surface. Students develop creative

concepts that are enhanced by cross-disciplinary methods. Prereq: FINE 2155. 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 3125 - Digital Image and Print

Students craft high quality digital ink jet prints while exploring photography as a tool for creative expression. Topics include color management, advanced image manipulation, large scale printing techniques, and conceptual development. Prereq: FINE 2155. Restriction: Open to all students except FINE BFA PHO and PPO. Max hours: 3 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 3156 - Photography Studio and Lighting

Students learn lighting techniques that inform the conceptual and aesthetic qualities of their photographs. Topics covered include studio practice; location photography; commercial business practices; shooting and lighting techniques; and professional presentation. Prereq FINE-BFA PHO: FINE 1100, FINE 1150, FINE 1400, FINE 2155, FINE 2600. Prereq: FINE 2155. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3160 - Color and the Constructed Image

Students explore traditional color photography, concept development and expressive uses of the medium. Topics include chromogenic printing, color theory, and 4x5 technique in assignments that focus on constructed imagery. Students learn about the creative impact of color on photographic representation. Prereq FINE-BFA PHO: FINE 1100, FINE 1150, FINE 1400, FINE 2155, FINE 2600. Prereq: FINE 1150. 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. Prereq FINE-BFA PHO: FINE 1500, FINE 2610, FINE 3156, FINE 3160. Prereq: FINE 1150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3162 - The Digital Fine Print

Students learn the fine art of digital printing as it relates to photographic practice and theory. Assignments focus on conceptual development, advanced image manipulation, workflow, color management, and digital ink jet printing. Students gain insight into the role of digital imaging in contemporary culture. Prereq FINE-BFA PHO: FINE 1500, FINE 2610, FINE 3156, FINE 3160. Prereq: FINE 2155. 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. Prereq: FINE-BFA PHO: FINE 3161, FINE 3162. Prereq: FINE 1150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3172 - Photography and Community

Students learn strategies for creating visual narratives through photographic projects that involve the Denver community. Projects incorporate service learning, documentary photography, text and image, digital manipulation, digital printing, scanning, and

handmade artist books. Spring only. Prereq: FINE-BFA PHO: FINE 3161, FINE 3162. Prereq: FINE 2155. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3200 - Intermediate Painting and Drawing

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. Prereq: FINE 2200. 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. Prereq: FINE 1100, FINE 2200. Prereq FINE-BFA PND: FINE 1100, FINE 1400, FINE 1500, FINE 2155, FINE 2200, FINE 2600, FINE 2610. Prereq PNDW-MIN: FINE 2200. Max hours: 3 Credits. **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. Prereq: FINE 2030, FINE 3050. Prereq FINE-BFA ILS: FINE 1100, FINE 1400, FINE 1500, FINE 2155, FINE 2405, FINE 2600, FINE 2610, FINE 2030. 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. Prereq: FINE 1100. 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 3342 - Topics in Studio Art

Max hours: 9 Credits. **Semester Hours:** 1 to 3

FINE 3343 - 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. Prereq: FINE 2155. 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 3410 - Illustration II: Digital Media

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. Prereq: FINE 1400, FINE 1500, FINE 2155, FINE 2405, FINE 2600, FINE 2610, FINE 3010. 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. Restriction: Restricted to FINE-BFA DIG or DIGD-MIN or FINE-BFA 3D ANI or the SCOM certificate. 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. Restriction: Restricted to FINE-BFA DIG or DIGD-MIN. 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. Restriction: Restricted to FINE-BFA DIG or DIGD-MIN. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3420 - Printing Preparation and Process

Through print shop visits, creating, manipulating, and preparing various types of art files for print or digital publishing, students will explore the history, various processes, and file preparation that are essential to producing final designed products. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3424 - Interactive Media

A foundational interactive design workshop exploring how to convey message and deliver information. Through critiques of projects, discussion and research, students will learn principles of user interface design, aesthetics and structure including their potential cultural impact. Restriction: Restricted to FINE-BFA DIG or DIGD-MIN. Prereq: FINE 3414, 3415, 3417; DIGD-MIN and FINE 3414, 3415. 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. Restrictions: Restricted to FINE-BFA DIG or DIGD MIN. Prereq: FINE 3444, 3464. 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 intermediate interactive design workshop devoted to using interactive design to solve communication and information problems at scale. Through investigations, readings and discussions students will create projects that explore user experience design, accessibility, and advanced research techniques. Restriction: Restricted to FINE-BFA DIG. Prereq: FINE 3424, 3454. 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. Prereq: FINE 2200. 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. Restriction: Restricted to FINE-BFA DIG. Prereq: FINE 3414, 3415, 3417. 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. Restriction: Restricted to FINE-BFA DIG. Prereq: FINE 3424, 3454. 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. Restriction: Restricted to FINE-BFA DIG. Prereq: FINE 3444, 3464. 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. Prereq FINE-BFA TMS: FINE 1100, FINE 1400, FINE 1500, FINE 2155, FINE 2500 or FINE 2405, FINE 2510, FINE 2600, FINE 2610. Prereq FINE-BFA: FINE 1500. 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. Prereq FINE-BFA TMS: FINE 1100, FINE 1400, FINE 1500, FINE 2155, FINE 2500 or FINE 2405, FINE 2510, FINE 2600, FINE 2610. Prereq FINE-BFA: FINE 1500. 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. Prereq FINE-BFA TMS: FINE 1100, FINE 1400, FINE 1500, FINE 2155, FINE 2500 or FINE 2405, FINE 2510, FINE 2600, FINE 2610. Prereq FINE-BFA: FINE 1500. 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. Prereq FINE-BFA TMS: FINE 1100, FINE 1400, FINE 1500, FINE 2155, FINE 2500 or FINE 2405, FINE 2510, FINE 2600, FINE 2610, FINE 3405. Prereq FINE-BFA: FINE 1500, FINE 2155, FINE 3405. 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. Prereq FINE-BFA TMS: FINE 1100, FINE 1400, FINE 1500, FINE 2155, FINE 2500 or FINE 2405, FINE 2510, FINE 2600, FINE 2610, FINE 3405. Prereq FINE-BFA: FINE 1500, FINE 2155, FINE 3405. 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 3540 - Electronic Media

Building on the basics of an Audio/Media bootcamp, students will add creative computation to their toolset, working with open-source software and hardware such as Processing and Arduino, Max/MSP and fabrication tools such as laser cutters and 3D printers for developing electronic media based artworks. Max hours: 6 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. Prereq FINE-BFA TMS: FINE 1100, FINE 1400, FINE 1500, FINE 2155, FINE 2500 or FINE 2405, FINE 2510, FINE 2600, FINE 2610, FINE 3405. Prereq FINE-BFA: FINE 1500, FINE 2155, FINE 3405. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3555 - Concepts in Sculpture

This course addresses varying topics and trends in sculpture. Students produce work focused on issues in the professional field and develop their voice as an artist through thematic exploration. Course content rotates each semester to cover the dynamics of the field. Prereq: FINE 1500. Max hours: 12 Credits. **Semester Hours:** 3 to 3

FINE 3556 - Concepts in Painting and Drawing

This course addresses topics and trends in painting and drawing. Students produce work focused on issues in the professional field and develop their creative voice through thematic exploration. Course content rotates each semester to cover the dynamics of the field. Prereq: FINE 2200. Max hours: 12 Credits. **Semester Hours:** 3 to 3

FINE 3557 - Concepts in Illustration

This course addresses varying topics and trends in illustration. Students produce work exploring contemporary issues in the professional realm and develop their distinctive illustrative voice through multiple media. Course content rotates each semester to cover the dynamics of the field. Prereq: FINE 2010. Max hours: 9 Credits. **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. Prereq: FINE-BFA PHO: FINE 3630. Restriction: All other students must be at sophomore-, junior-, or senior-level standing. 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. Prereq: FINE-BFA PHO: FINE 3630. Restriction: All other students must be at sophomore-, junior-, or senior-level standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 3640 - Topics in Art History I: Art Before Modernism

Variable: Art History lecture course pertaining to art before Modernism. Prereq FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. Max hours: 6 Credits. **Semester Hours:** 1 to 3

FINE 3644 - Topics in Art History II: Modern and Contemporary

Variable: Art History lecture course pertaining to art since Modernism. Prereq FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. Max hours: 6 Credits. **Semester Hours:** 1 to 3

FINE 3775 - Asian Art, 1850 to Now

A lecture-based course about developments in art and architecture of China, Japan, and Korea after 1850. Prereq FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. Max hours: 3 Credits.

FINE 3814 - Digital 3D Methods: Motion Graphics for Animators

An online course is an introduction to Motion Graphics, devoted to understanding time based imagery that focuses on utilizing video, typography and 3D content as a creative communication tool. Students will create projects that explore video, animation, time and motion. 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 3845 - DAC: Preproduction for Story

A seminar course focused on the story development/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. Prereq: DACD 2830, DACD 2850, Acceptance into DAC. 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 - Illustration III: Investigative Methods

Illustration III 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 3410. Restriction: Restricted to FINE-BFA ILS majors within the College of Arts & Media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4002 - Illustration IV: Advanced Illustration

In this course, students create a body of illustrative work that expresses a sophisticated individual style and work to refine their visual voice within a marketplace context. Students focus on the development of a cohesive professional portfolio. Prereq: FINE-BFA-ILS: FINE 4001. Restriction: Restricted to FINE-BFA ILS majors within the College of Arts and Media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4003 - Illustration BFA Thesis

This is a capstone seminar course and the culmination of the Illustration program leading to the BFA thesis exhibition. Students learn essential professional practices in illustration in order to present a portfolio for a particular market or gallery setting. Prereq: FINE-BFA ILS: FINE 4002. Restriction: Restricted to FINE-BFA ILS majors within the College of Arts and Media. 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. Prereq: FINE 2030. 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. Prereq: FINE 3200, FINE 4990. 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. Prereq: FINE-BFA PHO: FINE 3171, 3172, and 3630. Prereq: FINE 3161, 3162, 3171. 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. Prerequisite: FINE 4195. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4200 - Advanced Painting and Drawing

In this course, students create a body of work that expresses a complex individual vision in the realm of painting and drawing. Students learn to develop their artistic practice with self-directed processes in support of focused concepts. Prereq: FINE 3200. 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. Restriction: Restricted to FINE-BFA DIG or DIGD-MIN or FINE-BFA 3D ANI or SCOM. 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, and experiential design. Through prototyping, discussion, readings, and critiques, students will create unique projects that explore contemporary and futurist topics. Restriction: Restricted to FINE-BFA DIG. Prereq: FINE 3434, 3474. 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. Restriction: Restricted to FINE-BFA DIG. Prereq: FINE 3434, 3474. 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 4435 - Nudge: Behavioral Design 1

A studio course where students learn to develop 'nudge' solutions through the use of behavioral methods and theories. A 'nudge' is an attempt to influence people's choices and behavior in a predictable way without limiting their options or significantly changing incentives. Through field trips and observation, students will gain knowledge and skills in the field of behavioral design, including dual cognitive processing, choice architecture, behavioral mapping, and cognitive biases. 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 - Design Thesis Research

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. Restriction: Restricted to FINE-BFA DIG Prereq: FINE 4400. 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. Restriction: Restricted to FINE-BFA DIG Prereq: FINE 4480 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. Prereq FINE-BFA TMS: FINE 3530. Prereq FINE-BFA: FINE 1500, FINE 2155, FINE 3405, FINE 3530. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4505 - Sculptural Drawing

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. Prereq FINE-BFA TMS: FINE 4500. Prereq: FINE-BFA: FINE 1500, FINE 2155, FINE 3405, FINE 3500. 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. Prereq FINE-BFA TMS: FINE 4505. Prereq FINE-BFA: FINE 1500, FINE 2155, FINE 3405, FINE 3500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4515 - Interdisciplinary Studio

Students in this course develop a body of work that expresses complex individual vision across media. Students learn to develop their artistic practice with self-directed processes in support of focused concepts in multiple studio areas. Prereq: FINE 3500. Max hours: 6 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 4523 - Topics in Art History I: Art Before Modernism

Variable: Art History lecture course pertaining to art before Modernism. Prereq: FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. Max hours: 6 Credits. **Semester Hours:** 1 to 3

FINE 4524 - Topics in Art History II: Modern and Contemporary Art

Variable: Art History lecture course pertaining to art since Modernism. Prereq: FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. Max hours: 6 Credits. **Semester Hours:** 1 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. Prereq: FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. 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. Prereq: FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. 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. Prereq: FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. 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 World War II. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an

ability to analyze the art. Prereq: FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. 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. Prereq: FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. 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 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. Prereq: FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. 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. Prereq: FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior or senior-level standing. 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. Prereq: FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. 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. Prereq: FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. 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. Prereq: FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. 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. Prereq: FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. 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. Prereq: FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. 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. Prereq: FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4775 - Asian Art, 1850 to Now

A lecture-based course about developments in art and architecture of China, Japan, and Korea after 1850. Through visual analysis, vocabulary acquisition, discussion, exams, and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Prereq FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. 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. Prereq: FINE-BA: FINE 2600 and FINE

2610; ENGL 2070 or ENGL 4180 or ENGL 4280. Prereq: FINE-BFA: FINE 2600 and FINE 2610. All other students must be at junior- or senior-level standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4825 - 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 1820. 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 4970 - Modernist Art

A lecture course about developments in Modernist art and architecture from the late 18th century to 1960. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of the period's historical developments and an ability to analyze its art. Prereq: FINE 2600 and FINE 2610 for FINE-BA and FINE-BFA majors ONLY. Restriction: All other students must be at junior- or senior-level standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4980 - Gender in Contemporary Art

This lecture course will address ways in which gender issues have affected the creation and study of visual arts since the early 20th century, with an emphasis on art and culture since World War II. Prereq: FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. Max hours: 3 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. Prereq: FINE 2600 and FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 4993 - Topics Seminar in Art History I: Art before Modernism

Variable: Art History seminar pertaining to art before Modernism. Prereq: FINE 2610 for FINE-BA and FINE-BFA majors ONLY. Restriction: All other students must be at junior- or senior-level standing. Max hours: 9 Credits. **Semester Hours:** 3 to 3

FINE 4994 - Topics Seminar in Art History II: Modern and Contemporary Art

Variable: Art History seminar pertaining to Modern and contemporary art. Prereq: FINE 2610 for FINE-BA or FINE-BFA majors only. Restriction: All other students must be at junior- or senior-level standing. Max hours: 9 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 is also required. 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 and drawing course for students who have completed their bachelor's degree in fine arts to further develop their technical and expressive means to implement their ideas. Self-directed studio is paired with studies in theoretical and critical analysis. 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. Restriction: Restricted to CU Denver Graduate Students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5210 - Graduate Painting/Drawing II

This is the second level of graduate painting and drawing with a tutorial focus. Emphasis is placed on directed research and the development of significant body of original work reflecting student's expressive and theoretical concerns. 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. Restriction: Restricted to CU Denver Graduate Students. 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 5523 - Topics in Art History I: Art Before Modernism

Variable: Art History lecture course pertaining to art before Modernism. Restriction: Restricted to Graduate Students. Max hours: 6 Credits. **Semester Hours:** 1 to 3

FINE 5524 - Topics in Art History II: Modern and Contemporary

Variable: Art History lecture course pertaining to art since Modernism. Restriction: Restricted to Graduate Students. Max hours: 6 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. Restriction: Restricted to Graduate Students. 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. Restriction: Restricted to Graduate Students. 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. Restriction: Restricted to Graduate Students. 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 World War II. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Restriction: Restricted to Graduate Students. 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. Restriction: Restricted to Graduate Students. 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. Restriction: Restricted to Graduate Students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5644 - Topics in Art History

Restriction: Restricted to Graduate Students. Max hours: 9 Credits. **Semester Hours:** 1 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. Restriction: Restricted to Graduate level students. 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. Restriction: Restricted to Graduate level students. 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. Restriction: Restricted to Graduate level students. 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. Restriction: Restricted to Graduate level students. 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. Restriction: Restricted to Graduate level students. 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. Restriction: Restricted to Graduate level students. 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. Restriction: Restricted to Graduate level students. 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. Restriction: Restricted to Graduate level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5775 - Asian Art, 1850 to Now

A lecture-based course about developments in art and architecture of China, Japan, and Korea after 1850. Through visual analysis, vocabulary acquisition, discussion, exams, and writing assignments, students will demonstrate knowledge of historical developments and an ability to analyze the art. Restriction: Restricted to Graduate Students. 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. Restriction: Restricted to Graduate level students. 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 5970 - Modernist Art

A lecture course about developments in Modernist art and architecture from the late 18th century to 1960. Through visual analysis, vocabulary acquisition, discussion, exams and writing assignments, students will demonstrate knowledge of the period's historical developments and an ability to analyze its art. Restriction: Restricted to Graduate Students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5980 - Gender in Contemporary Art

This lecture course will address ways in which gender issues have affected the creation

and study of visual arts since the early 20th century, with an emphasis on art and culture since World War II. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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. Restriction: Restricted to Graduate level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FINE 5993 - Topics Seminar in Art History I: Art before Modernism

Variable: Art History seminar pertaining to art before Modernism. Restriction: Restricted to Graduate Students. Max hours: 9 Credits. **Semester Hours:** 3 to 3

FINE 5994 - Topics Seminar in Art History II: Modern and Contemporary Art

Variable: Art History seminar pertaining to Modern and contemporary art. Restriction: Restricted to Graduate Students. Max hours: 9 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 5660 - History of Schooling in the United States

This course introduces education professionals to the history of contemporary public school. The contents of this course emphasize the ways in which people from marginalized national and cultural groups have experienced education through eras of compulsory schooling, school segregation, and the contemporary context of school reform. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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

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. Term offered: fall, spring. 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 1001 - French Language I

Introductory course in French language skills, in which basic grammatical structures are introduced, together with 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. No co-credit with FREN 1010. Term offered: fall, spring. Max hours: 4 Credits. **Semester Hours:** 4 to 4

FREN 1002 - French Language II

Second semester of elementary French language skills continuation of French Language I (FREN 1001). More complex grammatical structures are introduced together with appropriate vocabulary and cultural and literary readings that allow students to carry on more complex conversations. Note: This course assumes that students have passed FREN 1001 or 1010 or equivalent, or have taken one year of high school French, or possess equivalent proficiency. A grade of C- or higher in the previous French course is recommended for success in this course. 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. This course is not intended for native speakers. No co-credit with FREN 1020. Term offered: fall, spring. Max hours: 4 Credits. **Semester Hours:** 4 to 4

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. Note: This course assumes that students have passed FREN 1001 or 1010 or equivalent, or have taken one year of high school French, or possess equivalent proficiency. A grade of C- or higher in the previous French course is recommended for success in this course. This course is not intended for native speakers. Max hours: 5 Credits. **Semester Hours:** 5 to 5

FREN 1111 - First Year Seminar

Restriction: Restricted to Freshman level students. Max hours: 3 Credits. **Semester Hours:** 1 to 3

FREN 2003 - French Language III

Third semester of French language skills- continuation of French Language II (FREN 1002). Further introduction to beginning & intermediate level grammatical structures with appropriate vocabulary and cultural & literary readings that allow students to understand oral & written French and to speak & write in French in everyday situations. Note: This course assumes that students have passed FREN 1002 or 1020 or equivalent, or have taken two years of high school French, or possess equivalent proficiency. A grade of C- or higher in the previous French course is recommended for success in this course. 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. This course is not intended for native speakers. No co-credit with FREN 2110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 2004 - French Language 4: Introduction to Advanced Studies

This course is designed to review and further develop French language skills, to continue the study of Francophone cultures and to prepare students for advanced-level French studies. Note: This course assumes that students have passed FREN 2003 or 2110 or equivalent, or have taken three years of high school French, or possess equivalent proficiency. A grade of C or higher in the previous French course is recommended for success in this course. 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. This course is not intended for native speakers. No co-credit with FREN 2020. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 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. Note: This course assumes that students have passed FREN 1002 or 1020 or equivalent, or have taken two years of high school French, or possess equivalent proficiency. A grade of C- or higher in the previous French course is recommended for success in this course. This course is not intended for native speakers. 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. Note: This course assumes that students have passed FREN 2003 or 2110 or equivalent, or have taken three years of high school French, or possess equivalent proficiency. A grade of C- or higher in the previous French course is recommended for success in this course. This course is not intended for native speakers. 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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. Prereq: Sophomore standing. Max hours: 9 Credits. **Semester Hours:** 1 to 3

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. Note: This course assumes that students have passed FREN

2004 or 2120 or equivalent, or have taken four years of high school French, or possess equivalent proficiency. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 3020 - Conversation through Film

Conversation course focusing on the exploration of the diversity of French and Francophone cultures through film. Oral practice methodologies will include small group discussions, short oral presentations and debates. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Note: This course assumes that students have passed FREN 2004 or 2120 or equivalent, or have taken four years of high school French, or possess equivalent proficiency. 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. Note: This course assumes that students have passed FREN 2004 or 2120 or equivalent, or have taken four years of high school French, or possess equivalent proficiency. 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. Note: This course assumes that students have passed FREN 2004 or 2120 or equivalent, or have taken four years of high school French, or possess equivalent proficiency. Term offered: fall. 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. Note: This course assumes that students have passed FREN 2004 or 2120 or equivalent, or have taken four years of high school French, or possess equivalent proficiency. Term offered: fall. 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. Note: This course assumes that students have passed FREN 2004 or 2120 or equivalent, or have taken four years of high school French, or possess equivalent proficiency. 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. Note: This course assumes that students have passed FREN 2004 or 2120 or equivalent, or have taken four years of high school French, or possess equivalent proficiency. Term offered: spring. 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. Note: This course assumes that students have passed FREN 2004 or 2120 or equivalent, or have taken four years of high school French, or possess equivalent proficiency. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Note: This course assumes that students have passed FREN 2004 or 2120 or equivalent, or have taken four years of high school French, or possess equivalent proficiency. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Prereq: Sophomore standing or higher. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 3840 - Independent Study: FREN

Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 3

FREN 3939 - Internship

Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. Term offered: fall, spring, summer. 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. Note: This course assumes

that students have passed FREN 2004 or 2120 or equivalent, or have taken four years of high school French, or possess equivalent proficiency. 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 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. Term offered: fall, spring, summer. 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. Note: This course assumes that students have passed FREN 3050 or 3060 or an equivalent course, plus one other 3000 level course in French. 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. Note: This course assumes that students have passed FREN 3050 or 3060 or an equivalent course, plus one other 3000 level course in French. 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. Note: This course assumes that students have passed FREN 3050 or 3060 or an equivalent course, plus one other 3000 level course in French. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Note: This course assumes that students have passed two 3000 level courses in French. Term offered: spring. 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. Note: This course assumes that students have passed two 3000 level courses in French. Term offered: fall. 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. Note: This course assumes that students have passed FREN 3112 or 3122 or an equivalent course, plus one other 3000 level course in French. 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. Note: This course assumes that students have passed FREN 3112 or 3122 or an

equivalent course, plus one other 3000 level course in French. 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. Note: This course assumes that students have passed FREN 3112 or 3122 or an equivalent course, plus one other 3000 level course in French. 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. Note: This course assumes that students have passed FREN 3112 or 3122 or an equivalent course, plus one other 3000 level course in French. 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. Note: This course assumes that students have passed FREN 3112 or 3122 or an equivalent course, plus one other 3000 level course in French. 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. Note: This course assumes that students have passed FREN 3112 or 3122 or an equivalent course, plus one other 3000 level course in French. Cross-listed with FREN 5510 and WGST 4511/5511. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 4520 - Voices of Haiti and the Caribbean

This course explores the literary production of contemporary Haitian and Caribbean

writers within varied cultural and gender contexts. It focuses on historical, societal and post-quake issues confronting both men and women writers of the French Caribbean. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Note: This course assumes that students have passed FREN 3112 or 3122 or an equivalent course, plus one other 3000 level course in French. Cross-listed with FREN 5520. 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. Note: This course assumes that students have passed FREN 3010 and FREN 3050 or 3060 or equivalent courses. Cross-listed with FREN 5600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 4690 - Methods of Teaching Modern Languages

Studies the methods and practices of teaching modern languages. Note: requirement for language majors in the teacher certification program, School of Education, CU Denver. Cross-listed with MLNG 4690, MLNG 5690, SPAN 4690, SPAN 5690, FREN 5690, GRMN 4690, GRMN 5690, CHIN 4690, CHIN 5690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 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. Cross-listed with MLNG 4691, MLNG 5691, SPAN 4691, SPAN 5691, FREN 5691, GRMN 4691, GRMN 5691, CHIN 4691, CHIN 5691. Prereq: MLNG 4690 or SPAN 4690 or FREN 4690 or GRMN 4690 or CHIN 4690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 4840 - Independent Study: FREN

Max hours: 12 Credits. **Semester Hours:** 1 to 3

FREN 4841 - Independent Study: FREN

Max hours: 9 Credits. **Semester Hours:** 1 to 3

FREN 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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. Note: This course assumes that students have passed two 3000 level courses in French. 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 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. 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. Note: This course is intended for students with an undergraduate degree in French or advanced-level proficiency. 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. Note: This course is intended for students with an undergraduate degree in French or advanced-level proficiency. Term offered: spring. 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. Note: This course is intended for students with an undergraduate degree in French or advanced-level proficiency. Term offered: fall. 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. Note: This course is intended for students with an undergraduate degree in French or advanced-level proficiency. 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. Note: This course is intended for students with an undergraduate degree in French or advanced-level proficiency. 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: graduate standing. Note: This course is intended for students with an undergraduate degree in French or advanced-level proficiency. Cross-listed with FREN 4510 and WGST 4511/5511. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 5520 - Voices of Haiti and the Caribbean

This course explores the literary production of contemporary Haitian and Caribbean writers within varied cultural and gender contexts. It focuses on historical, societal and post-quake issues confronting both men and women writers of the French Caribbean. Prereq: graduate standing. Note: This course is intended for students with an undergraduate degree in French or advanced-level proficiency. Cross-listed with FREN 4520. 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. Note: This course is intended for students with an undergraduate degree in French or advanced-level proficiency. Cross-listed with FREN 4600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 5690 - Methods of Teaching Modern Languages

Studies the methods and practices of teaching modern languages. Note: requirement for those wishing to be teaching assistants in the Department of Modern Languages, and for language majors in the teacher certification program, School of Education, CU Denver. Cross-listed with MLNG 4690, MLNG 5690, SPAN 4690, SPAN 5690, FREN 4690, GRMN 4690, GRMN 5690, CHIN 4690, CHIN 5690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 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. Cross-listed with MLNG 4691, MLNG 5691, SPAN 4691, SPAN 5691, FREN 4691, GRMN 4691, GRMN 5691, CHIN 4691, CHIN 5691. Prereq: MLNG 5690 or SPAN 5690 or FREN 5690 or GRMN 5690 or CHIN 5690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

FREN 5840 - Independent Study: FREN

Max hours: 3 Credits. **Semester Hours:** 1 to 3

FREN 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty.

Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

FREN 5995 - Travel Study

For students doing travel study in the Francophone world led by a CU-Denver instructor; registration is restricted and coordinated through the Office of Global Education, study.abroad@ucdenver.edu. Cross-listed with FREN 4995. Prereq: graduate standing. Note: This course is intended for students with an undergraduate degree in French or advanced-level proficiency. Max hours: 15 Credits. **Semester Hours:** 1 to 15

Geography

GEOG 1102 - World Regions Global Context

Analyzes world regions and their global interconnectedness, including the dynamic and complex relationships between people and the world they inhabit. Demographic and cultural (political, economic, and historic) issues are examined as well as interactions between human societies and natural environments. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Term offered: fall, spring, summer. 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 - First Year Seminar

Restriction: Restricted to Freshman level students. 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. Term offered: fall, spring, summer. 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. Term offered: fall, spring. 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 - Urban Studies and Planning

Surveys the process of urbanization, emphasizing the development of American cities, using Denver as an example. Topics covered include: evolution of metropolitan form/land use patterns, cultural landscape formation, city planning and architectural design, and urban social and policy issues. Term offered: fall, spring. 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 - Hazards to Disasters: Perception and Management

Surveys those physical phenomena that often cause substantial damage when they occur in areas of human settlement. Term offered: fall, spring, summer. 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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. Prereq: sophomore standing or higher. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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. Prerequisite: GEOG 1202 or ENVS 1042 or (ENVS 1044 and ENVS 1045). Cross-listed with ENVS 3232. Term offered: fall, spring, summer. 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. Note: this course assumes that students have completed GEOG 1202 and/or GEOG 3232. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 3412 - 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Students will not earn credit for GEOG 3412 if they have already earned credit for GEOG 3411. Term offered: fall, spring. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Note: this course assumes that students have completed GEOG 1302 or GEOG 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 3450 - Cultural Heritage and Tourism

The course involves the geographic study of tourism to heritage sites and their management. It is a growing segment in domestic and international travel, and market trends for different types of destinations in heritage tourism are examined in a local, regional and national context. The course discusses heritage planning practices and processes as well as investigates dissonant heritage and dark tourism sites. Prereq: GEOG 1302 or GEOG 3411 or GEOG 3430 with a C- or higher. 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. Note: this course assumes that students have completed GEOG 1302 or GEOG 3411. 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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. Prereq: Junior standing or higher. 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). Note: specific necessary prior coursework varies with each topic; students

are expected to have completed at least six hours in relevant social or physical science coursework. Max hours: 9 Credits. **Semester Hours:** 3 to 3

GEOG 4000 - 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. Crosslisted with URPL 5010. 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 GEOG 3232. Cross-listed with ENVS 5020, GEOL 4020. Term offered: fall. 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 with a grade of C or better. Cross-listed with GEOG 5060. Term offered: fall, spring, summer. 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 with a grade of C or better, or permission of instructor. Cross-listed with GEOG 5070. Term offered: spring. 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 with a grade of C or better. Cross-listed with GEOG 5080. Term offered: fall, spring, summer. 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 4080 or GEOG 5080 with a grade of C or better. Cross-listed with GEOG 5081. Term offered: spring, summer. 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 with a grade of C or better, or permission of instructor. Cross-listed with GEOG 5085. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4086 - FOSS4G Systems Integration

Focuses on the integration of different FOSS4G (Free and Open Source Software for Geospatial Applications) software and technologies to create geospatial information systems that access data from different sources, storage structures, and formats to provide information to support decision making processes. Prereq: GEOG 4091 or 5091,

and GEOG 4092 or 5092. Cross-listed with GEOG 5086. 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 with a grade of C or better, or permission of instructor. Cross-listed with GEOG 5090. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4091 - Open Source Software for Geospatial Applications

Students will master the individual use and integration of a stack of the most powerful Free and Open Source Software for Geospatial Applications (FOSS4G) to analyze spatial problems and create Spatial Data Infrastructures in different technological, socio-economic and organizational settings. Prereq: GEOG 4080 or 5080 with a grade of C or better, or permission of the instructor. Cross-listed with GEOG 5091. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4092 - GIS Programming and Automation

Students will learn the most commonly used programming language to automate GIS geoprocessing tasks and workflows in the latest versions of the most popular GIS systems. Cross-listed with GEOG 5092. Prereq: grade of B- or higher in GEOG 4080 or 5080 or similar course. 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, with a grade of C or better, computer science background, or permission of instructor. Cross-listed with GEOG 5095. Term offered: spring. 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. Note: this course assumes that students have completed an introductory human geography course. 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. 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. Note: this course assumes that students have completed GEOG 2202. Cross-listed with GEOG 5230. Term offered: fall. 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. Note: this course assumes that students have completed GEOG 4080 or GEOG 5080 and/or have a background in public health. Cross-listed with GEOG 5235, HBSC 7235. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4240 - Applied Geomorphology

Uses hands-on tasks and field trips to investigate processes behind Earth's changing landforms in a variety of physical landscapes (aeolian, volcanic, coastal, fluvial, karst, glacial and periglacial) as related to rock decay, soils and climatic forcings. 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 4251 - Fluvial Geomorphology

Examines interactions between Earth's surface and flowing water across spatial and

temporal scales. Considers structure and function of the major components of fluvial systems, with particular attention to the variety of fluvial systems to hydrologic, geologic and anthropogenic controls. Cross-listed with GEOG 5251, GEOL 4251 and GEOL 5251. Prereq: Students must have completed GEOG 1202 or GEOL 1072 or have graduate standing or gain instructor approval in order to register for this course. GEOG 3232 is strongly recommended, though not required. Max hours: 4 Credits. **Semester Hours:** 4 to 4

GEOG 4260 - Energy and Natural Resource 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 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Prereq: ENVS 1042. 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. Note: this course assumes that students have completed 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 4300 - Children's Geographies

This seminar is an interdisciplinary investigation of children, childhood and environment in the context of sustainability and equity. Theoretical and methodological perspectives are applied to understand children's interactions with/in different spaces. Cross-listed with GEOG 5300, ENVS 4300 and ENVS 5300. Restriction: Restricted to students with junior standing or higher or with instructor permission. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4301 - Population, Culture, and Resources

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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Students may not receive credit for this course if they have already received credit for GEOG 3301. Cross-listed with GEOG 5301. Prereq: Junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4305 - Water Quality and 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. Cross-listed with ENVS 5305. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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: 3 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 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 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. Cross-list ENVS 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. Note: this course assumes that students have completed 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. Note: this course assumes that students have completed GEOG 4450 and 4460. Cross-list ENV5 5470. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4480 - Urban Vegetable CSA: Planning, Production&Distribution

This course outlines the planning, production, and distribution in an active urban vegetable CSA (community supported agriculture) model. It is offered as a part of the GES Sustainable Urban Agriculture Certificate. Cross-listed with ENV5 5480. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4625 - Urban America: Colonial Times to the Present

Rise of the American city from colonial times to present. Major emphasis on the process of urbanization since 1840: town promotion, the industrial city, immigration, boss politics and reform, urban technology, transportation systems, minorities, city planning, and the future of urban America. Cross-listed with HIST 4225, HIST 5225, WGST 4225, WGST 5225, GEOG 4625. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4630 - Transportation, Land Use, and the Environment

Students will learn how transportation shapes regions, how people decide where to live and how to travel, and how these dynamics are central to sustainable development. Topics include smart growth, climate change mitigation, livability, air quality, travel behavior, active transportation, and transit-oriented development. 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 and 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 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 ENVS 5700. Breadth and depth training in environmental sciences. Interest in interdisciplinary collaboration. Prereq: Senior standing. 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. Note: this course assumes that students have completed GEOG 2202 or GEOG 3501. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4720 - Climate Change: Causes, Impacts and Solutions

Examines science behind past, present & future climate change & environmental, social

& political implications & solutions. Explores recent scientific research, syntheses & mainstream literature advancing knowledge about causes & consequences of natural & anthropogenic climate change. Prereq: GEOG 3232. Cross-listed with GEOG 5720/ ENVS 4720/ ENVS 5720. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4731 - Mountain Biogeography

This course utilizes the close proximity of the Rocky Mountains to examine altitudinal influences on species distributions. Topics include species patterns and distributions, disturbance, climate impacts, forest management and sustainability. Prereq: GEOG 1202 or ENVS 1042 or graduate standing or permission from the instructor is required in order to register for this course. Cross-listed with ENVS 5731. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4740 - Geography of Soils

Reviews chemical and physical properties of soils, soil development, and geographic distributions of soil types in the context of the role that soils play in natural and human-altered ecosystems. Cross-listed with GEOG 5740, ENVS 4740, ENVS 5740. 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 2080, or consent of instructor. Cross-listed with ENVS 5600. 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. Note: this course assumes that

students have completed an introductory geography or environmental science course. Prereq: Junior standing or higher. Cross-listed with GEOG 5850 and ENVS 4850/5850. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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: Junior standing or higher. 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. Note: this course assumes that students have completed GEOG 4940. Prereq: Junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 4990 - Special Topics

Max hours: 9 Credits. **Semester Hours:** 3 to 3

GEOG 4992 - Advanced Regional Field Study

Directed, hands-on study of concepts involved in understanding geographic regions. Utilizes field observations, field techniques/methods, & data observation, collection, analysis, & interpretation related to the specific region being studied. May include physical as well as cultural phenomena. Note: Instructor permission required. Cross-listed with GEOG 5992, ENVS 4992, ENVS 5992. Max hours: 12 Credits. **Semester Hours:** 1 to 6

GEOG 4995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. 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 GEOG 1302. Cross-listed with GEOG 5998 and ENVS 4998/5998. Max hours: 12 Credits. **Semester Hours:** 1 to 12

GEOG 5050 - Applied Spatial Statistics

Practice and application of spatial analytical and statistical methods using modern GIS and spatial statistical software. Topics include spatial data handling, interpolation, pattern analysis, cluster detection, visualization, and modeling. Prereq: Graduate standing and GEOG 4080 or GEOG 5080 with a grade of C or better. Note: an introductory course in statistics is strongly recommended for success in this course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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. Completion of GEOG 2080 with a C or better is recommended for optimal student success. Prereq: Graduate standing. Term offered: fall, spring, summer. 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: Graduate standing and GEOG 4060/5060 or permission of instructor. Cross-listed with GEOG 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. Prereq: Graduate standing. Term offered: fall, spring, summer. 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. Prereq: Graduate standing and GEOG 4080 or GEOG 5080 with a grade of C or better. Note: Completion of GEOG 2080 with a C or better is recommended for optimal student success. Term offered: fall, spring. 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: Graduate standing and GEOG 4080 or GEOG 5080 or permission of instructor. Cross-listed with GEOG 4085. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5086 - FOSS4G Systems Integration

Focuses on the integration of different FOSS4G (Free and Open Source Software for Geospatial Applications) software and technologies to create geospatial information systems that access data from different sources, storage structures, and formats to

provide information to support decision making processes. Prereq: GEOG 4091 or 5091, and GEOG 4092 or 5092. Cross-listed with GEOG 4086. 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: Graduate standing and GEOG 4080 or GEOG 5080 with a grade of C or better. Cross-listed with GEOG 4090. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5091 - Open Source Software for Geospatial Applications

Students will master the individual use and integration of a stack of the most powerful Free and Open Source Software for Geospatial Applications (FOSS4G) to analyze spatial problems and create Spatial Data Infrastructures in different technological, socio-economic and organizational settings. Prereq: Graduate standing and GEOG 4080 or GEOG 5080 with a grade of C or better. Cross-listed with GEOG 4091. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5092 - GIS Programming and Automation

Students will learn the most commonly used programming language to automate GIS geoprocessing tasks and workflows in the latest versions of the most popular GIS systems. Cross-listed with GEOG 4092. Prereq: Graduate standing and GEOG 4080 or GEOG 5080 with a grade of C or better. 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: Graduate standing and GEOG 4080 or GEOG 5080 with a grade of C or better. 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. Note: this course assumes that students have completed an introductory human geography course. Prereq: 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. Cross-listed with GEOG 4220, URPL 6549. Prereq: Graduate standing. 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. Note: this course assumes that students have completed GEOG 2202 or equivalent. Prereq: Graduate standing. 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. Note: this course assumes that students have completed GEOG 4080 or GEOG 5080 and/or have a background in public health. Cross-listed with GEOG 4235, HBSC 7235. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5240 - Applied Geomorphology

Uses hands-on tasks and field trips to investigate processes behind Earth's changing landforms in a variety of physical landscapes (aeolian, volcanic, coastal, fluvial, karst, glacial and periglacial) as related to rock decay, soils and climatic forcings. Note: this course assumes that students have completed GEOG 1202 or GEOL 1072 and GEOG 3232. Prereq: Graduate standing. Cross-listed with GEOL 4240, 5240 and GEOG 4240. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5251 - Fluvial Geomorphology

Examines interactions between Earth's surface and flowing water across spatial and temporal scales. Considers structure and function of the major components of fluvial systems, with particular attention to the variety of fluvial systems to hydrologic, geologic and anthropogenic controls. Cross-listed with GEOG 4251, GEOL 4251 and GEOL 5251. Prereq: Students must have completed GEOG 1202 or GEOL 1072 or have graduate standing or gain instructor approval in order to register for this course. GEOG 3232 is strongly recommended, though not required. Max hours: 4 Credits. **Semester Hours:** 4 to 4

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. Note: this course assumes that students have completed ENVS 1042 or equivalent. Prereq: Graduate standing. 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. Note: this course assumes that students have completed GEOG 1202 or GEOL 1072 or equivalent. Prereq: Graduate standing. Cross-listed with GEOG/GEOL 4270/5270. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5300 - Children's Geographies

This seminar is an interdisciplinary investigation of children, childhood and environment in the context of sustainability and equity. Theoretical and methodological perspectives are applied to understand children's interactions with/in different spaces. Cross-listed with GEOG 4300, ENVS 4300 and ENVS 5300. Restriction: Restricted to graduate level students or with instructor permission. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5301 - Population, Culture, and Resources

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. Note: Students may not receive credit for this course if they have already received credit for GEOG 3301. Cross-listed with GEOG 4301. Restriction: Restricted to graduate students. 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. Prereq: Graduate standing. Max hours: 3 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. 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. Note: this course assumes that students have completed GEOG 2202 or GEOG 3501. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5720 - Climate Change: Causes, Impacts and Solutions

Examines science behind past, present & future climate change & environmental, social & political implications & solutions. Explores recent scientific research, syntheses & mainstream literature advancing knowledge about causes & consequences of natural & anthropogenic climate change. Cross-listed with GEOG 4720/ ENVS 4720/ ENVS 5720. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5740 - Geography of Soils

Reviews chemical and physical properties of soils, soil development, and geographic distributions of soil types in the context of the role that soils play in natural and human-altered ecosystems. Prereq: graduate standing or permission of instructor. Cross-listed with GEOG 4740, ENVS 4740, ENVS 5740. 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. Note: this course assumes that students have completed an introductory geography or environmental science course. Prereq: Graduate standing. Cross-listed with GEOG 4850 and ENVS 4850/5850. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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 standing. Cross-listed with ENVS 4900, ENVS 5900, GEOG 4900. Max hours: 4 Credits. **Semester Hours:** 1 to 1

GEOG 5939 - Internship

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. 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 5992 - Advanced Regional Field Study

Directed, hands-on study of concepts involved in understanding geographic regions. Utilizes field observations, field techniques/methods, & data observation, collection, analysis, & interpretation related to the specific region being studied. May include physical as well as cultural phenomena. Note: Instructor permission required. Cross-listed with GEOG 4992, ENVS 4992, ENVS 5992. Max hours: 12 Credits. **Semester Hours:** 1 to 6

GEOG 5995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. 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. Note: this course assumes that students have completed GEOG 1202 and GEOG 1302. Prereq: Graduate standing. 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOG 6800 - Community-Based Research Practicum

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. Prereq: GEOG 6300, GEOG 6700, and GEOG 6750. Cross-list ENV5 6800. 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

Prereq: Graduate standing. Max hours: 6 Credits. **Semester Hours:** 1 to 6

GEOG 8990 - Doctor's Thesis

Prereq: Graduate standing. 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 1073 - Physical Geology: Surface Processes

This survey course develops a basic understanding of surface processes and landforms in geology. It includes one all-day field trip. Students must also take the accompanying laboratory GEOL 1074. No co-credit with GEOL 1072. Prereq or Co-req: GEOL 1074. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 1074 - Physical Geology: Surface Processes Laboratory

Introduces the basic scientific approach through investigations, observations, and experiments in surface processes and landforms in geology. Students must also take the accompanying lecture GEOL 1073. Prereq or Co-req: GEOL 1073. Max hours: 1 Credit. **Semester Hours:** 1 to 1

GEOL 1083 - Physical Geology: Internal Processes

This survey course develops a basic understanding of physical geology emphasizing the earth's interior, covering internal processes and properties, with plate tectonics as the underlying theme, Includes one all-day field trip. Students must also take the accompanying laboratory GEOL 1084. No co-credit with GEOL 1082. Prereq or co-req: GEOL 1084. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 1084 - Physical Geology: Internal Processes Laboratory

Introduces the basic scientific approach through investigations, observations, and experiments in internal geologic processes and properties of the earth's interior with plate tectonics as the underlying theme. Prereq or co-req: GEOL 1083. Max hours: 1 Credit. **Semester Hours:** 1 to 1

GEOL 1111 - First Year Seminar

Restriction: Restricted to Freshman level students. 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 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 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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. 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. Note: this course assumes that students have taken 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 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 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. Note: this course assumes that students have taken introductory geology-surface processes or an introductory biology course. Max hours: 4 Credits. **Semester Hours:** 4 to 4

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. 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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. Prereq: Junior standing or higher. 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. Term offered: fall. 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: Senior standing. Cross-listed with ENVS 5030 and GEOL 5030. 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. Note: GEOL 1072 or GEOG 1202 required, GEOL 3421 strongly recommended. Prereq: GEOG 1202 or GEOL 1072. Cross-listed with GEOL 5111. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 4240 - Applied Geomorphology

Uses hands-on tasks and field trips to investigate processes behind Earth's changing landforms in a variety of physical landscapes (aeolian, volcanic, coastal, fluvial, karst, glacial and periglacial) as related to rock decay, soils and climatic forcings. 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 4251 - Fluvial Geomorphology

Examines interactions between Earth's surface and flowing water across spatial and temporal scales. Considers structure and function of the major components of fluvial systems, with particular attention to the variety of fluvial systems to hydrologic, geologic and anthropogenic controls. Cross-listed with GEOG 4251, GEOG 5251 and GEOL 5251. Prereq: Students must have completed GEOG 1202 or GEOL 1072 or have graduate standing or gain instructor approval in order to register for this course. GEOG 3232 is strongly recommended, though not required. Max hours: 4 Credits. **Semester Hours:** 4 to 4

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 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 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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 GEOL 1082. 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. Note: students should obtain permission of project director prior to enrolling in this course. Prereq: Graduate standing. 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. 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. 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. Note: students should be enrolled in the MSES program to take this course. All other students should consult with the instructor and obtain their permission prior to registering for this course. Prereq: Graduate standing. Cross-listed with GEOL 4030 and ENVS 5030. 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. Note: this course assumes that students have completed GEOL 1072 or GEOG 1202. GEOL 3421 is strongly recommended. Prereq: Graduate standing. Cross-listed with GEOL 4111. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 5240 - Applied Geomorphology

Uses hands-on tasks and field trips to investigate processes behind Earth's changing landforms in a variety of physical landscapes (aeolian, volcanic, coastal, fluvial, karst, glacial and periglacial) as related to rock decay, soils and climatic forcings. Note: this course assumes that students have completed GEOG 1202 or GEOL 1072 and GEOG 3232. Prereq: Graduate standing. Cross-listed with GEOG 4240, 5240 and GEOL 4240. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GEOL 5251 - Fluvial Geomorphology

Examines interactions between Earth's surface and flowing water across spatial and temporal scales. Considers structure and function of the major components of fluvial systems, with particular attention to the variety of fluvial systems to hydrologic, geologic and anthropogenic controls. Cross-listed with GEOG 4251, GEOG 5251 and GEOL 4251. Prereq: Students must have completed GEOG 1202 or GEOL 1072 or have graduate standing or gain instructor approval in order to register for this course. GEOG

3232 is strongly recommended, though not required. Max hours: 4 Credits. **Semester Hours:** 4 to 4

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. Note: this course assumes that students have completed GEOG 1202 or GEOL 1072. Prereq: Graduate standing. Cross-listed with GEOG/GEOL 4270/5270. 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. Note: this course assumes that students have completed MATH 2411 and CVEN 2121. Prereq: Graduate standing. Cross-listed with GEOL 4780 and CVEN 5780. Max hours: 4 Credits. **Semester Hours:** 4 to 4

GEOL 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

GEOL 5939 - Internship

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Prereq: Graduate standing. Max hours: 9 Credits. **Semester Hours:** 1 to 6

GEOL 5950 - Master's Thesis

Prereq: Graduate standing. 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. Note: this course assumes that students have completed GEOL 1072 and GEOL 1082 or equivalent. Prereq: Graduate standing. Cross-listed with GEOL 4995. Max hours: 12 Credits. **Semester Hours:** 3 to 9

GEOL 6840 - Independent Study: GEOL

Prereq: Graduate standing. Max hours: 9 Credits. **Semester Hours:** 1 to 3

GEOL 6950 - Master's Thesis

Prereq: Graduate standing. Max hours: 8 Credits. **Semester Hours:** 1 to 8

GEOL 6960 - Master's Project

Prereq: Graduate standing. 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. Term offered: fall. 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. Note: This course assumes that students have passed GRMN 1010 or equivalent, or have taken one year of high school German, or possess equivalent proficiency. A grade of C- or higher in GRMN 1010 is recommended for success in this course. This course is not intended for native speakers. Term offered: spring. Max hours: 5 Credits. **Semester Hours:** 5 to 5

GRMN 1111 - First Year Seminar

Restriction: Restricted to Freshman level students. Max hours: 3 Credits. **Semester Hours:** 1 to 3

GRMN 1995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. Max hours: 15 Credits. **Semester Hours:** 1 to 15

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. Note: This course assumes that students have passed GRMN 1020 or equivalent, or have taken two years of high school German, or possess equivalent proficiency. A grade of C- or higher in GRMN 1020 is recommended for success in this course. This course is not intended for native speakers. 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. Note: This course assumes that students have passed GRMN 2110 or equivalent, or have taken three years of high school German, or possess equivalent proficiency. A grade of C- or higher in GRMN 2110 is recommended for success in this course. This course is not intended for native speakers. 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. Note: This course assumes that students have passed GRMN 2110 or equivalent, or have taken three years of high school German, or possess equivalent proficiency. A grade of C- or higher in GRMN 2110 is recommended for success in this course. This course is not intended for native speakers. 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. Note: This course assumes that students have passed GRMN 2110 or 2210 or equivalent, or possess equivalent proficiency. 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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. Prereq: Sophomore standing. Max hours: 9 Credits. **Semester Hours:** 1 to 3

GRMN 2995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global 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. Note: This course assumes that students have passed GRMN 2130 or equivalent, or have taken four years of high school German, or possess equivalent proficiency. 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. Note: This course assumes that students have passed GRMN 2130 or equivalent, or have taken four years of high school German, or possess equivalent proficiency. 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. Note: This

course assumes that students have passed GRMN 2130 or equivalent, or have taken four years of high school German, or possess equivalent proficiency. 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. Note: This course assumes that students have passed GRMN 2130 or equivalent, or have taken four years of high school German, or possess equivalent proficiency. 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. Note: This course assumes that students have passed GRMN 2130 or equivalent, or have taken four years of high school German, or possess equivalent proficiency. 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. Note: This course assumes that students have passed GRMN 2130 or equivalent, or have taken four years of high school German, or possess equivalent proficiency. 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. Note: This course assumes that students have passed GRMN 2110 or equivalent, or have taken three years of high school German, or possess equivalent proficiency. 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. Note: This course assumes that students have passed a third-year German course, or possess equivalent proficiency. 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. 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). Note: This course assumes that students have passed GRMN 2130 or equivalent, or

have taken four years of high school German, or possess equivalent proficiency. 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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. Prereq: Junior standing. 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. Note: This course assumes that students have passed GRMN

3050 or equivalent, or possess equivalent proficiency. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 4690 - Methods of Teaching Modern Languages

Studies the methods and practices of teaching modern languages. Note: requirement for language majors in the teacher certification program, School of Education, CU Denver. This course is taught in English and does not fulfill the foreign language proficiency requirement for the College of Liberal Arts and Sciences. Cross-listed with MLNG 4690, MLNG 5690, SPAN 4690, SPAN 5690, FREN 4690, FREN 5690, GRMN 5690, CHIN 4690, CHIN 5690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 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. Cross-listed with MLNG 4691, MLNG 5691, SPAN 4691, SPAN 5691, FREN 4691, FREN 5691, GRMN 5691, CHIN 4691, CHIN 5691. Prereq: MLNG 4690 or SPAN 4690 or FREN 4690 or GRMN 4690 or CHIN 4690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 4840 - Independent Study: GRMN

Max hours: 12 Credits. **Semester Hours:** 1 to 3

GRMN 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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 5690 - Methods of Teaching Modern Languages

Studies the methods and practices of teaching modern languages. Note: requirement for those wishing to be teaching assistants in the Department of Modern Languages, and for language majors in the teacher certification program, School of Education, CU Denver. This course is taught in English and does not fulfill the foreign language proficiency requirement for the College of Liberal Arts and Sciences. Cross-listed with MLNG 4690, MLNG 5690, SPAN 4690, SPAN 5690, FREN 4690, FREN 5690, GRMN 4690, CHIN 4690, CHIN 5690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 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. Cross-listed with MLNG 4691, MLNG 5691, SPAN 4691, SPAN 5691, FREN 4691, FREN 5691, GRMN 4691, CHIN 4691, CHIN 5691. Prereq: MLNG 5690 or SPAN 5690 or FREN 5690 or GRMN 5690 or CHIN 5690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

GRMN 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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 6230 - Political Risk Management for Global Energy Environmen

The course examines public influence on energy business activities. Students will explore the economics of political action and methods for evaluating how stakeholder groups interact to influence political outcomes. They will use these tools to develop strategies for stakeholder engagement and to manage business risks. 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: 6 Credits. **Semester Hours:** 1 to 3

GEMM 6840 - Independent Study

Allow students to gain additional experience in a particular realm of energy business that interest them and suit their ultimate career goals. 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. Cross-listed with RLST 1010. 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

GREK 2840 - Independent Study - GREK

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments

and outcomes, to the CLAS undergraduate advising office for approval. Max hours: 3 Credits. **Semester Hours:** 1 to 3

GREK 4840 - Independent Study - GREK

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Max hours: 12 Credits. **Semester Hours:** 1 to 3

GREK 5840 - Independent Study - GREK

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Max hours: 12 Credits. **Semester Hours:** 1 to 3

Health Administration

HLTH 5939 - Internship

Semester Hours: 1 to 3

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 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. Restriction: Restricted to HLAD and MBAH majors within the Business School. 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 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. Restriction: Restricted to Graduate Level Students. Cross-listed with HBSC 7320, ANTH 6041. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 6500 - Women and War

Appraise women's experiences and selected issues related to war-time service, including women's roles during war, gender-specific policies, military sexual trauma, reintegration, and effects of deployment on mental and physical health. Prereq: Graduate standing required. Term offered: summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 6840 - Independent Study: HBSC

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. 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. Restriction: Restricted to Graduate Level Students. Term offered: fall. 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. Term offered: fall. 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. Term offered: spring. 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. Term offered: fall. 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. Term offered: spring. 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. Restriction: Restricted to Graduate Level Students. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HBSC 7061 - Quantitative Methods in the Health and Behavioral Sciences

This course introduces students to multivariate regression methods - a set of statistical models that relate an outcome variable to a set of predictor variables. The course emphasizes understanding and applying regression models to address social science

research questions. Restriction: Restricted to students admitted into the Health and Behavioral Sciences program. 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. Restriction: Restricted to students admitted into the Health and Behavioral Sciences program (HBSC-PHD). Term offered: fall. 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. Term offered: spring. 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

Restriction: Restricted to Graduate Level Students admitted into the Health and Behavioral Sciences program. Max hours: 8 Credits. **Semester Hours:** 6 to 8

HBSC 7161 - Quantitative Methods in Health&Behavioral Sciences II

This course introduces students to advanced multivariate regression methods (e.g., generalized linear models, survival models, hierarchical models). This course emphasizes the application of advanced regression methods to test social and behavioral science theories related to health. Restriction: Restricted to students admitted

into the Health and Behavioral Sciences program. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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. Restriction: Restricted to Graduate Level Students. 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. Restriction: Restricted to Graduate Level Students. A basic statistics class is strongly recommended for optimal success. 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. Restriction: Restricted to Graduate Level Students. 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. Term offered: fall. 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. Restriction: Restricted to Graduate Level Students. One year of college chemistry and one year of college biology are strongly recommended for optimal success. 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. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 3 to 3

HBSC 8990 - Doctoral Dissertation

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Prereq: Admission to the Health and Behavioral Sciences program. Term offered: fall, spring, summer. Max hours: 30 Credits. **Semester Hours:** 1 to 10

Health Humanities

HEHM 3100 - Introduction to Health Humanities

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. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HEHM 3570 - Death & Dying: Social & Medical Perspectives

Focusing on death, dying and bereavement using medical and social perspectives, this course explores how illness, prolonged dying and sudden death impact care providers, families and communities. Discussion, film, readings and music address the connection of social and medical issues. Cross-listed with SOCY 3570. Max hours: 3 Credits.

Semester Hours: 3 to 3

HEHM 4840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Prereq: Permission of instructor. Max hours: 12 Credits. **Semester Hours:** 1 to 6

HEHM 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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:** 1 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. Cross-listed: Varies by semester. Max hours: 12 Credits. **Semester Hours:** 6 to 6

HIPR 6210 - Historic Buildings in Context

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. Cross-listed with ARCH 6233. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIPR 6220 - Adaptive Reuse: Business and Practice

Existing buildings and infrastructure afford challenges and opportunities for reuse. This course explores the business, and financial aspects of adapting the built environment for contemporary uses. The course is suitable for designers, planners, historians and social scientists. Restriction: Restricted to majors within the College of Architecture and Planning. Cross-listed with ARCH 6356. 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. Term offered: fall, spring. 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. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 1111 - First Year Seminar

Restriction: Restricted to Freshman level students. 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. Term offered: fall, spring. 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. Term offered: fall, spring. 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. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. 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. Term offered:

fall, spring. 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. Term offered: fall, spring, summer. 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: Students must have completed 15 hours of HIST courses with a 2.75 GPA and must work with Experiential Learning Center advising to complete a course contract and gain approval. 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. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3070 - Film History

Studies the history of cinema from a variety of perspectives: the evolution of technology, the development of film as business, artistic film movements, the growth of genres, and the work of major filmmakers in both the US and abroad. Topics vary. Cross-listed with ENGL 3070. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Term offered: fall, spring, summer. 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. Term offered: spring. 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 3260 - Digital Studies and Strategies

This interdisciplinary course emphasizes developing media production, web, and GIS skills to design individual and group media projects based on students' research. Critiques and readings examine the successful confluence of media and historical content along with digital dissemination strategies. Cross-listed with HIST 5260. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3297 - Social History of Asian Americans

This introductory-level course surveys the social history of Asian American groups from the mid-19th century to the present. We will examine immigration patterns, the development of communities, social and economic problems, and anti-Asian movements and activities. Cross-listed with SOCY 3297 and ETST 3297. 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. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. 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 - Nature and Power in American History

This course explores the relationships between human societies and environmental change in the history of North America. Cross-listed with HIST 5366. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 3480 - Introduction to European History

This course examines the major events and influences that have shaped modern Europe, including monarchies, the Enlightenment, the Industrial Revolution, the rise of political ideologies, the French and Russian Revolutions, capitalism, imperialism, and two World Wars in the twentieth century. Note: This course may count for the

International Studies major or minor. See your INTS advisor for more information. 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 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. Cross-listed with RLST 3486. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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. Term offered: fall, summer. 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 3616 - Global History of Energy

Explores the history of human energy use on local, national, and international scales, examining its social, political, and economic effects, and its implications for the environment. 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

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. 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: Students must have 15 hours of HIST courses completed with 2.75 GPA and must work with Experiential Learning Center advising to complete a course contract and gain approval. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Cross-listed with HIST 5032. Term offered: fall, spring, summer. 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. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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 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 American popular culture from the early 1800s to the present. By tracing the development of various entertainment media, including theater, music, movies, and television sitcoms, this course probes how popular culture both reflected and shaped American values and behavior. 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, WGST 4225, WGST 5225, GEOG 4625. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4226 - Capitalism in America

Explores the social, cultural, and political history of American capitalism from colonial times. Topics include entrepreneurship, labor, territorial and trading expansion, industrialization, the rise of corporations, economic cycles, technological developments, and the role of the state, all within global contexts. 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 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 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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

Trading raw material & processed goods internationally has greatly affected world

cultures & geopolitics. Tracing commodity chains since 1500 for food, fuel, industrial material & products, & intellectual property, this course will conclude with the effects of current regulations, marketing & environmental concerns. 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 - Living through 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. Note: This course may count for the International Studies major or

minor. See your INTS advisor for more information. 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 4461 - The Modern Middle East

Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Cross-listed with HIST 5461. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4462 - Islam in Modern History

This course studies Islamic thought and practice over the last two centuries in terms of major historical processes that have operated at local, national, and global scales. Cross-listed with HIST 5462, RLST 4462, RLST 5462. 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 4490 - Weapons of Mass Destruction

Weapons of mass destruction have affected politics, health, and environments around the globe. This course will examine the development, use, and consequences of these modern technologies of war and terror. Cross-listed with HIST 5490. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4491 - United States History, 1865-1919

Surveys the major intersections of politics, culture, and society in American history between 1865 and 1919. The course will be attentive to the diversity of American experiences and will explore domestic and international themes in United States history. Cross-listed with HIST 5491. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4492 - United States History, 1919-1945

Surveys the major intersections of politics, culture, and society in American history between 1919 and 1945. The course will be attentive to the diversity of American experiences and will explore both domestic and international themes in United States history. Cross-listed with HIST 5492. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4493 - United States History, 1945-1973

Surveys the major intersections of politics, culture, and society in American history between 1945 and 1973. The course will be attentive to the diversity of American experiences and will explore both domestic and international themes in United States history. Cross-listed with HIST 5493. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4494 - Red and Blue America: U.S. History, 1973-Present

Surveys the major intersections of politics, culture, and society in American history since 1973. The course will be attentive to the diversity of American experiences and will explore both domestic and international themes in United States history. Cross-listed with HIST 5494. 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 transoceanic exchanges, relations, and transformations in 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. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 4840 - Independent Study: HIST

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. 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. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. 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

Directed by CU Denver History faculty, students participate in and judge National History Day in Colorado. They gain teaching experience mentoring students preparing social-studies and literacy-based projects. Their papers are based on scholarly readings and analyses of their experiences in middle and high schools. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS

undergraduate advising office for approval. Prereq: Permission of department chair.
Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 1 to 3

HIST 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to

Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. Cross-listed with HIST 4032. Term offered: fall, spring, summer. 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. Restriction: Restricted to Graduate Level students. 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? Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. Cross-listed with HIST 4076. 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. Restriction: Restricted to Graduate Level students. Cross-listed with HIST 4083. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. Cross-listed with HIST 4213. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5216 - History of American Popular Culture

Explores American popular culture from the early 1800s to the present. By tracing the development of various entertainment media, including theater, music, movies, and television sitcoms, this course probes how popular culture both reflected and shaped American values and behavior. Restriction: Restricted to graduate students. 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. Restriction: Restricted to Graduate Level 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. Cross-listed with HIST 4225, WGST 4225, WGST 5225, GEOG 4625. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5226 - Capitalism in America

Explores the social, cultural, and political history of American capitalism from colonial times. Topics include entrepreneurship, labor, territorial and trading expansion, industrialization, the rise of corporations, economic cycles, technological developments, and the role of the state, all within global contexts. Restriction: Restricted to Graduate

Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. Cross-listed with HIST 4234. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. Cross-listed with HIST 4245. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5260 - Digital Studies and Strategies

This interdisciplinary course emphasizes developing media production, web, and GIS skills to design individual and group media projects based on students' research. Critiques and readings examine the successful confluence of media and historical content along with digital dissemination strategies. Cross-listed with HIST 3260. 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. Restriction: Restricted

to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. Cross-listed with HIST 4345 and WGST 4345/5345. 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.

Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. Cross-listed with HIST 4348. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5366 - Nature and Power in American History

This course explores the relationships between human societies and environmental change in the history of North America. Cross-listed with HIST 3366. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate level students. 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. Restriction: Restricted to Graduate level students. Cross-listed with HIST 4415. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5417 - Commodities and Globalization

Trading raw material & processed goods internationally has greatly affected world cultures & geopolitics. Tracing commodity chains since 1500 for food, fuel, industrial material & products, & intellectual property, this course will conclude with the effects of current regulations, marketing & environmental concerns. Restriction: Restricted to graduate students. Cross-listed with HIST 4417. 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. Restriction: Restricted to Graduate level students. 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. Restriction: Restricted to Graduate level students. Cross-listed with HIST 4421. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5422 - Living through 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. Restriction: Restricted to Graduate level students. 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. Restriction: Restricted to Graduate level students. 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. Restriction: Restricted to Graduate level students. 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. Restriction: Restricted to Graduate level students. Cross-listed with HIST 4455. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5461 - The Modern Middle East

Restriction: Restricted to Graduate level students. Cross-listed with HIST 4461. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5462 - Islam in Modern History

This course studies Islamic thought and practice over the last two centuries in terms of major historical processes that have operated at local, national, and global scales. Restriction: Must have graduate standing in order to enroll in this course. Cross-listed with HIST 4462, RLST 4462, RLST 5462. 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. Restriction: Restricted to Graduate level students. 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. Restriction: Restricted to Graduate level students. 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. Restriction: Restricted to Graduate level students. Cross-listed with HIST 4475. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5490 - Weapons of Mass Destruction

Weapons of mass destruction have affected politics, health, and environments around the globe. This course will examine the development, use, and consequences of these modern technologies of war and terror. Restriction: Must have graduate standing in order to enroll in this course. Cross-listed with HIST 4490. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5491 - United States History, 1865-1919

Surveys the major intersections of politics, culture, and society in American history between 1865 and 1919. The course will be attentive to the diversity of American experiences and will explore domestic and international themes in United States history. Restriction: Restricted to Graduate level students. Cross-listed with HIST 4491. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5492 - United States History, 1919-1945

Surveys the major intersections of politics, culture, and society in American history between 1919 and 1945. The course will be attentive to the diversity of American experiences and will explore both domestic and international themes in United States history. Restriction: Restricted to Graduate level students. Cross-listed with HIST 4492. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5493 - United States History, 1945-1973

Surveys the major intersections of politics, culture, and society in American history between 1945 and 1973. The course will be attentive to the diversity of American experiences and will explore both domestic and international themes in United States history. Restriction: Restricted to Graduate level students. Cross-listed with HIST 4493. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5494 - Red and Blue America: U.S. History, 1973-Present

Surveys the major intersections of politics, culture, and society in American history since 1973. The course will be attentive to the diversity of American experiences and will explore both domestic and international themes in United States history. Restriction: Restricted to Graduate level students. Cross-listed HIST 4494. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5503 - Topics in History of Science

Themes vary from year to year. Possible topics: Darwinism, Nature of Memory, Time and Space, Origins. Restriction: Restricted to Graduate level students. 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. Restriction: Restricted to Graduate level students. 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. Restriction: Restricted to Graduate level students. Cross-listed with HIST 4621. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5622 - Oceans In History

Explores transoceanic exchanges, relations, and transformations in 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. Restriction: Restricted to Graduate level students. 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. Restriction: Restricted to Graduate level students. Cross-listed with HIST 4645. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 5810 - Special Topics

Prereq: Graduate standing (Grad or Non-Degree Grad). Cross-listed with HIST 4810. Max hours: 9 Credits. **Semester Hours:** 1 to 3

HIST 5840 - Independent Study: History

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 3

HIST 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

HIST 5939 - Internship

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. 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. Restriction: Restricted to Graduate level students. Max hours: 15 Credits. **Semester Hours:** 1 to 15

HIST 6013 - Introduction to the Professional Study of History

Restriction: Restricted to Graduate level students. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HIST 6840 - Independent Study: HIST

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 3

HIST 6931 - Readings: Special Subjects in History

Readings in topics in history with varying subtitles reflecting course content. Restriction: Restricted to Graduate level students. Term offered: fall, spring. Max hours: 6 Credits. **Semester Hours:** 3 to 3

HIST 6939 - Internship

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Max hours: 9 Credits. **Semester Hours:** 1 to 6

HIST 6940 - Comprehensive Exam

Preparation for and completion of comprehensive examination for History MA. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 1 Credit. **Semester Hours:** 1 to 1

HIST 6950 - Master's Thesis

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. 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. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Prereq: Permission of instructor. Term offered: fall, spring, summer. 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. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

HIST 6989 - Seminar: Special Subjects in History

Restriction: Restricted to Graduate level students. Term offered: fall, spring. 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. Restriction: Restricted to Graduate level students. 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 1030 - Who am I? Cultural Identity, Family, Diverse Soc Sys

This course will use ecological systems theory perspectives as a foundation for understanding diverse Latino family dynamics, the intersection between Latino families, schools and community systems and other critical issues that Latino family systems face in the United States. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 1050 - Trailblazing and Leading in Student Affairs: Student Affairs Leadership Dev

This course provides a basic introduction to student affairs development practices and perspectives. The course provides an exploration of student affairs leadership identity and college student's leadership role in higher education environments. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 1080 - Lifespan Issues in Family Violence

This course examines family violence over the lifespan from family system and ecological perspectives. The course explores development, definitions, theory, correlates, and the occurrence of family violence over the lifespan; including practice, interventions, and policy within school and community contexts. Max Hours: 3 Credits.

HDFR 1111 - Freshman Seminar

Restriction: Restricted to Freshman level students. 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 2080 - Sex, Human Development and Family Systems

Students will become familiar with human sexuality across the life span through behavioral science and ecological perspectives. Different aspects of sexuality including behavioral, biological, developmental and cultural will be examined Implications for working with individuals, families, and couples through a behavioral science context will be explored. 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 3002 - Preparing to be a HDFR Professional

In a seminar format, students will examine the ethics, value systems, and family policies and law affecting the Human Development and Family Relations profession. Students will utilize tools of professional preparation including goal-setting, building/refining resumes, and marketing skills and abilities. Restriction: Faculty or Academic Advisor approval is required to register. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 3020 - Black and Latino Children in Families and Schools

This course will use ecological systems theory perspectives as a foundation for students to develop their understanding about Black and Latino children as members of family systems, school systems and community systems within cultural contexts. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 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. 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 3250 - 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 3400 - Love, Couples and Family

This course examines the development and maintenance of couple and family relationships through family therapy based concepts, family systems theories and other

family theories. Topics include communication patterns, stress and conflict management, decision making and goal-setting within the family. 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 4001 - Families and Parenting

This course provides an advanced overview of theories and practices that impact culturally and linguistically diverse families and the parenting process through family systems and ecological perspectives. Specifically, there is a focus on the parent-child relationship through adolescence. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 4002 - Family Life and Community Programming I

This course teaches the principles, philosophies, models, and strategic methods of family life education for strengthening interpersonal and family relationships. Culturally competent students will learn about the development and implementation of effective educational programs and experiences within different community settings. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 4003 - Leadership and Organizations

This course provides an understanding of leadership theory and practice in community and educational environments. Students will learn about important aspects about leading diverse community and educational organizations including staff supervision, strategic planning, advancing the organization and maintaining integrity. Cross-listed with HDFR 5003. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 4004 - Family and Comm. Prog. II Grant Writing/Fundraising

This course provides an understanding of developing skills on grant writing and fundraising as related to family, community and educational organizations/agencies. Students will learn about important aspects about grant writing, fundraising

fundamentals and funding models for sustainability. Cross-listed with HDFR 5004. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 4010 - 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. Cross-listed with HDFR 5010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 4040 - Latino Families in School and Communities

This course will use ecological systems theory perspectives as a foundation for understanding diverse Latino family dynamics, the intersection between Latino families, schools and community systems and other critical issues that Latino family systems face in the United States. Cross-listed with HDFR 5040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 4045 - Abuelos (Grandparents) Latino Families

The course will focus on the social gerontology of Latinos families in later life. Specifically, the course will examine how ecological factors including familial, cultural, social, economic, health, cognitive and educational, impact the lives of Latino older person's in the contexts of family systems. Cross-listed with HDFR 5045. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 4050 - Foundations of Student Affairs

This course examines theories of college student development including student learning and growth during the postsecondary years. This course will provide an introduction to psychosocial, cognitive, moral, and social identity development theories used to explain college student development. Cross-listed with COUN 5050. Max hours: 6 Credits. **Semester Hours:** 3 to 3

HDFR 4075 - Family Policy & Law

In this course students will identify, develop, implement and evaluate social policies and laws that effect the well-being of families. Through a family systems perspective, students will examine the law, social services, education, the economy, religion, and

politics impact families. Cross-listed with HDFR 5075. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 4080 - Global Family Resource Management

This course examines the allocation of family resources (social, financial and material assets), the influence of various ecological systems, the effect on family functioning and goal-setting from a global perspective. Practical applications for Family Relations professionals are included. Cross-listed with HDFR 5080. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 4090 - Helping Profession Skills in HDFR

This course is designed to provide an overview of essential skills required in a variety of helping situations and settings. Course content includes the development of accurate listening, empathy, reflection, and inquiry skills. Implications for working with individuals, families, and couples will be examined. Cross-listed with HDFR 5090. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 4110 - 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. Cross listed with EDHD 5110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 4130 - College Student Development

This course examines theories of college student development including student learning and growth during the postsecondary years. This course will provide an introduction to psychosocial, cognitive, moral, and social identity development theories used to explain college student development. Cross-listed with COUN 5130. Max hours: 6 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 4240 - 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. Cross listed with EDHD 5240. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 4260 - Family Systems and Social Justice

Relying on ecological systems theories, this course will introduce students to families and family systems. Students will investigate how families experience (in)justice in the areas of access to education, community services, and employment. Cross-listed with HDFR 5260. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 4300 - Families in Later Life

Students will become familiar with the importance of families in later life. Through family systems and ecological systems theories, this course is designed to provide an understanding of the importance of family relationships and implications for practice, research, and policy. Cross-listed with HDFR 5300. 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

HDFR 4888 - LGBTQ Family Systems

This course examines diverse Lesbian, Gay, Bisexual, Transgender and Queer (LGBTQ) family systems through ecological systems perspectives and family theories. The course provides an exploration of contemporary research, policy and practice as it pertains to LGBTQ families. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 4910 - Practicum

This course provides supervised field experience to Human Development and Family Relations students. Students will apply theory and evidence-based knowledge in professional situations, enhancing the development of their professional identities and career goals by working within and evaluating community-based organizations. Prereq: HDFR 3002. Max hours: 5 Credits. **Semester Hours:** 1 to 5

HDFR 4930 - Human Development and Family Relations Internship

This course provides supervised practicum/field experience to Human Development and Family Relations students. Students will apply theory and evidence-based knowledge in professional situations, enhancing the development of their professional identities and career goals by working within and evaluating community-based organizations. Prereq: HDFR 3002. Max hours: 5 Credits. **Semester Hours:** 1 to 5

HDFR 5002 - Family Life and Community Programming I

This course teaches the principles, philosophies, models, and strategic methods of family life education for strengthening interpersonal and family relationships. Culturally competent students will learn about the development and implementation of effective educational programs and experiences within different community settings. Cross-listed with HDFR 4002. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 5003 - Leadership and Organizations

This course provides an understanding of leadership theory and practice in community and educational environments. Students will learn about important aspects about leading diverse community and educational organizations including staff supervision, strategic planning, advancing the organization and maintaining integrity. Cross-listed with HDFR 4003. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 5004 - Family and Comm. Prog. II Grant Writing/Fundraising

This course provides an understanding of developing skills on grant writing and fundraising as related to family, community and educational organizations/agencies. Students will learn about important aspects about grant writing, fundraising fundamentals and funding models for sustainability. Cross-listed with HDFR 4004. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 5010 - 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. Cross-listed with HDFR 4010. Max hours: 3 Credits.

Semester Hours: 3 to 3

HDFR 5020 - Black and Latino Children in Families and Schools

With a focus on application of scholarship to practice, this interdisciplinary course will introduce graduate students to scholarly literature from family sciences, sociology, education and related fields to understand Black and Latino children within family, school and community systems. Restriction: Restricted to graduate level students. Cross-listed with ETST 5021. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 5040 - Latino Families in School and Communities

This course will use ecological systems theory perspectives as a foundation for understanding diverse Latino family dynamics, the intersection between Latino families, schools and community systems and other critical issues that Latino family systems face in the United States. Cross listed with HDFR 4040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 5045 - Abuelos (Grandparents) Latino Families

The course will focus on the social gerontology of Latinos families in later life. Specifically, the course will examine how ecological factors including familial, cultural, social, economic, health, cognitive and educational, impact the lives of Latino older person's in the contexts of family systems. Cross-listed with HDFR 4045. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 5075 - Family Policy & Law

In this course students will identify, develop, implement and evaluate social policies and laws that effect the wellbeing of families. Through a family systems perspective, students will examine the law, social services, education, the economy, religion, and politics impact families. Cross-listed with HDFR 4075. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 5080 - Global Family Resource Management

This course examines the allocation of family resources (social, financial and material assets), the influence of various ecological systems, the effect on family functioning and goal-setting from a global perspective. Practical applications for Family Relations professionals are included. Cross-listed with HDFR 4080. Max hours: 3 Credits.

Semester Hours: 3 to 3

HDFR 5090 - Helping Profession Skills in HDFR

This course is designed to provide an overview of essential skills required in a variety of helping situations and settings. Course content includes the development of accurate listening, empathy, reflection, and inquiry skills. Implications for working with individuals, families, and couples will be examined. Prereq: COUN 5010. Cross-listed with HDFR 4090. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 5180 - Family and Community-Centered Classroom Practice

nsive course is designed to help teachers develop a responsive, collaborative, and theorybased understanding of the interaction of schools, families and the local community. In this course, you will examine the impact that various social interactions had on yourself, a student's family, and the community as a whole. Max hours: 3 Credits.

Semester Hours: 3 to 3

HDFR 5260 - Family Systems Social Justice

Relying on ecological systems theories, this course will introduce students to families and family systems. Students will investigate how families experience (in)justice in the areas of access to education, community services, and employment. Cross-listed with HDFR 4260. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 5300 - Families in Later Life

Students will become familiar with the importance of families in later life. Through family systems and ecological systems theories, this course is designed to provide an understanding of the importance of family relationships and implications for practice, research, and policy. Cross-listed with HDFR 4300. Max hours: 3 Credits. **Semester**

Hours: 3 to 3

HDFR 6000 - Family Theories

Students will examine the methods of inquiry and the basic foundations of contemporary family theory. Using a family systems perspective, students will utilize and analyze theory in the exploration of diverse and changing family dynamics in a societal context. Cross-listed with HDFR 7000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 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. Cross-listed with EDHD 7120. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 7000 - Family Theories

Students will examine the methods of inquiry and the basic foundations of contemporary family theory. Using a family systems perspective, students will utilize and analyze theory in the exploration of diverse and changing family dynamics in a societal context. Cross-listed with HDFR 6000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 7240 - Latin@ Families in Schools and Communities

This course will use ecological systems theory perspectives as a foundation for understanding diverse Latino family dynamics, the intersection between Latin@ families, schools and community systems, mental health systems, and other critical issues that Latin@ family systems face in the United States. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HDFR 7260 - Family Diversity and Social Justice

Through this course, students will explore theory and research on the family, using interdisciplinary research and theory to inform their knowledge and generation of questions that recognize the challenges faced by diverse families in a shifting societal and national environment. Restriction: Graduate level students. 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. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 1111 - First Year Seminar

Restriction: Restricted to Freshman level students. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 4251 - Introduction to Legal Studies

A survey of the United States legal system, including lawmaking powers, jurisdiction, court procedures, professional ethics and major principles of business law, contracts, estates and probate, family law, property and torts. Cross-listed with HUMN 5251/SSCI 4241/SSCI 5251. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 4325 - First Amendment: Theory and Context

First Amendment jurisprudence including free speech/responsibility, sedition/seditious libel/dissent, prior restraints, time/place/manner restrictions, hate/intimidating speech, defamation, privacy/security tensions, intellectual property/public good, advertising, corporate speech, sexual expression, and public status of religion. Cross-listed with HUMN 5325, SSCI 4325, SSCI 5325, PSCI 4325 and PSCI 5325. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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. Term offered: fall, spring. 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. Restriction: Restricted to Graduate level students. Cross-listed with PHIL 4000/5000 and SSCI 5000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5013 - Methods and Practices of Graduate Interdisciplinary Humanities

The second of three required Master of Humanities core courses, this course introduces beginning graduate students to methodologies and intellectual frameworks for gathering, organizing, and developing interdisciplinary research. Focus is on the application of theories and methods of research, interpretation and analysis in humanistic research through readings that explore philosophical and cultural discourses have altered theory and method. Course note: Students must repeat this course if they earn a C+ or lower and must have permission from the instructor to repeat the course. Students will only earn 3 credits for this course, even if they must repeat it. Restriction: Restricted to Graduate Level Students. Cross-listed with PHIL/SSCI 5013. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5020 - Foundations and Theories of Interdisciplinary Social Science

The first of the Master of Social Science core courses, this course exposes beginning graduate student to critical , key analytic models, and their application in disciplines that comprise the social sciences (classical anthropology, sociology, sociology of religion, philosophy of history, political theory, classical psychology, etc.) for the purpose of graduate-level interdisciplinary social science research. Course note: Students must repeat this course if they earn a C+ or lower and must have permission from the instructor to repeat the course. Students will only earn 3 credits for this course, even if they must repeat it. Restriction: Restricted to Graduate Level Students. Cross-listed with SSCI 5020 and PHIL 5020. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5025 - Foundations and Theories of Interdisciplinary Humanities

Exposes the beginning graduate student to exemplary works and methodologies of disciplines oriented to humanities and social sciences, such as philosophy, sociology,

history, communication, fine arts, and literature. Restriction: Restricted to Graduate Level Students. Cross-listed with SSCI 5025. Term offered: fall. 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. Restriction: Restricted to Graduate Level Students. 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. Restriction: Restricted to Graduate Level Students. 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. Restriction: Restricted to Graduate Level Students. 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. Restriction: Restricted to Graduate Level Students. Cross-listed with PHIL 4250/5250 and SSCI 5250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5251 - Introduction to Legal Studies

A survey of the United States legal system, including lawmaking powers, jurisdiction, court procedures, professional ethics and major principles of business law, contracts, estates and probate, family law, property and torts. Restriction: Restricted to Graduate Level Students. Cross-listed with HUMN 4251/SSCI 4241/SSCI 5251. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5540 - Law, Diversity and Community in United States History

Engaging extensive primary and secondary source material, course applies an interdisciplinary approach to diversity and conflict that often surrounds the quest for economic, moral and social inclusion in the United States. Restricted to Graduate level students. Cross-listed with SSCI 5540. Term offered: fall. 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. Restriction: Restricted to Graduate Level Students. 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. Restriction: Restricted to Graduate Level Students. 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. Restriction: Restricted to Graduate Level Students. 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. Restriction: Restricted to Graduate Level Students. Term offered: fall, spring. 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. Restriction: Restricted to Graduate Level Students. 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. Restriction: Restricted to Graduate Level Students. Cross-listed with SSCI 5720 and WGST 5720. Term offered: fall, spring. 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. Restriction: Restricted to Graduate Level Students. 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. Restriction: Restricted to Graduate Level Students. Cross-list SSCI 5770. Term offered: fall, spring. 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. Restriction: Restricted to Graduate Level Students. Cross-listed with PHIL 4833/5833 and SSCI 5833. Max hours: 3 Credits. **Semester Hours:** 3 to 3

HUMN 5840 - Independent Study: HUMN

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 3

HUMN 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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. Restriction: Restricted to Graduate Level Students. 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

The first of the Master of Humanities core courses, this course provides beginning graduate students grounding in critical theorists, key analytic models, and their application in disciplines which comprise the humanities (philosophy, literature, art history, visual studies, history, communication) for the purpose of graduate-level, interdisciplinary humanities research. Examines questions about reality, knowledge, ethics that affect research and writing in the humanities. Course note: Students must repeat this course if they earn a C+ or lower and must have permission from the instructor to repeat the course. Students will only earn 3 credits for this course, even if they must repeat it. Term offered: spring. 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

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 6

HUMN 5950 - Master's Thesis

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 8 Credits. **Semester Hours:** 1 to 8

HUMN 5960 - Master's Project

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 8 Credits. **Semester Hours:** 1 to 8

HUMN 5984 - Topics: Interdisciplinary Humanities

Restriction: Restricted to Graduate Level Students. Term offered: fall, spring. Max hours: 9 Credits. **Semester Hours:** 3 to 3

HUMN 6010 - Methods and Theories of Feminism and Gender

This course 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. Restriction: Restricted to Graduate Level Students. Cross-listed with WGST and SSCI 6010. Term offered: fall, spring. Max hours: 3 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. Restriction: Restricted to undergraduate students with a sophomore standing or higher. 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 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. Coreq: ISMG 2050. As a corequisite, ISMG 2050 can be taken concurrently or completed prior. If completed prior, must earn a C- or higher. Restriction: Restricted to undergraduate Business majors at a sophomore standing or higher. 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. Restriction: Restricted to undergraduate students at a junior standing or higher. 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. Prereq: MKTG 3000 with a grade of C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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 multimedia content; Oracle forms and reports, XML, and content management. Prereq: ISMG

2050 with a grade of C- or higher or department approved equivalent transfer credit (may need 1-credit ISMG 2075 as supplement). Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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 2050 with a grade of C- or higher or department approved equivalent transfer credit (may need 1-credit ISMG 2075 as supplement). Coreq: ISMG 3500. As a corequisite, ISMG 3500 can be taken concurrently or completed prior. If completed prior, must earn a D- or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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. To enroll in an internship, students must work with the Experiential Learning Center on campus and have a 2.40 GPA or higher. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ISMG 4028 - Travel Study Topics

Join your classmates in an international travel study course to understand the business operations of another culture. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 9 Credits. **Semester Hours:** 3 to 3

ISMG 4200 - Building Business Applications

Examines how software platforms for mobile business applications are designed and implemented. Usability, logic, and platform selection issues are highlighted through the development of simple mobile business systems. Includes programming concepts, interface design; storing, retrieving, and manipulating information; real time decision making; platform selection, testing and deployment. Prereq: ISMG 2800 with a D- or

higher. Coreq: ISMG 3500. As a corequisite, ISMG 3500 can be taken concurrently or completed prior. If completed prior, must earn a D- or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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 Hippi Acts. The regulatory compliance analysis will include measures the organizations must and should perform to be in compliance. Coreq: ISMG 3000. As a corequisite, ISMG 3000 can be taken concurrently or completed prior. If completed prior, must earn a C or higher.

Restriction: Restricted to undergraduate Business majors with junior standing or higher.

Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 4400 - Web Application Development

Course covers fundamental programming concepts including data structures, networked application program interfaces, server-side programming and databases, using the PHP and/or Python programming languages. This course will show how one can treat the Internet as a source of data. We will retrieve, process and visualize data using web APIs. We will also use of server-side programs to develop database driven web sites and applications. Prereq: ISMG 2800 with a D- or higher. Co-req: ISMG 3500. As a corequisite, ISMG 3500 can be taken concurrently or completed prior. If completed prior, must earn a D- or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Max Hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 4450 - Web Development Immersive

This course is designed to simulate what you'll experience in a real work environment, and covers the languages, frameworks, and computer science fundamentals essential to a career in web development. It will cover introduction to programming and Front End Development, Server Side Programming with Node, Front End frameworks and Single Page Applications, and Data Structures and Algorithms, as well as a capstone project.

Restriction: Restricted to undergraduate Business majors at a junior standing or higher.

Max hours: 12 Credits. **Semester Hours:** 12 to 12

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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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 with a grade of 'C-' or higher, FNCE 3000 and ISMG 3000 (ACCT 4054 may substitute for ISMG 3000) all with a grade of 'C' or higher. 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 both with a grade of C or higher. Cross-listed with MKTG 4760. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 4785 - Ethics: A Formula for Success

Students will learn how to spot and address red flags that foster unethical behavior in both publicly-traded and privately-held businesses. Governance and stakeholder management techniques that incentivize ethical behavior will be highlighted using examples of companies that are financially successful by "doing the right thing." Principle-based ethics are emphasized, namely, integrity, trust, accountability, transparency, fairness, respect, viability, and compliance with the rule of law. Cross-listed with MGMT 3420, MGMT 6420, ISMG 6885. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 4840 - Independent Study

Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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: Students must be a junior status and have completed either: 1. ISMG 3000 or ACCT 4054 and MGMT 3000 and MKTG 3000, OR 2. ISMG 3000 and ISMG 3500 and ISMG 3600. Restriction: Restricted to undergraduate students in the Business School. 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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6028 - Travel Study Topics

Join your classmates in an international travel study course to understand the business operations of another culture. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. Max hours: 9 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. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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, smartphones, and other portable computing devices. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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 on 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. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6220 - Business Intelligence Systems and Analytics

The course is organized around three types and enablers of business intelligence and analytics (1) Descriptive analytics including data warehousing, business reporting, decision dashboard/ scorecards, visual analytics, (2) Predictive analytics including Web Analytics, Web Mining and Social media Analytics, and (3) Prescriptive analytics including decision analytics, automated decision support and expert systems, and big data analytics. The course concludes with emerging trends and topics in business analytics including geospatial in analytics, location-based and consumer-oriented analytical applications, mobile platforms, and cloud-based analytics. Hands-on experience is provided through the use of MicroStrategy, SAS, and CORVID software. The recommended prerequisite for this course is ISMG 6080. If you are familiar with

database management systems and have worked with such systems (e.g., ACCESS) in the past you satisfy the prerequisite requirements for this course. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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. If you have relevant experience in database and programming please contact the instructor for permission to waive the prerequisite of ISMG 6020. Prereq: ISMG 6020. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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 the delivery of care, utilizing advanced tools for patient Ed and self-care, network-integrated decision support, e-business models & opportunities for e-health. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the

Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6340 - Cloud Computing Concepts, Tools, and Applications

This course provides an introduction to cloud computing concepts and capabilities, including hands-on labs and basic programming assignments, providing exposure to leading cloud platforms, such as AWS, Azure and GCP. The class will introduce basic building blocks of cloud computing such as virtualization, load balancing, scalability & elasticity, rapid deployment and replication. Programming aspects of cloud computing will be covered utilizing Python. Other elements of cloud computing will also be covered such as: cloud application benchmarking, multimedia cloud applications, cloud security and big data analytics. Case studies on the applications of cloud computing in various industries will be examined to gain a perspective of the use cases and business issues pertaining to cloud computing. Recommended that students have college-level programming courses in C++, Java, or equivalent. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or CPA within the Business School and CSCI graduate students at CU Denver. 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. Coreq: ISMG 6180 or BUSN 6610. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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 the risk associated with accidental and intentional breaches of security as well as disaster recovery planning. For the best outcome, it is recommended that you complete ISMG 6180 or BUSN 6610 prior to taking this course or during the same term as you take this course. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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. For the best outcome it is recommended that you complete ISMG 6180 or BUSN 6610 prior to taking this course. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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). Restriction: Restricted to graduate majors within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. Cross-listed with BUSN 6800. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6470 - Text Data Analytics

This course includes two topics. The first topic covers algorithms and tools to perform

quantitative analysis of unstructured text data. Concepts and algorithms that will be introduced in the class include Zipf's Law, Power Law Distribution, Pattern Discovery (using algorithms of Entropy, Inverse Document Frequency, Clustering etc.), and Machine Learning etc. SAS Enterprise Miner/Text Miner will be introduced as a practice tool to carry out quantitative analysis of unstructured text data. By using the SAS Text Analytics software, students will learn the skills to uncover underlying themes and concepts contained in a large text document corpus. The second topic covers seminal theories and practical methods necessary to perform qualitative analyses of text data. Many qualitative research methods using text data (e.g., grounded theory, ethnographic study, case study etc.) will be introduced. NVivo 11 software will be used as a practice tool to conduct qualitative analyses of text data. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering Design and Computing, PHCS PhD majors and PhD majors. 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. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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 digitization of electronic health records and systems integration. Next, the course looks at healthcare transformation and 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. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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 to incorporate finance departments. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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. Restrictions: Restricted to graduate majors within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. Max hours: 8 Credits. **Semester Hours:** 1 to 8

ISMG 6850 - Securing the Enterprise

This course provides the knowledge required to analyze the current enterprise environment in order to prepare a risk mitigation for security vulnerabilities encountered. Topics include principles and concepts; threats, vulnerabilities, risks, attacks and controls; risk process and management; and enterprise security policies. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering Design and Computing, PHCS PhD majors and PhD majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6855 - Protecting the Enterprise

This course examines methods and techniques used to secure an enterprise's environment. Topics include threat prioritization and mitigation; social engineering and security policies; encryption and cryptography; virtual private networks, wireless and mobile device management; antivirus, intrusion detection and protection systems; and firewalls and proxy servers. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6860 - Introduction to Voice and Data Security

It has been said that protecting computer systems and networks is much harder than

attacking them because the intruder only has to find one hole in the security perimeter while the security administrator has to find them all. This course will provide the student the opportunity to learn about the basic elements of Information Assurance (IA) as it applies to Voice and Data Security. Class examples will focus on how IA is critical to current business processes. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering Design and Computing, PHCS PhD majors and PhD majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6865 - Digital Forensic Analysis I

This is an introductory course in collecting, examining, and preserving evidence involving digital devices. This course examines the issues, tools, and control techniques needed to successfully investigate illegal or malicious activities facilitated through the use of information technology. The tools of collecting, examining, and evaluating data in an effort to establish intent, culpability, motive, means, methods, and loss resulting from these crimes will be examined. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering Design and Computing, PHCS PhD majors and PhD majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6870 - Securing Information Assets

This course concentrates on the identification of information assets and the techniques used to protect them from unauthorized access. Topics include laptops, desktop and server vulnerabilities; network vulnerabilities; extranet and intranet management; incident response and management; web site and web services management; virtualization in the data center; and cloud computing security. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering Design and Computing, PHCS PhD majors and PhD majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6875 - Protecting Information Assets

This course illustrates how information assets can be subjected to internal and external attacks and presents techniques used to secure them from unauthorized access. Topics include sub-networking for guest and vendor access; managing mixed operating system environments; data at rest and data in-transit; database inference; network management systems and security; information assurance tools and techniques. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering Design and

Computing, PHCS PhD majors and PhD majors. Max hours: 3 Credits. **Semester Hours: 3 to 3**

ISMG 6880 - Intrusion Detection and Incident Response

A topic of increasing importance and interest in the world of information systems and business is malicious intruder detection and the response procedures required to secure business systems once an intrusion has occurred. It is critical that the organizations dependent on information technology have incident handling procedures when computer intrusions occur. By having proper incident response procedures, organizations can quickly recover from intrusions and where feasible bring perpetrators to justice. This course will provide the student with the opportunity to learn about the elements that comprise Intrusion Detection and Incident Response. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering Design and Computing, PHCS PhD majors and PhD majors. Max hours: 3 Credits. **Semester Hours: 3 to 3**

ISMG 6885 - Ethics: A Formula for Success

Students will learn how to spot and address red flags that foster unethical behavior in both publicly-traded and privately-held businesses. Governance and stakeholder management techniques that incentivize ethical behavior will be highlighted using examples of companies that are financially successful by "doing the right thing." Principle-based ethics are emphasized, namely, integrity, trust, accountability, transparency, fairness, respect, viability, and compliance with the rule of law. Cross-listed with MGMT 3420, MGMT 6420, ISMG 4785. Max hours: 3 Credits. **Semester Hours: 3 to 3**

ISMG 6890 - Cyber Security and Analysis in Business

This course provides the fundamentals of security analysis in the commercial enterprise. Students will learn the basics of analytics like Threat Lifecycle Management and Mean Time to detect/Respond, as well as the role of security analysts in the firm. Case studies and basic tools will be utilized to demonstrate and provide hands-on learning of current security administration, security practices, and threat response in firms, and to link such activity to firm risk and performance. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering Design and Computing, PHCS PhD majors and PhD majors Max hours: 3 Credits. **Semester Hours: 3 to 3**

ISMG 6895 - Digital Forensic Analysis II

This course examines advanced digital forensic analysis topics, tools, techniques, and control mechanisms. Advanced topics include operating system artifacts, anti-forensics, mobile and embedded devices, and volatile memory forensics. Students will gain experience with state-of-the-art forensics tools and techniques needed to successfully investigate illegal activities perpetuated through the use of information technology. Prereq: ISMG 6860 and ISMG 6865. Restriction: Restricted to Graduate Business School students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 6950 - Master's Thesis

Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. 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. Restrictions: Restricted to PhD majors within the Business School and within the College of Engineering Design and Computing, PHCS PhD majors and PHIS PhD majors. 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. Restrictions: Restricted to PhD majors within the Business School and within the College of Engineering Design and Computing, PHCS PhD majors and PHIS PhD majors. 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. Restrictions: Restricted to PhD majors within the Business School and within the College of Engineering Design and Computing, PHCS PhD majors and PHIS PhD majors. Cross-listed with CSCI 7200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 7208 - Philosophy of Information Systems Research

This course surveys the philosophical foundations that underlie the development of IS theories, research methods and measurements. The focus is placed on intensive and rigorous readings and critiques of key literature at the intersection of philosophy, sociology, history and information systems. Upon the completion of this course, students are expected to have enhanced capabilities to discern the ontological and epistemological boundaries of various IS theories and research methods so that they can carry out IS research with informed knowledge. Restrictions: Restricted to PhD majors within the Business School and within the College of Engineering Design and Computing, PHCS PhD majors and PHIS PhD majors. 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. Restrictions: Restricted to PhD majors within the Business School and within the College of Engineering Design and Computing, PHCS PhD majors and PHIS PhD majors. 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. Restrictions: Restricted to PhD majors within the Business School and within the College of Engineering Design and Computing, PHCS PhD majors and PHIS PhD majors. Cross-listed with CSCI 7211. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 7212 - Strategic and Organizational Research in IS

This course examines concepts in information technology with an emphasis on

organizations, organizational strategy, and competitive advantage. Using a seminar method, students will be introduced to foundational concepts and current knowledge in the IT-based research areas of information and organizational economics, boundaries and markets, firm performance, organizational capabilities, innovation, organizational design and management mechanisms, and the challenges to achieving competitive advantage over competitors. Through completion of this course, students should acquire the ability to evaluate organization-focused IT research and identify valued questions that can be examined in future research. Restrictions: Restricted to PhD majors within the Business School and within the College of Engineering Design and Computing, PHCS PhD majors and PHIS PhD majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMG 7214 - Mixed Methods Research

This course focuses on techniques for designing and executing mixed methods research in information systems area. Students will review the philosophical foundations of both qualitative and quantitative foundation. Basic practice, effective use and avoidance of pitfalls in mixed methods approach will be discussed. Restrictions: Restricted to PhD majors within the Business School and within the College of Engineering Design and Computing, PHCS PhD majors and PHIS PhD majors. 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. Restrictions: Restricted to PhD majors within the Business School and within the College of Engineering Design and Computing, PHCS PhD majors and PHIS PhD majors. 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. Restrictions: Restricted

to PhD majors within the Business School and within the College of Engineering Design and Computing, PHCS PhD majors and PHIS PhD majors. 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. Restrictions: Restricted to PhD majors within the Business School and within the College of Engineering Design and Computing, PHCS PhD majors and PHIS PhD majors. 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 9

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). Restrictions: Restricted to graduate majors within the Business School, graduate majors within the College of Engineering, Design and Computing, PHCS PhD majors and PhD majors. Max hours: 15 Credits.

Semester Hours: 1 to 15

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 5840 - Independent Study

Max hours: 4 Credits. **Semester Hours:** 1 to 4

Instructional Technology

INTE 2000 - Digital Teaching and Learning

Survey of technology for: (1) your own learning, informally and in classes; (2) your students' learning when you become a teacher; and (3) sharing with peers and colleagues. Use tools to address problems of equity, access, and learning needs. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 2500 - Digital Media and Learning

Digital media have transformed where, how, and why people learn. This course examines theoretical foundations and contemporary developments in digital media and learning. Students will analyze, design, and enact projects exemplifying topics such as civic media, game-based and mobile learning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 4000 - Design Thinking and Educational Innovation

Design thinking is a creative, human-centered approach to exploring and solving professional and community-based problems of practice. In this studio-based course students will cultivate academic and community partnerships, design innovative media

and experiences, and support diverse learning opportunities across settings. Cross-listed with INTE 5000. Restriction: Restricted to undergraduate students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 4300 - Media Literacy

In this course students learn to create, use, extend, and evaluate media products to support decision-making and real world problem-solving. Students also become more aware of the significant role of mass media, popular culture, and digital media in our lives. Cross listed with INTE 5300. Restriction: Restricted to undergraduate students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 4320 - Games and Learning

This course examines the use of games for learning and education across formal and informal environments. Students will survey contemporary learning theory, media, trends, and challenges related to designing and playing games in informal, community-based, online, and school settings. Cross listed with INTE 5320. Restriction: Restricted to undergraduate students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 4340 - Learning with Digital Stories

This course reviews the uses of digital storytelling for learning. Develop and publish a short digital story that tells something important about you and your interests. Explore ways that creating or using digital stories can aid learning and personal growth. Cross-listed with INTE 5340. Restriction: Restricted to undergraduate students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 4665 - Social Media and 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. Cross-listed with INTE 5665. Restriction: Restricted to undergraduate students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 4680 - Producing Media for Learning

Students develop and integrate media resources into eLearning environments, applying principles of media selection and multimedia learning. Students explore a variety of tools

for producing audio, video, and multimedia content and examine ways to enhance eLearning courses through multimedia presentation and engagement resources. Cross-listed with INTE 5680. Max hours: 3 Credit Hours. **Semester Hours:** 3 to 3

INTE 4711 - Creative Designs for Instructional Materials

This course is a project-based exploration of design theories, principles, and best practices for communicating information to diverse learning audiences. Students apply unique design approaches and formats to the creation of materials for teaching, learning, and being of service to underrepresented communities. Cross-listed with INTE 5711. Restriction: Restricted to undergraduate students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5000 - Design Thinking and Educational Innovation

Design thinking is a creative, human-centered approach to exploring and solving professional and community-based problems of practice. In this studio-based course students will cultivate academic and community partnerships, design innovative media and experiences, and support diverse learning opportunities across settings. Cross-listed with INTE 4000. Restriction: Restricted to graduate level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5100 - Planning and Designing for Instruction

Instructional design is the process used to analyze, design, develop, and evaluate learning solutions. You will identify a gap in learning or performance and design a learning solution in the form of courses units, modules, and other instructional resources. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5150 - Engaging in Education Advocacy

This course will look at the theoretical foundations and critical issues of advocacy, elements of advocacy planning, and strategies for action. You will deepen your understanding of advocacy tools, processes and models in an effort to help you imagine how to utilize advocacy in your own practice. A primary focus will be on the connection of community organizations and schools. Cross-listed with INTE 7150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5200 - Crafting eLearning Experience

This course helps educators transition to teaching online. Create online learning activities, assessments, and resources. Learn how to establish a strong online teaching presence. Explore blended learning environments, use of set curriculum, open educational resources (OER), family support, communication strategies, digital citizenship, and accessibility concerns. Restriction: Restricted to graduate level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5250 - Teaching Strategies for Online and Blended Learning

This course provides a foundation for effective online teaching strategies. Learning essentials include: affording more reflective, engaging, inventive, and successful online learning experiences; fostering improved presence; employing skilled management techniques; and unpacking tools, habits, and processes for effective learning. Restriction: Restricted to graduate level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5300 - Media Literacy

In this course students learn to create, use, extend, and evaluate media products to support decision-making and real world problem-solving. Students also become more aware of the significant role of mass media, popular culture, and digital media in our lives. Cross listed with INTE 4300. Restriction: Restricted to graduate level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5320 - Games and Learning

This course examines the use of games for learning and education across formal and informal environments. Students will survey contemporary learning theory, media, trends, and challenges related to designing and playing games in informal, community-based, online, and school settings. Cross listed with INTE 4320. Restriction: Restricted to graduate level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5340 - Learning with Digital Stories

This course reviews the uses of digital storytelling for learning. Develop and publish a short digital story that tells something important about you and your interests. Explore ways that creating or using digital stories can aid learning and personal growth. Cross-listed with INTE 4340. Restriction: Restricted to graduate level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5660 - Developing Self-Paced Online Courseware

Students use a variety of tools and strategies to develop self-paced eLearning courseware, such as tutorials. The course covers critical aspects of the instructional development process that support the creation of effective self-paced online learning experiences, materials and resources. Restriction: Restricted to graduate level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5665 - Social Media and 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. Cross-listed with INTE 4665. Restriction: Restricted to graduate level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5670 - Planning and Facilitating Live Events

Webinars and other live online events are an increasingly popular approach to the delivery of learning and professional development opportunities. Informed by theory and research, students plan for and facilitate live learning events delivered via synchronous online technologies. Restriction: Restricted to graduate level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5680 - Producing Media for Learning

Students develop and integrate media resources into eLearning environments, applying principles of media selection and multimedia learning. Students explore a variety of tools for producing audio, video, and multimedia content and examine ways to enhance eLearning courses through multimedia presentation and engagement resources. Cross-listed with INTE 4680. Restriction: Restricted to graduate level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5711 - Creative Designs for Instructional Materials

This course is a project-based exploration of design theories, principles, and best practices for communicating information to diverse learning audiences. Students apply unique design approaches and formats to the creation of materials for teaching, learning, and being of service to underrepresented communities. Cross-listed with INTE 4711. Restriction: Graduate level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 5830 - Workshop: Learning Technologies

Specific titles vary depending upon the specific skill areas within learning technologies. Restriction: Restricted to graduate level students. Max hours: 12 Credits. **Semester Hours:** 0.5 to 4

INTE 5840 - Independent Study: Learning Technologies

Restriction: Restricted to graduate level students. Max hours: 9 Credits. **Semester Hours:** 1 to 4

INTE 5990 - Special Topics: Learning Technologies

Restriction: Restricted to graduate level students. 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. Meet and engage with leaders in the field while upgrading professional knowledge and skills. Restriction: Restricted to graduate level students. Max hours: 4 Credits. **Semester Hours:** 1 to 2

INTE 6710 - Creative Designs for Instructional Materials

This course is a project-based exploration of design theories, principles, and best practices for communicating information to diverse learning audiences. Students apply unique design approaches and formats to the creation of materials for teaching, learning, and being of service to underrepresented communities. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 6720 - Research in Learning Design and Technology

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 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 6840 - Independent Study: Learning Technologies

Max hours: 9 Credits. **Semester Hours:** 1 to 4

INTE 6930 - Internship: 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 6999 - Leadership for Technology Innovation

This course examines principles and strategies for leadership in a school, library, district, or organization aiming to improve its use of educational technology. Course learning essentials include how to: deal with competing voices; promote organizational change; assess and analyze technology use; pursue continuous improvement; employ strategic planning practices; implement effective programs; ensure sound professional development; wrestle with pressing leadership challenges; and secure funding (grant writing). 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, Coaching and Training

In this course students examine research surrounding the design and delivery of professional learning (PL) programs in K20 and workplace settings. Projects and activities address: adult learning; PL 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 7130 - Evaluating Professional Learning: Programs & Performance

In this course students develop and evaluate large-scale learning initiatives in K20 and workplace settings. 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 7150 - Engaging in Education Advocacy

This course will look at the theoretical foundations and critical issues of advocacy, elements of advocacy planning, and strategies for action. You will deepen your understanding of advocacy tools, processes and models in an effort to help you imagine how to utilize advocacy in your own practice. A primary focus will be on the connection of community organizations and schools. Cross-listed with INTE 5150. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTE 7930 - Internship: Professional Learning

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 - First-Year 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. Restriction: Restricted to Freshman level students. 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 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. **Semester Hours:** 3 to 3

ARTS 1700 - CMTC Topics in Transdisciplinary Practice

Specialized topics are investigated via future- and professionally-focused curricula that utilize transdisciplinary collaboration, creativity and innovative approaches to real-world problems. Max hours: 9 Credits. **Semester Hours:** 1 to 6

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 2700 - CMTC Topics in Transdisciplinary Practice

Specialized topics are investigated via future- and professionally-focused curricula that utilize transdisciplinary collaboration, creativity and innovative approaches to real-world problems. Max hours: 9 Credits. **Semester Hours:** 1 to 6

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 3700 - CMTC Topics in Transdisciplinary Practice

Specialized topics are investigated via future- and professionally-focused curricula that utilize transdisciplinary collaboration, creativity and innovative approaches to real-world problems. Max hours: 9 Credits. **Semester Hours:** 1 to 6

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 4700 - CMTC Topics in Transdisciplinary Practice

Specialized topics are investigated via future- and professionally–focused curricula that utilize transdisciplinary collaboration, creativity and innovative approaches to real-world problems. Max hours: 9 Credits. **Semester Hours:** 1 to 6

ARTS 4939 - 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: 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

ARTS 5700 - CMTC Topics in Transdisciplinary Practice

Specialized topics are investigated via future- and professionally–focused curricula that utilize transdisciplinary collaboration, creativity and innovative approaches to real-world problems. Max hours: 9 Credits. **Semester Hours:** 1 to 6

Interdisciplinary Major Course

ISMA 1500 - Introduction to Interdisciplinary Learning

This course introduces the theories, methodologies, and practices of interdisciplinary studies through a specific theme that will focus on how to learn in an online environment

and how interdisciplinary scholars combine the theories and methods of a variety of fields. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMA 2840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Max hours: 3 Credits. **Semester Hours:** 1 to 3

ISMA 3100 - Learning Across Disciplines

Examining a compelling issue, students will learn what kinds of questions require thinking beyond a single discipline, how interdisciplinary scholars combine a variety of fields, and how to approach the challenges of interdisciplinary writing. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMA 3500 - Interdisciplinary Experiential Learning

In this course, students will the knowledge from their chosen clusters to bear on an experiential opportunity. Choosing an internship, community-based project, or job extension, students will collaborate with peers to design projects in this highly student-driven course. Prereq: ISMA 1500 with a C- or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMA 3840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 1 to 3

ISMA 3939 - Internship

Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Students must have junior standing and at least a 2.75 GPA and must work with Experiential Learning Center advising to complete a course contract and gain approval. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 3

ISMA 4500 - Interdisciplinary Learning Capstone

This course brings together students who have been working on individualized majors to share a capstone experience. The goal is for students to integrate knowledge from their cluster and apply it to a project relevant to their field of interest. Prereq: ISMA 3500 with a C- or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

ISMA 4840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Max hours: 3 Credits. **Semester Hours:** 1 to 3

ISMA 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

ISMA 4900 - Interdisciplinary Studies Capstone

While working with their Primary Faculty Advisors on their capstone projects, students meet to discuss their experiences and to get feedback from each other as their projects develop. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Interdisciplinary Studies

IDST 4000 - Special Topics

Cross-listed with IDST 5000. Note: May be taken more than once for credit when topics vary. Max hours: 9 Credits. **Semester Hours:** 1 to 3

IDST 4010 - Foundations of STEM Communication

This course will provide students with an introduction to STEM communication and offer opportunities for developing STEM content for a variety of audiences across multiple formats. These formats span written, oral, digital, and social media communication. Through classroom exercises and assignments, students will understand the role of communication in shaping perceptions, knowledge, decisions and ultimately realities vis-a-vis STEM. They will also learn to provide critical analysis of popular mainstream STEM communication and be able to identify basic expectations and constraints of STEM communication across audience and context. The class will explore approaches to communicating concepts in STEM disciplines to a variety of audiences through practice. Ultimately, the students will develop the skills and resources necessary to enable effective communication of complex STEM ideas to a wide range of audiences. Note: Students may not earn credit if they have already received credit for IDST topics courses with a similar title. Suggested background: Students are recommended to have completed at least one undergraduate sequence in a STEM discipline before enrolling in this course. Cross-listed with IDST 5010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IDST 5000 - Special Topics

Cross-listed with IDST 4000. Note: May be taken more than once for credit when topics vary. Max hours: 9 Credits. **Semester Hours:** 1 to 3

IDST 5010 - Foundations of STEM Communication

This course will provide students with an introduction to STEM communication and offer opportunities for developing STEM content for a variety of audiences across multiple formats. These formats span written, oral, digital, and social media communication. Through classroom exercises and assignments, students will understand the role of communication in shaping perceptions, knowledge, decisions and ultimately realities vis-a-vis STEM. They will also learn to provide critical analysis of popular mainstream STEM communication and be able to identify basic expectations and constraints of STEM communication across audience and context. The class will explore approaches to communicating concepts in STEM disciplines to a variety of audiences through practice. Ultimately, the students will develop the skills and resources necessary to enable effective communication of complex STEM ideas to a wide range of audiences. Note: Students may not earn credit if they have already received credit for IDST topics courses with a similar title. Restriction: Restricted to graduate level students or with instructor permission. Cross-listed with IDST 4010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

International Business

INTB 1111 - International Social Entrepreneurship

The end of the 20th Century saw the rise of a powerful new force: the International Social Entrepreneur. Leveraging the power of market forces, social media, the internet, and the desire to make the world better, these people have developed powerful ways to tackle the social, economic, and environmental problems that confront us all. In this class, we will study the rise of international social entrepreneurship, and the innovative tools international social entrepreneurs have developed to address some of our most dire challenges. Restriction: Restricted to Freshman level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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, Restriction: Restricted to undergraduate majors with junior standing or higher. 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. To enroll in an internship, students must work with the Experiential Learning Center on campus and have a 2.40 GPA or higher. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 9 Credits. **Semester Hours:** 1 to 3

INTB 4028 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. Cross-listed with ENTP 4028, ENTP 6028, and INTB 6028. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 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. Cross-listed with MKTG 4200. Prereq: MKTG 3000 with a C or higher. Restricted to undergraduate Business majors at a junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 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. Cross-listed with FNCE 4370. Prereq: FNCE 3000 with a C or higher. Restriction: Restricted to undergraduate Business majors at junior standing or higher. 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 with a C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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 with a grade of C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Cross-listed with MGMT 4410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 4840 - Independent Study

Instructor approval required. Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study. Restriction: Restricted to undergraduate business majors with junior standing or higher. Max hours: 8 Credits. **Semester Hours:** 1 to 8

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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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.

Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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.) Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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.) Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6026 - Marketing Challenges at the Global Frontier

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. Emphasis on practice through the use of projects and speakers. Coreq: BUSN 6560. Instructor may waive coreq for business students. Restriction: Restricted to graduate business students or NDGR majors and a sub-plan of

NBA or NBD. 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 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. Cross-listed with ENTP 4028, ENTP 6028, and INTB 4028. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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: BUSN 6520 or BUSN 6521 or MGMT 6380 with a grade of C (2.0) or higher. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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.) Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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 or ENTP 6826. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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 6640. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Cross-listed with FNCE 6460. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTB 6500 - International Business Consulting

This action-learning course provides students the opportunity to work with and consult for a company at the senior executive level (e.g., CEO, Business Unit heads) in order to

add value to the firm's international business. Students will apply international business principles and practices to address a strategic, functional, operational, or geographic opportunity facing a sponsoring organization. In addition, students will gain "on the job learning" of key protocols in an international business consulting context. Note: Because the topics change each term, student may take this course twice. Work with an advisor to make sure there is room in your degree plan before enrolling in the second course. Max hours: 6 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. Note: Available to students as Independent Study only. 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. 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 1111 - First Year Seminar

Restriction: Restricted to Freshman level students. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTS 2020 - Foundations of International Studies

Through a combination of lecture, discussion, and hands-on learning activities, students will develop skills and abilities necessary for academic and professional success in the international studies arena, especially critical thinking, connection building, conceptual understanding, and cultural awareness. The course is structured in three phases: (1) core interdisciplinary concepts; (2) regional foci; and (3) global issues. Note: Please add course note: Students may not receive credit for INTS 2020, if they have already received credit for INTS 2000. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTS 3939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Students must have junior standing and at least a 2.75 GPA and must work with Experiential Learning Center advising to complete a course contract and gain approval. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 6

INTS 4700 - Special Topics

Note: May be taken more than once for credit when topics vary. Term offered: fall, spring. Max hours: 9 Credits. **Semester Hours:** 3 to 3

INTS 4840 - Independent Study

Directed study based on a specific subfield of international studies. Note: Students must

submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 3

INTS 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

INTS 4990 - International Studies Capstone

A capstone course for students in the International Studies major, the class is designed to facilitate independent student research in the field of international studies and assist students in developing advanced writing and communication skills. Prereq: Students in the course must be declared international studies majors in their final year of coursework (senior status is recommended preparation). Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

INTS 4995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. Cross-listed with INTS 5995. Term offered: summer. Max hours: 15 Credits. **Semester Hours:** 1 to 15

INTS 5995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. Cross-listed with INTS 4995. Term offered: summer. Max hours: 15 Credits. **Semester Hours:** 1 to 15

inWorks Innovation Initiative

IWKS 2100 - Human-Centered Design, Innovation and Prototyping

Introduces collaborative interdisciplinary design and innovation from a human perspective. Using the wide array of Inworks prototyping facilities, teams of students will design and implement human-oriented projects of increasing scale and complexity, in the process acquiring essential innovation and problem-solving skills. Cross-listed with ARCH 3705. Prereq: none. Participants of all backgrounds are encouraged to register; no previous design or prototyping experience is required. Max hours: 3 Credits.

Semester Hours: 3 to 3

IWKS 2300 - Computational Foundations of Innovation

Introduces fundamental principles of computing related to innovation. Students learn to give objects interesting behaviors by writing simple programs. Class discussions and readings introduce important computing ideas and concepts. Prepares students for more advanced IWKS courses that require knowledge of computing. Max hours: 3 Credits.

Semester Hours: 3 to 3

IWKS 3100 - 3D Design, Computation and Prototyping

Introduces the design and computer-controlled fabrication of three-dimensional objects using both additive (3D printing) and subtractive (laser cutter, CNC router/mill) processes. Increasingly complex projects throughout the semester using various CAD/CAM software tools will explore design strategies for digital fabrication.

Prerequisites: None; no previous design or prototyping experience is expected or required. Cross-listed with IWKS 5170. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 3180 - Inworks: Choose Your Own Adventure: Experiences in Design, Innovation and Prototyping

Provides weekly speakers, workshops and other experiences that educate and enrich across the design, innovation and prototyping landscape. Students may choose to participate in any five (for one credit), ten (for two credits) or fifteen (for three credits) activities. Each week, participating students will attend the scheduled activity, and then create a meaningful response that reflects the impact of that activity on their thinking or practice. Prerequisites: None. Max hours: 12 Credits. **Semester Hours:** 1 to 3

IWKS 3200 - Data Science for Innovators

Introduces techniques for capturing, processing, visualizing, and making meaning out of

large datasets. With the exponential growth and decreasing cost of data collection tools such as genome sequencing, social media, crowd sourced data, mobile phone apps, remote sensors, and data from other publically available sources, innovators are able to harness a rich array of data in their designs. This course will introduce the fundamentals of working with online data and large data sets, introduce widely used data analysis and visualization tools, and culminate in a cumulative project that incorporates data in a significant way. Suggested Background: IWKS 2300 or similar experience. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 3300 - NAND to Tetris: Foundations of Computer Systems

Introduces the principles of computer systems that underlie the global information age. Starting from first principles, students gradually construct a simple hardware platform and a modern software hierarchy, yielding a working basic yet powerful computer system. Only introductory programming experience is required. Suggested Background: IWKS 2300 or similar computing experience. Cross-listed with CSCI 2940. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 3400 - Game Design and Development I

Introduces principles of computer game development, building on the rich interplay of computer science, graphics design, physics, music, and narrative. Students develop interactive 2D and 3D games and a final project. Substantial software development involved, but requires only introductory programming experience. Suggested Background: IWKS 2300 or similar computing experience. Cross-listed with CSCI 2941. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 3540 - Synthetic Biology for Innovators

Introduces the fundamentals of synthetic biology for those who seek to use it as tool for innovation. Synthetic biology allows us to engineer new biological systems and redesign existing biological components by integrating aspects of biotechnology, evolutionary and molecular biology, systems biology, computer engineering, computational biology, and genetic engineering. Advancement in technological tools and techniques make this material accessible to motivated individuals from many disciplines, and no biology background is required. Culminates with a final team project focused on designing synthetic biology solutions that address human need. Suggested Background: None. No previous background in biology is required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 3550 - Innovation Law and Policy

Introduces legal and regulatory foundations related to innovation, including intellectual property, telecommunications, electronic commerce, the Internet, biotechnology, ethical and equity considerations, and financing. These issues are examined from the perspectives of the legal, business, capital, development, consumer, and policy-making communities. Suggested background: IWKS 2100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 3600 - Innovating for the Developing World

Explores the design and development of products and services that can be sustainably and gainfully used by the world's poorest citizens. Students in interdisciplinary teams will design, implement and evaluate viable solutions to a real problem faced by people in the developing world. The goal is to develop an understanding of the extraordinary challenges faced by individuals for whom basic survival is not a given, and the knowledge and skills necessary to create designs that respond appropriately to those unique circumstances. Provides a foundation for further study and practice in the area of technology and development. Suggested Background: IWKS 2100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 3620 - Mobile App Development

Introduces mobile application development, including front-end mobile application clients, data handling, connectivity to back-end services and cloud hosting. The course provides an overview and comparison of technical approaches employed by Apple iOS, Google Android, and cross-platform development environments. Students will install, develop, test, and distribute mobile applications while addressing challenges associated with development for any mobile platform: limited screen size and memory, gesture based GUI, varying connectivity, and the wide variety of target mobile devices. Suggested Background: IWKS 2300 or similar computing experience. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 3700 - Innovation and Society

Analyzes impact of innovative design on work, sense of self and social systems, in education, healthcare, finance, and other sectors. Investigates how people customize / "hack" technologies they use, and the moral / ethical implications of being designers. Students will research the impact of an innovation of their choice and share via essays, models, videos, or another medium of their choice. Suggested Background: None. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 3850 - Product Design

Explores the design requirements associated with creating a product that will be manufactured in large quantities and used by potentially thousands of users. These requirements are often very different from those associated with creating a working prototype. This gap between prototype creation and starting a business offers an interesting and unique set of design challenges. As part of the course, teams of students will engage in a realistic product design cycle. Max hours: 3 Credits. **Semester Hours: 3 to 3**

IWKS 4100 - Advanced Human-Centered Design and Prototyping

Explores user-centered design paradigm from a broad perspective, emphasizing how user research and prototype assessment can be integrated into different phases of the design process. Teams of students develop expertise in the design, development, and critique of solutions to important human problems. Suggested background: IWKS 2100 & 3100. Max hours: 3 Credits. **Semester Hours: 3 to 3**

IWKS 4120 - IoT: The Internet of Things

In a world where everything is connected to everything else, how does that work? This course introduces techniques for (1) designing systems that can sense the environment and respond to humans in meaningful ways and (2) creating networks of physical objects that collect and exchange data. Such systems might include wearable sensors, interactive art, and Internet-connected home devices. Working individually and in teams, students will develop projects using Inworks' materials, devices, and fabrication tools. The course involves considerable prototyping and software development but requires only introductory programming and prototyping experience. Suggested Background: IWKS 2100 & 2300. Cross-listed with CSCI 2942. Max hours: 3 Credits. **Semester Hours: 3 to 3**

IWKS 4450 - Game Design and Development II

Continuation of IWKS 3400, with increased emphasis on more advanced techniques including 3D rendering; lighting simulation; vertex, pixel and geometry shaders; shadows; terrain building; bump, parallax, and parallax occlusion mapping; shading; ray tracing; bloom; and high dynamic range lighting. Suggested Background: IWKS 3400. Max hours: 3 Credits. **Semester Hours: 3 to 3**

IWKS 4500 - Bio-Design and Innovation

Introduces the biodesign innovation process, which involves identifying important human needs and inventing meaningful solutions to address them. The course examines how biotechnology and bio-inspired innovation improve the form and function of our design world through innovative materials and novel approaches to developing buildings, food, medicine, infrastructure and more. Readings and in-class debates will raise critical issues in contemporary bioethics. For their final projects, students will choose to create and prototype a speculative biodesign concept, or work in the bio lab on the development of a real-world biodesign solution of their choosing. Suggested Background: IWKS 2100 & 3100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 4520 - Design for Healthful Human Longevity

Introduces contemporary studies, therapies, theories, and research on aging, age related disease, and innovations for longer healthier human lives. Guest lecturers, seminar discussions, readings and discussions will inform student projects that address challenges to prolonged, healthy, disease-free lives. Suggested Background: IWKS 2100 and 3700. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 4650 - Innovating for the Developing World

Explores the design of products and services that can be sustainably used by the world's poorest citizens. Students design, implement and evaluate solutions to real problems in the developing world. Provides a foundation for further study and practice. Suggested Background: IWKS 3500 & 3600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 4680 - Case Studies in Design

Explores why some projects succeed and others fail. Many human-centered interventions fail to meet their designers' objectives, reflecting the unique challenges associated with matching human need with feasibility. Explores how innovators can increase their chances for success by examining several successful (and unsuccessful) designs. Suggested Background: IWKS 2100 & 3700. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 4700 - Unconventional Design for Online Learners

Explores how design-thinking and user-centered design can be used to develop and improve technology-mediated learning. Using a team-based project-oriented approach, students design, develop, and evaluate new modalities for digital education. Projects

include ways to educate both general and targeted audiences. Suggested Background: IWKS 3700. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 4800 - StartUp: Creating a New Venture from Scratch

Teams of students are guided to create and launch a new company in a single semester. Culminates in a "pitchfest" to area entrepreneurs and venture capitalists. One of two alternative capstone courses for the Inworks Minor in Design and Innovation. Requires enrollment in the Inworks HCDI minor or certificate, or instructor permission. Suggested Background: Completion of at least three other Inworks courses. Max hours: 4 Credits. **Semester Hours:** 4 to 4

IWKS 4900 - Undergraduate Capstone

Working closely with project sponsors, students design, implement, and evaluate a project for use in local industry and non-profit organizations. One of two alternative capstone courses for the Inworks Minor in Design and Innovation. Prereq: IWKS 2100 and enrollment in the Inworks HCDI minor or certificate. Max hours: 4 Credits. **Semester Hours:** 4 to 4

IWKS 4930 - Special Topics in Human Centered Design and Innovation

Emergent issues and professional developments in design, innovation and prototyping. Consult the current online Inworks Course List for semester offerings as new special topics courses are frequently added. With permission, may be repeated for credit. Max hours: 8 Credits. **Semester Hours:** 1 to 4

IWKS 4970 - Independent Study in Human Centered Design and Innovation

Studies initiated by students or faculty and sponsored by a faculty member to investigate a special topic or problem related to design, innovation and prototyping. With permission, may be repeated for credit. Enrollment requires permission of an Inworks faculty member. Max hours: 8 Credits. **Semester Hours:** 1 to 4

IWKS 5100 - Human-Centered Design, Innovation and Prototyping

Offers a graduate-level introduction to collaborative interdisciplinary design and innovation from a human perspective, as well as introducing key theoretical and computational foundations of innovation. Using the wide array of Inworks prototyping facilities, teams of students will design and implement human-oriented projects of

increasing scale and complexity, in the process acquiring essential innovation and problem-solving skills. Prerequisite: None. No previous design or prototyping experience is expected or required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5120 - IoT: The Internet of Things

In a world where everything is connected to everything else, how does that work? This course introduces techniques for (1) designing systems that can sense the environment and respond to humans in meaningful ways and (2) creating networks of physical objects that collect and exchange data. Such systems might include wearable sensors, interactive art, and Internet-connected home devices. Working individually and in teams, students will develop projects using Inworks' materials, devices, and fabrication tools. The course involves considerable prototyping and software development but requires only introductory programming and prototyping experience. Suggested Background: IWKS 5100 & some computing experience. Restriction: Restricted to students with graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5150 - Advanced Human-Centered Design and Prototyping

Graduate version of IWKS 4100. An advanced exploration of design thinking and the user-centered design paradigm from a broad range of perspectives, emphasizing how user research and prototype assessment can be integrated into different phases of the design process. Using a team-based, project-oriented approach, students will develop advanced expertise in the design, development, and critique of solutions to important human problems. The course will make full use of Inworks' prototyping facilities. Suggested Background: IWKS 5100 & 5170. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5170 - 3D Design, Computation and Prototyping

Introduces the design and computer-controlled fabrication of three-dimensional objects using both additive (3D printing) and subtractive (laser cutter, CNC router/mill) processes. Increasingly complex projects throughout the semester using various CAD/CAM software tools will explore design strategies for digital fabrication. Restriction: Restricted to students with graduate standing. Cross-listed with IWKS 3100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5180 - Inworks: Choose Your Own Adventure: Experiences in Design, Innovation and Prototyping

Provides weekly speakers, workshops and other experiences that educate and enrich across the design, innovation and prototyping landscape. Students may choose to participate in any five (for one credit), ten (for two credits) or fifteen (for three credits) activities. Each week, participating students will attend the scheduled activity, and then create a meaningful response that reflects the impact of that activity on their thinking or practice. Prerequisites: None. Max hours: 12 Credits. **Semester Hours:** 1 to 3

IWKS 5200 - Data Science for Innovators

Graduate version of IWKS 3200. Introduces techniques for capturing, processing, visualizing, and making meaning out of large datasets. With the exponential growth and decreasing cost of data collection tools such as genome sequencing, social media, crowd sourced data, mobile phone apps, remote sensors, and data from other publically available sources, innovators are able to harness a rich array of data in their designs. This course will introduce the fundamentals of working with online data and large data sets, introduce widely used data analysis and visualization tools, and culminate in a cumulative project that incorporates data in a significant way. Suggested Background: IWKS 5350 or similar computing experience. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5300 - NAND to Tetris: Foundations of Computer Systems

Graduate version of IWKS 3300. Introduces the principles of computer systems that underlie the global information age. Starting from first principles, students gradually construct a simple hardware platform and a modern software hierarchy, yielding a working basic yet powerful computer system. Suggested Background: IWKS 2300 or similar computing experience. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5350 - Computational Foundations of Innovation

Graduate version of IWKS 2300. Introduces the technological underpinnings of modern society, introducing the fundamental principles of computing. Students create realistic artifacts, and imbue those artifacts with interesting behavior by writing computer programs in on-line virtual world similar to Second Life and for simple Arduino-connected devices. In-class and in-world discussions and readings introduce important computing ideas and concepts. Completion of this course will prepare students for more advanced IWKS graduate courses that require knowledge of computing principles and practices. Prerequisites: None. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5400 - Game Design and Development I

Graduate version of IWKS 3400. Introduces principles of computer game development, building on the rich interplay of computer science, graphics design, physics, music, and narrative. Students develop interactive 2D and 3D games and a final project. Substantial software development involved, but requires only introductory programming experience. Suggested Background: IWKS 2300 or similar computing experience. Restriction: Restricted to students with graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5450 - Game Design and Development II

Graduate version of IWKS 4450. Continuation of IWKS 5400, with increased emphasis on more advanced techniques including 3D rendering; multimodal music, complex narrative, animation, non-player AI, and advanced 3D techniques including diffuse, ambient, specular, and emissive lighting; vertex, pixel and geometry shaders; shadows; terrain building; reflective and refractive lighting; bump, parallax, and parallax occlusion mapping; Phong and Gouraud shading; "cel" shading; ray tracing; bloom; and high dynamic range lighting. Suggested Background: IWKS 5400 or similar experience in game development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5500 - Bio-Design and Innovation

Introduces the biodesign innovation process, which involves identifying important human needs and inventing meaningful solutions to address them. The course examines how biotechnology and bio-inspired innovation improve the form and function of our design world through innovative materials and novel approaches to developing buildings, food, medicine, infrastructure and more. Readings and in-class debates will raise critical issues in contemporary bioethics. For their final projects, students will choose to create and prototype a speculative biodesign concept, or work in the bio lab on the development of a real-world biodesign solution of their choosing. Suggested Background: IWKS 2100 & 3100. Restriction: Restricted to students with graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5520 - Design for Healthful Human Longevity

Graduate version of IWKS 4520. Introduces contemporary studies, therapies, theories, and research on aging, age related disease, and innovations for longer healthier human lives. Guest lecturers, seminar discussions, readings and discussions will inform student projects that address challenges to prolonged, healthy, disease-free lives. Suggested Background: IWKS 5100 and 5700. Restriction: Restricted to students with graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5540 - Synthetic Biology for Innovators

Graduate version of IWKS 3540. Introduces the fundamentals of synthetic biology for those who seek to use it as tool for innovation. Synthetic biology allows us to engineer new biological systems and redesign existing biological components by integrating aspects of biotechnology, evolutionary and molecular biology, systems biology, computer engineering, computational biology, and genetic engineering. Advancement in technological tools and techniques make this material accessible to motivated individuals from many disciplines, and no biology background is required. Culminates with a final team project focused on designing synthetic biology solutions that address human need. Suggested Background: None. No previous background in biology is required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5550 - Innovation Law and Policy

Graduate version of IWKS 3550. Introduces legal and regulatory foundations related to innovation, including intellectual property, telecommunications, electronic commerce, the Internet, biotechnology, ethical and equity considerations, and financing. These issues are examined from the perspectives of the legal, business, capital, development, consumer, and policy-making communities. Suggested Background: IWKS 5100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5600 - Innovating for the Developing World

Graduate version of IWKS 3600. Explores the design and development of products and services that can be sustainably and gainfully used by the world's poorest citizens. Students in interdisciplinary teams will design, implement and evaluate viable solutions to real problems faced by people in the developing world. The goal is to develop an understanding of the extraordinary challenges faced by individuals for whom basic survival is not a given, and the knowledge and skills necessary to create designs that respond appropriately to those unique circumstances. Provides a foundation for further study and practice in the area of technology and development. Suggested Background: IWKS 5100. Restriction: Restricted to students with graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5620 - Mobile App Development

Graduate version of IWKS 3620. Introduces mobile application development, including front-end mobile application clients, data handling, connectivity to back-end services and cloud hosting. The course provides an overview and comparison of technical

approaches employed by Apple iOS, Google Android, and cross-platform development environments. Students will install, develop, test, and distribute mobile applications while addressing challenges associated with development for any mobile platform: limited screen size and memory, gesture based GUI, varying connectivity, and the wide variety of target mobile devices. Suggested Background: IWKS 5100 & IWKS 5350 or similar computing experience. Restriction: Restricted to students with graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5650 - Innovating for the Developing World

Explores the design of products and services that can be sustainably used by the world's poorest citizens. Students design, implement and evaluate solutions to real problems in the developing world. Provides a foundation for further study and practice. Suggested Background: IWKS 5100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5680 - Case Studies in Design

Graduate version of IWKS 4680. Explores why some projects succeed and others fail. Many human-centered interventions fail to meet their designers' objectives, reflecting the unique challenges associated with matching human need with feasibility. Explores how innovators can increase their chances for success by examining several successful (and unsuccessful) designs. Suggested Background: IWKS 5100 & 5700. Restriction: Restricted to students with graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5700 - Innovation and Society

Graduate version of IWKS 3700 Analyzes impact of innovative design on work, sense of self, and social systems, in education, healthcare, finance, and other sectors. Investigates how people customize / "hack" technologies they use, and the moral / ethical implications of being designers. Students will research the impact of an innovation of their choice and share via essays, models, videos, or another medium of their choice. Suggested Background: IWKS 5100. Restriction: Restricted to students with graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5750 - Critical Analysis of Design

Graduate version of IWKS 3700. Examines technologies that pervade daily life. Analyzes impact of designs on work lives, sense of self, and social systems, within education, healthcare, finance, and other sectors. Investigates how technologies are

customized and ethical implications of designing systems for others. Suggested Background: IWKS 5100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5800 - StartUp: Creating New Ventures

Teams of students are guided to create and launch a new company in a single semester. Culminates in a "pitchfest" to area entrepreneurs and venture capitalists. One of two alternative capstone courses for the Inworks Minor in Design and Innovation. Restriction: Requires enrollment in the Inworks HCDI minor or certificate, or instructor permission. Suggested Background: Completion of at least three other Inworks courses. Max hours: 4 Credits. **Semester Hours:** 4 to 4

IWKS 5850 - Product Design

Graduate version of IWKS 3850. Explores the design requirements associated with creating a product that will be manufactured in large quantities and used by potentially thousands of users. These requirements are often very different from those associated with creating a working prototype. This gap between prototype creation and starting a business offers an interesting and unique set of design challenges. As part of the course, teams of students will engage in a realistic product design cycle. Max hours: 3 Credits. **Semester Hours:** 3 to 3

IWKS 5900 - Graduate Capstone

Graduate version of IWKS 4900. Working closely with project sponsors, students design, implement, and evaluate a project for use in local industry and non-profit organizations. One of two alternative capstone courses for the Inworks Graduate/Professional Certificate in Design and Innovation. Prereq: IWKS 5100 and enrollment in the Inworks graduate certificate. Max hours: 4 Credits. **Semester Hours:** 4 to 4

IWKS 5930 - Special Topics in Human Centered Design and Innovation

Emergent issues and professional developments in design, innovation and prototyping. Consult the current online Inworks Course List for semester offerings as new special topics courses are frequently added. With permission, may be repeated for credit. Restriction: Restricted to students with graduate standing. Max hours: 8 Credits. **Semester Hours:** 1 to 4

IWKS 5970 - Independent Study in Human Centered Design and Innovation

Studies initiated by students or faculty and sponsored by a faculty member to investigate a special topic or problem related to design, innovation and prototyping. With permission, may be repeated for credit. Max hours: 8 Credits. **Semester Hours:** 1 to 6

Landscape Architecture

LDAR 1015 - Engaging Landscapes for Wicked Change

This course will offer students the tools and perspectives to understand how landscapes impact them and others, analyze and describe the forces that inform landscape form, and propose changes to landscapes that will address the wicked problems of our time. Max Hours: 3 Credits.

LDAR 3601 - Intro to Landscape Arch: Engaging Designed Landscape

This course is an overview of the historical development, social context and contemporary practice of landscape architecture, which has existed as a profession for over 120 years and has been practiced in one form or another for millennia. Restriction: Restricted to undergrads with sophomore standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 4421 - 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 antiquity to early twentieth century. Prereq: Sophomore standing or higher. Cross-listed with LDAR 5521. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 4430 - 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. Restriction: Restricted to students with sophomore standing or higher. Cross-listed with LDAR 6630. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 4435 - Community Engaged Design Practice

Obtain real-world pre-design and conceptual design experience in complex urban environments focusing on evolving trends in sustainability. Using digital trans-disciplinary learning students will develop comprehensive sustainable strategies that draw from their own sustainable philosophy developed during this class. Cross-listed with LDAR 6635 and ARCH 6257. Restriction: Restricted to undergrads with sophomore standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 4436 - Urban and Local Food Systems

In this seminar, we will examine the connections between landscape architecture and food production in cities as well as the role that food production plays in rural landscapes. The course material may be historical, theoretical, or oriented toward contemporary research. Cross-listed with LDAR 6636. Restriction: Restricted to undergrads with sophomore standing or higher. Max hours: 3 Credits **Semester Hours:** 3 to 3

LDAR 4470 - 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. Restriction: Restricted to undergraduate students at a junior standing or higher. Cross-listed with LDAR 6670. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 4486 - Special Topics in Landscape Architecture

Lectures, discussion, and projects exploring topics in landscape architecture drawn from current practice, contemporary issues of design and the built environment, and/or landscape history and theory. Focus and content vary each term. Prereq: Sophomore standing or higher. Max hours: 6 Credits. **Semester Hours:** 3 to 3

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 antiquity to early twentieth century. Cross-listed with LDAR 4421. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 5530 - 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, URBN

6633, and ARCH 6270. Restriction: Restricted to graduate students within the College of Architecture and Planning. 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. 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 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. Cross-listed with ARCH 6470 and URPL 6850. Restriction: Restricted to majors within the College of Architecture and Planning. 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 design studio covering landscape change in diverse contexts at various scales and complexities. Recommended: completion of 2 graduate level landscape studios or permission of department chair. Restriction: Restricted to graduate students within the College of Architecture and Planning. 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 inquiries 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 6715. 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. Cross-listed with LDAR 4430. 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 6635 - Community Engaged Design Practice

Obtain real-world pre-design and conceptual design experience in complex urban environments focusing on evolving trends in sustainability. Using digital trans-disciplinary learning students will develop comprehensive sustainable strategies that draw from their own sustainable philosophy developed during this class. Cross-listed with ARCH 6257 and LDAR 4435. Restriction: Restricted to graduate students within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6636 - Urban and Local Food Systems

In this seminar, we will examine the connections between landscape architecture and food production in cities as well as the role that food production plays in rural landscapes. The course material may be historical, theoretical, or oriented toward contemporary research. Cross-listed with LDAR 4436. Restriction: Restricted to graduate students within the College of Architecture and Planning. Max hours: 3 Credits **Semester Hours:** 3 to 3

LDAR 6637 - 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. Cross-listed with URPL 6410 and ARCH 6258. Restriction: Restricted to Architecture graduate students within the College of Architecture and Planning. 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 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. Cross-listed with URBN 6652. Restriction: Restricted to graduate students within the College of Architecture and Planning. 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. Cross-listed with LDAR 4470. 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 6706 - Advanced Landscape Architecture Design Studio Immersive I

Advanced design studio forms core of the Immersive experience; covers landscape change in diverse contexts at various scales and complexities. Travel competent also required (LDAR 6707). Recommended: complete 2 previous landscape graduate studios or permission of department chair. Co-req: LDAR 6707, LDAR 6740, and LDAR 6745. Max hours: 4 Credits. **Semester Hours:** 4 to 4

LDAR 6707 - Advanced Landscape Architecture Design Studio Immersive II

Advanced design studio forms core of the Immersive experience; covers landscape change in diverse contexts at various scales and complexities. Travel anticipated. Recommended: complete 2 previous landscape graduate studios or permission of department chair. Co-req: LDAR 6706, LDAR 6740, and LDAR 6745. Max hours: 2 Credits. **Semester Hours:** 2 to 2

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 6740 - Advanced History/Theory Seminar - Immersive Semester

Investigates topical issues in landscape architecture history/theory, process and methods within the framework of themes/issues running through the immersive semester course of study. Co-requisite LDAR6706 Advanced Landscape Architecture Design Studio - immersive. Restricted to graduate CAP students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LDAR 6745 - Advanced Media/Technology Seminar - Immersive Semester

Advances landscape architectural practice by exploring innovative methods of design analysis, production, representation, and communication. Community participation and civic engagement are integral components of this seminar aligned with the immersive studio core track. Co-requisite LDAR6706 Advanced Landscape Architecture Design Studio - immersive. Restricted to graduate CAP students. 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 6755 - 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. Cross-listed with ARCH 6205 and URPL 6405. Restriction: Restricted to majors within the College of Architecture and Planning. 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 6850 - GIS Capstone

Studies initiated by students or faculty and sponsored by a faculty member to investigate a special topic or problem related to GIS. Serves as Capstone for LA GIS certificate. Permission of instructor required. Max hours: 3 Credits. **Semester Hours:** 3 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

This experiential learning course provides students the opportunity to participate in and reflect on the practice of landscape architecture by working in a design office. Students will reflect on and critically analyze issues such as leadership, management and collaboration. Prerequisite: This course may only be taken once during a student's academic career and is to be taken after the first year of graduate study. 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

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. Term offered: fall. 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. Note: This course assumes that students have passed LATN 1010 or equivalent, or have taken one year of high school Latin, or possess equivalent proficiency. A grade of C- or higher in LATN 1010 is recommended for success in this course. Term offered: spring. 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. Term offered: summer. 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. Note: This course assumes that students have passed LATN 1020 or equivalent, or have taken two years of high school Latin, or possess equivalent proficiency. A grade of C- or higher in LATN 1020 is recommended for success in this course. 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. Note: This course assumes that students have passed LATN 2010 or equivalent, or have taken three years of high school Latin, or possess equivalent proficiency. A grade of C- or higher in LATN 2010 is recommended for success in this course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LATN 2840 - Independent Study

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. Term offered: summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LATN 3840 - Independent Study

Max hours: 12 Credits. **Semester Hours:** 1 to 3

LATN 4840 - Independent Study

Max hours: 12 Credits. **Semester Hours:** 1 to 3

LATN 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

LATN 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

Lit, Lang, & Cult Resp Teach

LCRT 2000 - Rebels, Villains, & Superheroes: How Children's Literature Shapes Our Identities

This course explores both classic and contemporary children's and adolescent literature and media in traditional and digital texts, specifically focusing on developing literary understandings, exploring perspectives and personal responses to literature, and inquiring into trends and issues. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 3720 - Introduction to Writing Development and Teaching

This course introduces students to writing development in children from early childhood through 5th grade. Students will learn how to analyze student writing for strengths and needs in order to design effective writing instruction. Prereq or coreq: EDHD 2930 and LCRT 4710. Restriction: Restricted to students in Education and Human Development with between 27 and 180 cumulative credit hours. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 4000 - Elementary Literacy Instruction and Assessment Part 1

This course develops an appreciation, understanding, and application of literacy

assessment and instruction in PK-6 classrooms. Interns learn how to use various types of assessment and instruction for reading and writing that address the literacy needs of PK-6 Students. Cross-listed with LCRT 5000. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 4001 - Elementary Literacy Instruction and Assessment Part 2

This course develops an appreciation, understanding, and application of literacy assessment and instruction in PK-6th classrooms. Interns learn how to use various types of assessment and instruction for reading and writing that address the literacy needs of PK-6th Students. Cross-listed with LCRT 5001. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 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 LCRT 5100. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 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. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 4201 - Adolescent Literature

Reading and evaluating fiction and non-fiction appropriate for students in middle and senior high school. Emphasis is on modern literature. Cross-listed with LCRT 5201. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 4210 - 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. Cross-listed with LCRT 5210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 4220 - Literacy Routines & 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. Cross-listed with LCRT 5220. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 4230 - 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. Cross-listed with LCRT 5230 Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 4710 - Primary Literacy for Diverse Learners: Pre K-3rd 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-3). This course is cross-listed with LCRT 5710. Prereq or coreq: EDHD 2930 and LCRT 3720. Restriction: Restricted to students in Education and Human Development with between 27 and 180 cumulative credit hours. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5000 - Elementary Literacy Instruction and Assessment Part 1

This course develops an appreciation, understanding, and application of literacy assessment and instruction in PK-6 classrooms. Interns learn how to use various types of assessment and instruction for reading and writing that address the literacy needs of PK-6 Students. Cross-listed with LCRT 4000. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5001 - Elementary Literacy Instruction and Assessment Part 2

This course develops an appreciation, understanding, and application of literacy assessment and instruction in PK-6th classrooms. Interns learn how to use various types

of assessment and instruction for reading and writing that address the literacy needs of PK-6th Students. Cross-listed with LCRT 4001. Prereq: LCRT 5000. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5020 - Reading Development, Instruction and Assessment

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 - Developing Strategic Readers, Grades 4-12

Focuses on supporting adolescents' developing literacy understandings especially related to vocabulary, reading comprehension, writing, and student engagement across all content areas in the upper elementary grades through high school. Importance is placed on putting new teaching practices in place. Max hours: 3 Credits.

Semester Hours: 3 to 3

LCRT 5029 - Developing 21st Century Literacy Curriculum, Gr 4-12

Focuses on adolescents' developing literacy understandings across all content areas upper elementary grades through high school. Attention is given to comprehension and critical thinking including assessment, unit planning, problem-based learning, research cycles, technology, and putting new teaching practices into place. Max hours: 3 Credits.

Semester Hours: 3 to 3

LCRT 5055 - Literacy Assessment & Informed Instruction

Focuses on reading, writing, and language assessments and their use to plan and deliver informed classroom and intervention instruction. Principles of literacy assessment, state and federal law, instructional strategies and interventions are learned through creation of student literacy profiles. Needs of both L1 and L2 learners as well as other diverse learners are considered. Max hours: 3 Credits.

Semester Hours: 3 to 3

LCRT 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 LCRT 4100. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5150 - Culturally Relevant & Responsive Pedagogies

Provides an examination of broad cultural diversity regarding the role of culture in teaching and learning in the classroom. After examining their educational contexts, students gain skills to differentiate instruction for diverse learners; foster quality instruction that demonstrates respect for cultural pluralism; and, create equitable educational environments. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5200 - Theory and Methods of English Education

Focuses on teaching and learning theories and practical classroom strategies for teaching English Language Arts to students in middle school and high school. Cross-listed with LCRT 4200. 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. Cross-listed with LCRT 4201. 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. Cross-listed with LCRT 4210. 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. Cross-listed with LCRT 4220. 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. Cross-listed with LCRT 4230. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5310 - Literacy Assessment & Processing: Guided Reading

The course will explore the format and components of Guided Reading Plus, including: responsive teaching, summative and formative assessment, content/language objectives, oral language development, strategies for problem solving, comprehension, fluency, word solving strategies, and the reciprocity of reading and writing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5320 - Teaching Students with Reading Difficulties

The course will explore specific teaching moves that help children build an effective literacy processing system and become independent readers. We will study areas of reading difficulty and ways of assessing students to determine their strengths and instructional needs. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5330 - Deepening Literacy Understandings

This will explore the power of formative assessment for observation and interpretation of reading behaviors. We will study the continuum of literacy learning as a foundation for learning the behaviors and understandings that must be taught at each text level. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5710 - Primary Literacy for Diverse Learners, Pre K-Grade 3

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-3). This course is cross-listed with LCRT 4710. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5720 - Writing Development, Instruction and Assessment

Course covers current theories of writing development as they relate to classroom practices, direct participation in personal writing, conferencing with other course members, revision of pieces, and the sharing of final products. Participants use research to help analyze and assess student writing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 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

LCRT 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

LCRT 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

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 5770 - Effective Literacy Instruction for Diverse Learners

Focuses on exploring, applying, and evaluating research-based instructional models and

learning strategies for teaching literacy to diverse learners. Students develop a professional practice of providing instruction to support oral language, academic reading, and academic writing for native speakers of English, multilingual and bidialectal learners of English. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5790 - Children's Literature: Grimm through Graphic Novels

Children's literature course exploring the historical development of children's literature and its influence on contemporary literature and media. Emphasized are various genre including both fiction and nonfiction, choosing and critiquing children's literature, and children's book awards. Graphic novels and e-books are explored as the leading edge of this area. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5795 - Current Children's Literature

This course explores children's literature, including electronic books, within the past decade. A wide range of genres will be explored with a particular emphasis on newer authors and illustrators in the field. Participants will also practice critiquing children's literature and selecting books for instruction. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5810 - Oral & Written Language & Literacy

Focuses on oral/written language and literacy in educational and home settings. Addresses learners with native English, English as additional language, bi-dialectal, and multilingual. Students analyze language and literacy samples using language structures and discourse patterns to develop instructional techniques. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LCRT 5815 - Family Literacies in Diverse Communities

Focuses on involving and connecting with families and communities of classroom learners. Students gain practical strategies to identify resources and funds of knowledge that diverse learners and families bring to schools; and, use learners' cultural resources and references to promote all aspects of learning in the classroom. 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. 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 & Practicum in Literacy and Language

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. 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 and others' teaching, participants will deepen their understanding of how to assess and design instruction based on the needs of students. Second, through structured coaching activities, participants will improve their skills in providing literacy leadership. Max hours: 3 Credits. 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. Cross-listed with BMIN 1000. 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. Restriction: Restricted to Freshman level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 1200 - Career and Professional Development

This first year course develops a student's professional skills, providing knowledge on key factors for early and long-term career success. Through applied learning and career-oriented experiences, the course covers: career and major exploration, student resources, resume writing, interview skills, business communications, professional etiquette, emotional intelligence, time management, ethical behavior, and workplace expectations. Students will have opportunities to develop their own professional network with business leaders as new members of the Business School. Restriction: Restricted to freshman level Business School majors. 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. Restriction: Restricted to undergraduate students at a junior standing or higher. 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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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. Cross-listed with MGMT 3000. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 1 Credits. **Semester Hours:** 1 to 1

MGMT 3420 - Ethics: A Formula for Success

Students will learn how to spot and address red flags that foster unethical behavior in both publicly-traded and privately-held businesses. Governance and stakeholder management techniques that incentivize ethical behavior will be highlighted using examples of companies that are financially successful by "doing the right thing." Principle-based ethics are emphasized, namely, integrity, trust, accountability, transparency, fairness, respect, viability, and compliance with the rule of law. Cross-listed with MGMT 6420, ISMG 4785, and ISMG 6885. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 3 Credits.
Semester Hours: 3 to 3

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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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. To enroll in an internship, students must work with the Experiential Learning Center on campus and have a 2.40 GPA or higher. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MGMT 4028 - Travel Study Topics

Join your classmates in an international travel study course to understand the business operations of another culture. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 9 Credits. **Semester Hours:** 3 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. Restriction: Restricted to undergraduate students at a junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4120 - Collaborative Experiential Learning

Explores the place and role of architecture as an instrument of critical social engagement and cultural change. Business students will collaborate with Arch students to explore the role of history and precedent in the design process through client driven projects that demonstrate their proficiency in applying business analysis to project design. Prereq: Senior standing. Restriction: Restricted to undergraduate Business majors. This course will be in collaboration with ARCH 4120. Note: this class will fulfill the Business Schools experiential learning requirement. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4140 - Negotiation Skills/Property: Effective Strategies

Course covers real and personal property law, including ownership, title, landlord/tenant, easements, environmental law, and zoning. Emerging issues in intellectual property are also reviewed, including U. S. law and international treaties and agreements. Negotiation techniques through role-playing are emphasized. NOTE: This course is an elective course and may not be used to fulfill the CORE BLAW 3050 course. Meets concurrently with BLAW 4140. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4231 - Managing Sports Finance

This course explores the problems and solutions of financing in the sports industry. It focuses on stadium/venue financing, sports team valuation, event guarantee estimation, player salary issues, and managing disparate revenue streams. The course utilizes speakers, articles, problem sets, and cases. Prereq: DSCI/BANA 2010 and ACCT 2200 both with a grade of C- or higher, ECON 2012 and ECON 2022. Coreq: FNCE 3000. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4330 - Mastering Management

Experiential learning course designed to give students hands-on practice developing critical management skills such as: negotiation, conflict management, group consensus-building, and interpersonal feedback and communication. Prereq: MGMT 3000 with a grade of C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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 higher. Coreq: MGMT 4370. As a corequisite, MGMT 4370 can be taken concurrently or completed prior. If completed prior, must earn a grade of C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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 with a grade of C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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 with a grade of C (2.0) or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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 with a grade of C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Cross-listed with INTB 4410. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4420 - HR: Talent MGT

Students analyze data/metrics, develop and deliver evidenced based solutions to multiple talent challenges presented in a real-world case study with a focus on managing a Talent Pipeline consisting of Performance Based Hiring, Development, Engagement, Performance, and Retention. Coreq: MGMT 3010. As a corequisite, MGMT 3010 can be taken concurrently or completed prior. If completed prior, must earn a D- or higher. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4430 - Human Resources Management: Training

Covers training methods, theories, research findings. Students design and deliver their own training program, including collecting and analyzing metrics to gauge training

success. Coreq: MGMT 3010. As a corequisite, MGMT 3010 can be taken concurrently or completed prior. If completed prior, must earn a D- or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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. As a corequisite, MGMT 3010 can be taken concurrently or completed prior. If completed prior, must earn a D- or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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 or BANA 2010 with a grade of 'C-' or higher. Coreq: MGMT 3010. As a corequisite, MGMT 3010 can be taken concurrently or completed prior. If completed prior, must earn a D- or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Cross-listed with MGMT 6740. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4460 - 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 MGMT 6760 and RISK 4409/6409. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4481 - Human Resources Management: Career and employment coaching

Focuses on enhanced approaches to discovering employment opportunities and providing career coaching, with an emphasis on unemployed veterans. Topics include discovering the unique capabilities a job-seeking veteran possesses, addressing the

barriers to employment he or she may face, and methods the job seeker can use to educate prospective employers about the contributions to organizational success he or she can make. Cross-listed with MGMT 6781. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4482 - Human Resources Management: Connecting talent with business needs

iring decisions makers, exploration conversations to identify an organization's success factors, and identifying job seekers (with a special emphasis on unemployed veterans) with the requisite skills, knowledge, traits, and aptitudes. Cross-listed with MGMT 6782. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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: Senior standing and completion of all business core courses with appropriate grade; Core = ISMG 2050, DSCI/BANA 2010, ACCT 2200, ACCT 2220, BLAW 3050 (or BLAW 3000) all with a 'C-' or higher; ISMG 3000, DSCI/BANA 3000, FNCE 3000, MGMT 3000, and MKTG 3000 all with a grade of 'C' or higher. 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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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 either ENTP 3500 with a grade of 'C-' or higher or BLAW 4120 or ENTP 3120 with a grade of 'C' or higher. 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 4824 - 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. Students may petition to use previous coursework or experience in sustainability to fulfill the prerequisite. Please contact the undergrad.advising@ucdenver.edu for more details. Prereq: MGMT 3830 or MGMT 4110 with a C or higher or department consent. Restrictions: Restricted to undergraduate majors within the Business School. Cross-listed with MGMT 6824. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4825 - Sustainable Change Leadership: Turning Business Into a Force for Good

This course develops leadership from the perspective of managing the people side of change required to transform a traditional business to one that is not only financially successful but also a genuine "force for good" for our natural and social environment. The BLab Impact Assessment tool is used to measure, monitor, and link sustainable business practices to drive continuous improvement and innovation. Students will conduct hands-on, practical work with local businesses to develop change leadership skills as they relate to sustainability. NOTE: this course will satisfy the BGen requirement (experiential learning requirement). Restriction: Restricted to undergraduate Business majors with junior standing or higher. Cross-listed with MGMT 6825. 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 with a grade of C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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. Prereq: MGMT 3000 with a grade of C (2.0) or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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, MKTG 4834, and MKTG 6834. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 4840 - Independent Study

Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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: Students must be a junior status and have completed either: 1. ISMG 3000 or ACCT 4054 and MGMT 3000 and MKTG 3000, OR 2. ISMG 3000 and ISMG 3500 and ISMG 3600. Restriction: Restricted to undergraduate students in the Business School. Cross-listed with ISMG 4900. 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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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 6028 - Travel Study Topics

Join your classmates in an international travel study course to understand the business operations of another culture. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 9 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: BUSN 6520 or BUSN 6521 or MGMT 6380. Restriction: Restricted to graduate Business majors and NDGR majors with a sub-plan of NBA or NBD, within the Business School. 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 or 6521. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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 or 6521. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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 or 6521. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6420 - Ethics: A Formula for Success

Students will learn how to spot and address red flags that foster unethical behavior in both publicly-traded and privately-held businesses. Governance and stakeholder management techniques that incentivize ethical behavior will be highlighted using examples of companies that are financially successful by "doing the right thing." Principle-based ethics are emphasized, namely, integrity, trust, accountability, transparency, fairness, respect, viability, and compliance with the rule of law. Cross-listed with MGMT 3420, ISMG 6885, and ISMG 4785. Restriction: Restricted to graduate business school students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6610 - Business Strategy Lab

Gain strategy experience collaborating with and consulting to Senior Executives of a client company. This is a hands on, project-based course. Students will analyze a strategic initiative as defined by and with the organization's leadership and provide their client with research, insights and actionable strategic ideas. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6710 - HR: Talent MGT

Students analyze data/metrics, develop and deliver evidenced based solutions to multiple talent challenges presented in a real-world case study with a focus on managing a Talent Pipeline consisting of Performance Based Hiring, Development, Engagement,

Performance, and Retention. Prereq: MGMT 6380. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6720 - Human Resources Management: Training

Covers training methods, theories, research findings. Students design and deliver their own training program, including collecting and analyzing metrics to gauge training success. Co-req: 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 6760 - 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 MGMT 4460 and RISK 4409/6409. Restriction: Restricted to graduate majors and

NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits.
Semester Hours: 3 to 3

MGMT 6781 - Human Resources Management: Career and employment coaching

Focuses on enhanced approaches to discovering employment opportunities and providing career coaching, with an emphasis on unemployed veterans. Topics include discovering the unique capabilities a job-seeking veteran possesses, addressing the barriers to employment he or she may face, and methods the job seeker can use to educate prospective employers about the contributions to organizational success he or she can make. Cross-listed with MGMT 4481. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6782 - Human Resources Management: Connecting talent with business needs

Focuses on methods for connecting businesses and public-sector organizations with job seekers who possess the capabilities that will fuel profitable growth and mission success. Topics include networking to establish relationships with hiring decisions makers, exploration conversations to identify an organization's success factors, and identifying job seekers (with a special emphasis on unemployed veterans) with the requisite skills, knowledge, traits, and aptitudes. Cross-listed with MGMT 4482. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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 or BUSN 6521. 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. Restriction: Restricted

to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. Cross-listed with MGMT 4824. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6825 - Sustainable Change Leadership: Turning Business Into a Force for Good

This course develops leadership from the perspective of managing the people side of change required to transform a traditional business to one that is not only financially successful but also a genuine "force for good" for our natural and social environment. The B Lab Impact Assessment tool is used to measure, monitor, and link sustainable business practices to drive continuous improvement and innovation. Students will conduct hands-on, practical work with local businesses to develop change leadership skills as they relate to sustainability. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Cross-listed with MGMT 4825. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6826 - 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MGMT 6827 - 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. Cross-listed with MGMT 4834, MKTG 4834, and MKTG 6834. Restrictions: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. Restriction: Restricted to undergraduate students at a junior standing or higher. 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: DSCI/BANA 2010 with a 'C-' or higher and MKTG 3000 with a grade of 'C' or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 3200 - Consumer 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 with a grade of C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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. Prereq: MKTG 3000 with a grade of C or higher Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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. To enroll in an internship, students must work with the Experiential Learning Center on campus and have a 2.40 GPA or higher. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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 with a grade of C or higher. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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 with a grade of 'C' or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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. Restriction: Restricted to undergraduate Business majors with junior standing 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 with a grade of C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Cross-listed with INTB 4200. 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 with a grade of C or higher. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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 with a grade of C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 4251 - Music and Media Marketing

This course explores strategies, tactics and best practices utilized in the marketing of music, performing and dramatic arts. From recording artists and movie studios to repertory theater companies and symphony orchestras, artists and organizations need sound marketing strategies to engage audiences, sell tickets, and market merchandise to maintain profitable and sustainable operations. Restriction: Restricted to undergraduate Business Students with Junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 4252 - The Business of Sports

This course focuses on strategic business issues in the sports industry. It covers business issues for both spectator sports and individual participant Sports. Spectator sports include football, basketball, hockey, baseball, extreme competitive sports, Olympic sports etc.). Participant sports include outdoor adventure Sports (e.g., Hiking, whitewater rafting, Biking), skiing, golf, tennis, and youth sports. Topics include industry trends, strategic planning, management challenges, financing in sports, and major legal issues in sports. Prereq: MKTG 3000 with a grade of C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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 with a grade of C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 4620 - Customer Service Strategies

This course is designed to help students identify and effectively use managerial concepts of customer service. Students will develop an understanding of the concepts as well as knowledge of the strategies that will lead to higher levels of customer satisfaction, loyalty and ultimately customer retention. Students will have the opportunity to gain firsthand knowledge of these concepts and strategies through lectures, guest speakers, cases and projects. Prereq: MKTG 3000 with a C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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 with a grade of C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. 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 with a grade of C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Cross-listed with ENTP 4720. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 4730 - New Product Development for Consumer and Sports Products

The creation of new products is essential in today's business environment. It is conducive to organizational growth and long-term survival. This course addresses the new product development process in depth. It introduces students to key concepts and issues. It also provides a series of practices which will help students deliver higher value and be more competitive. Prereq: MKTG 3000 with a C or higher. Restriction: Restricted to undergraduate Business majors at a junior standing or higher. Cross-listed with ENTP 4730. 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 with a grade of C or higher. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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 with a grade of 'C-' or higher or BLAW 4120 or ENTP 3120 with a grade of 'C' or higher. 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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 4834 - Global Sports & 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. Cross-listed with MGMT 4834,

MGMT 6834, and MKTG 6834. Prereq: MGMT 3000. Restriction: Restricted to undergraduate Business majors with junior standing or higher. Max hours: 3 Credits.
Semester Hours: 3 to 3

MKTG 4840 - Independent Study

Restriction: Restricted to undergraduate Business majors with junior standing or higher.
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. Restriction: Restricted to undergraduate Business majors with junior standing or higher. 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

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 - Marketing Challenges at the Global Frontier

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. Emphasis on practice through the use of projects and speakers. Coreq: BUSN 6560. Instructor may waive coreq for business students. Restriction: Restricted to graduate business students or NDGR majors and a sub-plan of

NBA or NBD. 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 for Traditional and Creative Industries

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 and an increasing share of GDP in both other developed and emerging economies. This course provides students with the skills to design and deliver high quality services, improve customer satisfaction, and effectively manage service organizations. It also addresses how small, medium, and large firms can develop marketing plans and strategies in the current 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 - Market Research Analytics I

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 or 6530 or BANA 6610. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 6051 - Market Research Analytics II

This course focuses on advanced topics and applications in marketing research. A variety of teaching techniques will be used. Prereq: MKTG 6050. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Max Hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 6060 - Consumer Intelligence--Psychology and 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. Restriction: Restricted to graduate business students or NDGR majors with a sub-plan of NBA or NBD within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MKTG 6070 - Brand Identity & Marketing Communication Strategy

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 - Big Data 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 - Digital Media Marketing - Tools and Analytics

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 Intelligence and Metrics

Every manager knows that effective marketing is critical to successfully competing in today's dynamic business environments. Unfortunately, most managers are not clear on how to assess the financial impact of their firms' marketing vehicles, programs or systems. To provide the needed clarity, this course offers a toolkit of skills that will help in three areas, 1) identifying what to assess, 2) making accurate assessments, and 3) applying the results to future decisions. Having a holistic understanding of market-based action-outcomes is essential for both marketing professionals and all managers with customer-based, profit and loss responsibility, especially those looking to give their careers a long-term competitive edge. Coreq: BUSN 6560. Restriction: Restricted to

graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA within the Business School. 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 6822 - "Fan"tastical Consumers of American Sports and Entertainment

This course explores the study of consumer behavior via the lens of American Sports and Entertainment. Class occurs while students attend a variety of sports and entertainment performances. Students engage in experiential learning via participant and observation research techniques as they attend live performances of American sports and entertainment. The class will attend and study consumers and fans in a variety of venues, (e.g., Baseball, LaCrosse, Fun Run, Hike, Golf, Symphony, Rock Concert Festival, Jazz Concert Festival, American Ninja Warrior filming, Broadway Play,

Cirque de Soleil, and Museum exhibition). These performances primarily take place in downtown centers, e.g., Pepsi Center, Denver Performing Arts Complex, Coors Field, Sports Authority Field at Mile High, Walk or run through various Denver parks, 16th St. Mall, The Civic Center, the Denver Art Museum. Students will engage in observational and immersive consumer behavior research techniques as part of their experience. They will complete assignments relevant for consumer understanding and business practice. Special fee. Co-Req: BUSN 6560. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Max hours: 3 Credits. Max hours: 3 Credits. **Semester Hours: 3 to 3**

MKTG 6824 - Sales and Negotiation for Consumer, Services, Sports, and Entertainment Industries

This course focuses on developing sales skills and techniques for success in the sports and entertainment industries. Students also develop the skills required to negotiate contracts in these industries. Coreq: BUSN 6560. Restriction: Restricted to graduate business students or NDGR majors and a sub-plan of NBA or NBD. Max hours: 3 Credits. **Semester Hours: 3 to 3**

MKTG 6826 - The Sports and Entertainment Industry

This course is designed as a speaker series of sports and entertainment industry elite focusing on: industry trends, strategic planning, management challenges, financing in sports and entertainment business (e.g., stadium/venue financing, sports team valuation, entertainment event guarantee estimation, player/artist salary issues, franchises, and managing disparate revenue streams), and major legal issues in the sports and entertainment industries (entertainment contracts, copyright, trademark and tort law). Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. 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 6834 - Global Sports & 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. Cross-listed with MGMT 4834, MGMT 6834, and MKTG 4834. Restriction: Restricted to graduate business school students. 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 (4000 level) or graduate level work completed. Term offered: fall, spring, summer. Max hours: 8 Credits. **Semester Hours:** 3 to 4

MINS 5200 - Research Methods in Interdisciplinary Science

This course introduces methods used in interdisciplinary research in the physical and natural sciences, mathematics, and computer science and prepares students for developing research-based Master's project/thesis proposals. Topics include the scientific method and ethics, experimental design, data collection and analysis, literature searches, evaluation of scientific literature, scientific writing, and oral presentation. Prereq: Graduate Standing or Instructor Permission. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MINS 5840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 1 to 3

MINS 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

MINS 5939 - Internship

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 1 to 3

MINS 5950 - Master's Thesis

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Prereq: advisor approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

MINS 5960 - Master's Project

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Prereq: advisor approval. Term offered: fall, spring, summer. 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. Note: This course assumes that students have taken MCKE 3041. 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. Note: This course assumes that students have taken MCKE 3041. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MCKE 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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. Note: this course assumes that students have completed MATH 5000 or equivalent. Prereq: Graduate standing. 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 Arts 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. Note: this course assumes that students have completed MATH 5000 or equivalent. Prereq: Graduate standing. 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. Note: this course assumes that students have completed MATH 5000 or equivalent. Prereq: Graduate standing. 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. Note: this course assumes that students have completed MATH 5009 or equivalent. Prereq: Graduate standing. 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. Note: this course assumes that students have completed MATH 5000 and MATH 5002 or equivalent. Prereq: Graduate standing. 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. Note: this course assumes that students have completed MATH 3000 or equivalent. Prereq: Graduate standing. 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. Note: this course assumes that students have completed MATH 3000 or equivalent. Prereq: Graduate standing. Cross-listed with MATH 3210. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MCKE 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. Prereq: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have mathematical knowledge equivalent to three semesters of calculus (e.g., MATH 1401, 2411, 2421). This course can be taken concurrently with MATH 2421. Cross-listed with MATH 3250. 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. Note: this course assumes that students have completed MATH 2421 and MATH 3000 or equivalent. Prereq: Graduate standing. 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. Note: this course assumes that students have completed MATH 3000 or equivalent. Prereq: Graduate standing. 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. Note: this course assumes that students have completed MATH 3000 or equivalent. Prereq: Graduate standing. Cross-listed with MATH 4409. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MCKE 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

Math Education

MTED 3040 - Mathematics for Elementary Teachers

Key mathematical concepts for K-6 teachers informed by NCTM & Common Core State Standards, such as place-value number systems, rational, proportional, & algebraic reasoning, geometrical concepts, & statistical/probability ideas. Students' meaningful, enjoyable learning is promoted via problem solving activities. Cross-listed with MTED 5400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 4002 - Elementary Mathematics Teaching I

Prepares elementary teachers to teach mathematics to PreK-6 students while applying principles of the National Council of Teachers of Mathematics to mathematical learning. Teachers explore ways to help all elementary students become flexible and resourceful mathematical problem solvers. Cross-listed with MTED 5002. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 4003 - Elementary Mathematics Teaching II

Develops the mathematical and pedagogical understandings and competence of elementary teachers, focusing on instructional assessment, principles, and practices. Cross-listed with MTED 5003. Prereq: MTED 4002. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 4300 - Curriculum and Methods for Teaching Mathematics

Fosters teachers' use of task-based mathematics pedagogy, including orchestrating students' mathematical discourse, to develop mathematics classrooms in which the teacher builds from students' current understandings, accommodates for students' differences, and has high expectations for all students. Cross-listed with MTED 5300. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 4301 - Assessment and Equity in Mathematics Instruction

Examines mathematics assessment and equity from both a teacher's and a student's perspective. Focuses on assessment as a process, during which a teacher gathers evidence of students' mathematical knowledge and understanding and then uses that evidence to make instructional decisions. Restriction: Professional Year Admission required. Cross-listed with MTED 5301. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 5002 - Elementary Mathematics Teaching I

Prepares elementary teachers to teach mathematics to PreK-6 students while applying principles of the National Council of Teachers of Mathematics to mathematical learning. Teachers explore ways to help all elementary students become flexible and resourceful mathematical problem solvers. Cross-listed with MTED 4002. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 5003 - Elementary Mathematics Teaching II

Develops the mathematical and pedagogical understandings and competence of elementary teachers, focusing on instructional assessment, principles, and practices. Cross-listed with MTED 4003. Prereq: MTED 5002. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 5030 - Theories Of Mathematics Learning

Develops educators' knowledge of foundational theories and conceptual frameworks in mathematics education. MTED 5030 and 7030 are cross-listed. Max hours: 3 Credits.

Semester Hours: 3 to 3

MTED 5040 - Mathematics Teaching - Theory and Practice

Develops educators' research-based understandings and practices of PreK-12 mathematics teaching and learning. MTED 5040 and 7040 are cross-listed. Max hours: 9 Credits.

Semester Hours: 3 to 3

MTED 5050 - Critique Of Mathematics Education Research

Develops educators' understanding of various research studies in mathematics education, including research focusing on mathematics teaching and learning, attending to students' mathematical reasoning, and teaching mathematics for social justice and equity. Increases educators' competence, confidence and enthusiasm in critiquing research. MTED 5050 and 7050 are cross-listed. Max hours: 3 Credits.

Semester Hours: 3 to 3

MTED 5060 - Developmental Pathways In Students' Mathematical Thinking

Fosters educators' development of 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. MTED 5060 and 7060 are cross-listed. Max hours: 3 Credits.

Semester Hours: 3 to 3

MTED 5300 - Curriculum and Methods for Teaching Mathematics

Fosters teachers' use of task-based mathematics pedagogy, including orchestrating students' mathematical discourse, to develop mathematics classrooms in which the teacher builds from students' current understandings, accommodates for students' differences, and has high expectations for all students. Cross-listed with MTED 4300.

Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 5301 - Assessment and Equity in Mathematics Instruction

Examines mathematics assessment and equity from both a teacher's and a student's perspective. Focuses on assessment as a process, during which a teacher gathers evidence of students' mathematical knowledge and understanding and then uses that

evidence to make instructional decisions. Prereq: Concurrent enrollment in an internship or permission of instructor. Cross-listed with MTED 4301. Max hours: 3 Credits.

Semester Hours: 3 to 3

MTED 5400 - Mathematics for Elementary Teachers

Key mathematical concepts for K-6 teachers informed by NCTM & Common Core State Standards, such as place-value number systems, rational, proportional, & algebraic reasoning, geometrical concepts, & statistical/probability ideas. Students' meaningful, enjoyable learning is promoted via problem solving activities. Cross-listed with MTED 3040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 5619 - Expanding Conceptions of Number: Quantity and Operation

Teachers' 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: Quantity and Operation

Develops K-12 teachers' understanding of number systems and the ability to foster students' understanding. Focuses on number, quantity, and operation. Applicable to teaching students at all grade levels in line with the K-12 Common Core Standards. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 5622 - Expanding Conceptions of Algebra

Develops K-12 teachers' understanding of algebra concepts and the ability to foster students' understanding. Focuses on equivalence, variable, covariation, and function. Applicable to teaching students at all grade levels in line with the K-12 Common Core Standards. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 5623 - Geometrical Ways Of Reasoning

Develops K-12 teachers' geometrical reasoning and the ability to foster students' reasoning. Addresses transformation, measurement, classification, objects, imagery, formulas, and investigation. Applicable to teaching students at all grade levels in line with the K-12 Common Core Standards. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 7030 - Theories Of Mathematics Learning

Develops educators' knowledge of foundational theories and conceptual frameworks in mathematics education. MTED 5030 and 7030 are cross-listed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 7040 - Mathematics Teaching - Theory and Practice

Develops educators' research-based understandings and practices of PreK-12 mathematics teaching and learning. MTED 5040 and 7040 are cross-listed. Max hours: 9 Credits. **Semester Hours:** 3 to 3

MTED 7050 - Critique Of Mathematics Education Research

Develops educators' understanding of various research studies in mathematics education, including research focusing on mathematics teaching and learning, attending to students' mathematical reasoning, and teaching mathematics for social justice and equity. Increases educators' competence, confidence and enthusiasm in critiquing research. MTED 5050 and 7050 are cross-listed. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTED 7060 - Developmental Pathways In Students' Mathematical Thinking

Fosters educators' development of 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. MTED 5060 and 7060 are cross-listed. 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. Note: This course assumes that students have knowledge equivalent to three years of high school mathematics (two years of algebra). Term offered: fall, spring, summer. 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 1011 - Math for Liberal Arts Workshop

Prepares students for college-level mathematics. Students receive one-on-one and small-group instruction on mathematics topics related to college level mathematics success. Coreq: MATH 1010. Term offered: fall, spring. Max hours: 1 Credit. **Semester Hours:** 1 to 1

MATH 1060 - Finite Mathematics

This course is designed to introduce students to mathematics topics commonly encountered by business students. This course meets the universities CORE mathematics requirement. The topics include linear equations and inequalities, linear, quadratic, exponential and logarithmic functions, simple, compound and continuous interest, future and present value annuities, amortization, systems of equations, linear programming, logic, sets and probability. Graphing technology is used extensively and business applications are emphasized throughout. Terms offered: Fall and Spring. Max Hours: 3 Credits.

MATH 1070 - College Algebra for Business

Covers the same mathematical topics as College Algebra, MATH 1110, but with

business applications. Note: Graphics calculator required. Note: Students may not receive credit for this course if they have already received credit for MATH 1110 or MATH 1130. Note: 24 on ACT-Math, 560 on SAT-Math or above average performance in intermediate algebra, algebraic literacy or integrated math are strongly recommended as preparation for this course. 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 - Calculus for Social Sciences and Business

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. MATH 1070 or MATH 1110 with a C- or higher is required for students to register for this course. 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 1109 - Stretch College Algebra-Part 2

This course is the second half of a two-semester sequence (consisting of MATH 1108 followed by MATH 1109). The two semester course sequence is equivalent to MATH 1110 (College Algebra). The topics in algebra are designed for students who intend to take the calculus sequence. Data scatter plots and curve fitting, solving equations, polynomial functions, rational functions, exponential and logarithmic functions and selected other topics are explored. Desmos graphing technology is used extensively and students enrolled in MATH 1109 will review algebraic skills such as solving linear and quadratic equations, factoring and completing the square, graphing techniques and function properties where needed. Applications are emphasized. Note: No co-credit with MATH 1070, MATH 1110 or MATH 1130. Prerequisite: MATH 1108 with a C- or higher. Max hours: 3 Credits.

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, rational, exponential and logarithmic functions and other topics. Applications are emphasized. Note: Students may not receive credit for this course if they have already received credit for MATH 1070 or MATH 1130. Note: 24 on ACT-Math, 560 on SAT-Math or above average performance in intermediate

algebra, algebraic literacy or integrated math are strongly recommended as preparation for this course. Term offered: fall, spring, summer. 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 1111 - First Year Seminar

Restriction: Restricted to Freshman level students. Term offered: fall. 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. Note: This course assumes that students have mathematical knowledge equivalent to MATH 1110 or MATH 1070. Students with a grade of B- or better in MATH 1110 or MATH 1070 pass the course at a much higher rate. No co-credit with MATH 1130. Term offered: fall, spring, summer. 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. Note: This course assumes that students have mathematical knowledge equivalent to a grade of C- or better in College Algebra and Trigonometry. No co-credit with MATH 1070, 1110 or 1120. Term offered: fall, spring, summer. 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. Note: To be able to register for this course, students must demonstrate that they have mathematical knowledge equivalent to MATH 1130 OR MATH 1110 and MATH 1120 OR MATH 1070 and MATH 1120 with a C-or

higher. In addition to completing these courses at CU Denver or their equivalent in transfer, students can also demonstrate this proficiency 1) by having an SAT score of 620 or an ACT score of 27, taken within the last three years, or 2) by having completed and transferred in a course that is the exact equivalent of MATH 1401 at a different institution, or 3) by passing the prerequisite exam administered through the MERC lab. Some preparation is required before this prerequisite exam can be taken; contact the MERC lab or the Mathematics department for more information. Term offered: fall, spring, summer. 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: C- or better in MATH 1401. Note: Students with a grade of B- or better in MATH 1401 pass this course at a much higher rate. Term offered: fall, spring, summer. 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: C- or better in MATH 2411. Note: Students with a grade of B- or better in MATH 2411 pass this course at a much higher rate. Term offered: fall, spring, summer. 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. Note: This course assumes that students have knowledge equivalent to three years of high school mathematics (two years of algebra), intermediate algebra, or Algebraic Literacy at a Colorado Community College at the start of class. Students who have a grade of B- or better in one of these courses pass at a much higher rate. Term offered: fall, spring, summer. 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 2831 - Introductory Statistics Workshop

Prepares students for college-level mathematics. Students receive one-on-one and small-group instruction on mathematics topics related to college level mathematics success. Co-req: MATH 2830. Term offered: fall, spring. Max hours: 1 Credit. **Semester Hours:** 1 to 1

MATH 2939 - Internship

Experiences involving application of specific, relevant concepts and skills in supervised employment situations. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. 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. Coreq: MATH 2421 or MATH 3191. Note: This course assumes that students have taken MATH 2411 or equivalent. Students who have a

grade of B- or better in MATH 2411 pass at a much higher rate. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 3040 - Mathematics for Elementary Teachers

Key mathematical concepts for K-6 teachers informed by NCTM & Common Core State Standards, such as place-value number systems, rational, proportional, & algebraic reasoning, geometrical concepts, & statistical/probability ideas. Students' meaningful, enjoyable learning is promoted via problem solving activities. Cross-list with MTED 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: C- or better in MATH 2411. Term offered: fall, spring, summer. 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. Prerequisite: MATH 2411 with a C- or higher. Term offered: fall, spring, summer. 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. Prerequisite: MATH 2411 with a C- or higher, Co-requisite MATH 3191. Term offered: fall, spring, summer. 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: C- or better in 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 MCKE 5250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 3301 - Introduction to Optimization in Operations Research

Introduces a mathematical approach for decision-making in practice based on optimization. Students will learn to model, analyze and solve a variety of problems from deterministic operations using both continuous and discrete mathematical programming algorithms and software. Note: this course assumes that students have taken MATH 3191 or MATH 3195 or equivalent. Students who have received a grade of B- or better in MATH 3191 or 3195 pass this course at a much higher rate. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 3302 - Simulation in Operations Research

Elementary stochastic processes and standard nondeterministic operations research models solved by simulation: Markov chains, Poisson process, Monte Carlo and discrete-event simulation, queuing theory, and inventory models. Note: This course assumes that students have programming experience (e.g. MATLAB), and have taken MATH 3191 and MATH 3800 or 4810 or equivalent. Students who have a grade of B- or better in MATH 3191 and MATH 3800 or 4810 pass this course at a much higher rate. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 3382 - Statistical Theory

Probability, random variables, properties of distributions, bootstrap methods, maximum likelihood and method of moments estimation, properties of estimators, classical methods for confidence intervals and hypothesis testing. Note: This course assumes students have passed Math 2421 with a C- or better. Students who have a grade of B- or better in Math 2421 pass this course at a much higher rate. Term offered: fall, spring. 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. Cross-listed with PHIL 3440. Term offered: spring. 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 or CHEM 2081, CHEM 2061 or CHEM 2091. Term offered: fall. 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. Note: This course assumes that students have taken MATH 2411 and have either previously taken MATH 2421 or are taking MATH 2421 the same semester as MATH 3800. Students who have a grade of B- or better in MATH 2411 pass this course at a much higher rate. Term offered: fall, spring. 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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. Prereq: Junior standing or higher. 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. Term offered: spring. 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. Note: This course assumes that students have taken MATH 3000 or an equivalent course. Students who have a grade of B- or better in MATH 3000 pass this course at a much higher rate. 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. Note: This course assumes that students have taken MATH 3000 or an equivalent course. Students who have a grade of B- or better in MATH 3000 pass this course at a much higher rate. 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. Note: This course assumes that students have taken MATH 3800 or an equivalent course. Students who have a grade of B- or better in MATH 3800 pass this course at a much higher rate. 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. Note: this course assumes that students have taken MATH 3210, 4310 and 3140 or equivalent. 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: Grade of C- or better in MATH 3000. Note: Students who have a grade of B- or better in MATH 3000 pass this course at a much higher rate. Cross-listed with MATH 5110. Term offered: spring. 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. Note: This course assumes that students have taken MATH 3000 or equivalent and either MATH 3191 or MATH 3195. Students who have a grade of B- or better in these courses pass at a much higher rate. Cross-listed with MCKE 5140. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4201 - Topology

Metric spaces and topological spaces, compactness, separation properties, and connectedness. Note: This course assumes that students have taken MATH 3000. Students who have a grade of B- or better in MATH 3000 pass this course at a much higher rate. 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. Note: This course assumes that students have taken MATH 3191. Students who have a grade of B- or better in MATH 3191 pass this course at a much higher rate. 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: Prereq: Grade of C- or better in MATH 2421 and 3000. Note: Students who have a grade of B- or better in MATH 2421 and 3000 pass this course at a much higher rate. Cross-listed with MCKE 5310. Term offered: fall, spring. 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. Note: This course assumes that students have taken MATH 4310 or an equivalent course. Students who have a grade of B- or better in MATH 4310 pass this course at a much higher rate. Term offered: spring. 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: Grade of C- (1.7) or better in MATH 3191 and in MATH 3800 or 4820 or 3382. Note: Students who have a grade of B- or better in MATH 3191, an A in MATH 3800 or a B- or better in MATH 4820 pass this course at a much higher rate. Cross-listed with MATH 5387. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 4390 - Game Theory

Zero-sum and non-zero-sum games; Nash equilibrium and the principle of indifference; Shapley value and other concepts of fair division; Evolutionary game theory, ESS, and evolutionary population dynamics. Applications in economics, business, and biology. Note: This course assumes that students have programming experience (e.g. MATLAB), and have taken MATH 2421, 3191 and 3200 or MATH 3195, MATH 3800 or 4810, or equivalent. Students who have a grade of B- or better in these courses pass this course at a much higher rate. 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: Grade of C- or better in MATH 4387 or 5387. Cross-listed with MATH 5394. Term offered: spring of even years. 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. Note: This course assumes that students have taken MATH/CSCI 2511 or MATH 3000. Students who have a grade of B- or better in MATH/CSCI 2511 or MATH 3000 pass this course at a much higher rate. Cross-listed with CSCI 4408 and MCKE 5408. Term offered: spring. 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. Note: This course assumes that students have taken MATH 3000. Students who have a grade of B- or better in MATH 3000 pass this course at a much higher rate. Cross-listed with MCKE 5409. Term offered: fall. 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. Note: This course assumes that students have taken MATH 2421 and MATH 3000. Students who have a grade of B- or better in MATH 2421 and MATH 3000 pass this course at a much higher rate. Term offered: spring of even years. 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. Term offered: fall, spring. 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. Term offered: spring of odd years. 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. Note: This course assumes that students have taken MATH 2421 and MATH 3200, and either have taken MATH 3000 or have experience with partial differential equations in engineering or physics. Students who have a grade of B- or better in MATH 2421 and MATH 3200 pass this course at a much higher rate. Cross-listed with MATH 5733. Term offered: spring of odd years. 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. Term offered: fall, spring. Max hours: 99 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. Note: This course assumes that students have taken MATH 3191 and MATH 3200. Students who have a grade of B- or better in MATH 3191 and MATH 3200 pass this course at a much higher rate. 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. Note: This course assumes that students have taken MATH 4810 or 5310 and have some programming experience. Students who have a grade of B- or better in MATH 4810 or 5310 pass this course at a much higher rate. Cross-listed with MATH 5792. Term offered: fall. 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. Note: This course assumes that students have taken MATH 3191 and MATH 4408. Students who have a grade of B- or better in MATH 3191 and MATH 4408 pass this course at a much higher rate. 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. Note: This course assumes that students have taken MATH 2421 and MATH 3191. Students who have a grade of B- or better in MATH 2421 and MATH 3191 pass this course at a much higher rate. 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. Note:

This course assumes that students have taken MATH 3191 or equivalent and have either previously taken MATH 2421 or are taking MATH 2421 the same semester as MATH 4810. Students who have a grade of B- or better in MATH 3191 pass this course at a much higher rate. Cross-listed with MATH 5310. Term offered: fall, spring. 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: Grade of C- or better in MATH 3800 or MATH 4810 (preferred). Note: Students who have a grade of A in MATH 3800 or a B- or better in MATH 4810 pass this course at a much higher rate. Cross-listed with MATH 5320. Term offered: spring. 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. Note: this course assumes that students have mathematical knowledge equivalent to an introductory course in statistics (e.g., MATH 2830). No co-credit with MATH 4387 or 5387 and doesn't count for Math degrees. Cross-listed with MATH 5830. Term offered: fall, spring, summer. 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 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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. Note: this course assumes that students have mathematical knowledge equivalent to MATH 1401. Prereq: Graduate standing. Not open to students who have had MATH 4010. No credit for applied math graduate students. Cross-listed with MATH 4010. Term offered: spring. 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. Note: this course assumes that students have taken MATH 3000 or an equivalent course. Prereq: Graduate standing. 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. Note: this course assumes that students have taken MATH 3000 or an equivalent course. Prereq: Graduate standing. 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. Note: this course assumes that students have taken MATH 3800 or an equivalent course. Prereq: Graduate standing. 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. Note: this course assumes that students have taken MATH 3210, 4310 and 3140 or equivalent. Prereq: Graduate standing. 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: Graduate standing in Applied Mathematics, or permission of the 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of two semesters of undergraduate real analysis (e.g., MATH 4310 and MATH 4320). Term offered: spring. 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: Graduate Standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of an undergraduate-level course in mathematical proof (e.g. MATH 3000). Cross-listed with MATH 4110. Term offered: spring. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have mathematical knowledge equivalent to two semesters of undergraduate-level real analysis (e.g. MATH 4310, MATH 4320) or to a semester of graduate-level real analysis (e.g., MATH 5070). 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have mathematical knowledge equivalent to two semesters of calculus (e.g., MATH 1401, MATH 2411). 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: Graduate standing in Applied Mathematics or Statistics. AMEN-MS/PHD/STAT-MS. Note: This course assumes that students have the equivalent of differential and integral calculus (e.g., MATH 2411). Cross-listed with MATH 4810. Term offered: fall. 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: Graduate standing in Applied Mathematics or Statistics or instructor permission. AMEN-MS/PHD/STAT-MS. Note: This course assumes that students have the equivalent of an undergraduate-level course in probability (e.g., MATH 3800 or 4810). Cross-listed with MATH 4820. Term offered: spring. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of an undergraduate-level course in probability (e.g., MATH 4810). 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of undergraduate-level courses in probability and statistics (e.g. MATH 4810, MATH 4820, MATH 3382). 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. Prereq: Graduate standing in Applied Mathematics or Statistics or instructor permission. AMEN-MS/PHD/STAT-MS. Note: This course assumes that students have the equivalent of an undergraduate-level course in statistics (e.g., MATH 4820). No co-credit with MATH 4830/5830. Cross-listed with MATH 4387. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5390 - Game Theory

Zero-sum and non-zero-sum games; Nash equilibrium and the principle of indifference;

Shapley value and other concepts of fair division; Evolutionary game theory, ESS, and evolutionary population dynamics. Applications in economics, business, and biology. Note: this course assumes that students have the equivalent of MATH 2421, 3191 and 3800 or 4810. Prereq: Graduate standing in Applied Mathematics. Cross-listed with MATH 4390. Term offered: spring of odd years. 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: Graduate standing in Applied Mathematics or Statistics or instructor permission. AMEN-MS/PHD/STAT-MS. Note: This course assumes that students have the equivalent of an undergraduate-level course in regression analysis (e.g., MATH 4387). Cross-listed with MATH 4394. Term offered: spring of even years. 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. Note: this course assumes that students have the equivalent of a course in linear algebra (e.g., MATH 3191). Prereq: Graduate standing in Applied Mathematics. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of an undergraduate-level course in graph theory (e.g., MATH 4408). 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of an undergraduate-level course in abstract algebra (e.g., MATH 4140). 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 Applied Mathematics or permission of the instructor. Term offered: spring of even years. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of an undergraduate course in data structures (e.g., CSCI 2511) and a course in linear algebra (e.g., MATH 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of a course in linear algebra (e.g., MATH 3191). Term offered: fall. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have some programming experience or the equivalent of a programming course (e.g., CSCI 1410) and linear algebra (e.g., 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of differential and integral calculus (e.g., MATH 2411) and linear algebra (e.g., MATH 3191 or 3195). Programming experience is strongly recommended. Cross-listed with CSCI 4650, 5660, and MATH 4650. Term offered: fall. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of linear algebra and differential equations (e.g., MATH 3195 or both MATH 3191 and 3200) and programming experience or a first course on numerical analysis (e.g., MATH 4650). Cross-listed with MATH 4660, CSCI 4660 and 5661. Term offered: spring. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the

equivalent of a course in numerical analysis (e.g., 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of an undergraduate-level course in linear algebra (e.g., MATH 3191). Term offered: fall. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of an undergraduate sequence in calculus (e.g., through MATH 2421) and differential equations (e.g., MATH 3200 or 3195). Cross-listed with MATH 4733. Term offered: spring. 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: Graduate standing in Applied Mathematics or permission of the instructor. Cross-listed with MATH 4779. Term offered: fall, spring. 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: Graduate standing in Applied Mathematics or

permission of the instructor. Note: This course assumes that students have the equivalent of undergraduate-level courses in differential equations and linear algebra (e.g., MATH 3200 and 3191). 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of an undergraduate-level course in probability (e.g., MATH 4810) and some programming experience. Cross-listed with MATH 4792. Term offered: fall. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of an undergraduate course in linear algebra (e.g., MATH 3191) and graph theory (e.g., MATH 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: Graduate standing in Applied Mathematics or permission of the instructor. : This course assumes that students have the equivalent of a sequence in calculus (e.g., through MATH 2421) and linear algebra (e.g., MATH 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: Graduate standing. Note: This course assumes that students have the equivalent of an introductory course in statistics (e.g., MATH 2830). No co-credit with MATH 4387 or 5387 and doesn't count for Math degrees. Cross-listed with MATH 4830. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 5840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Prereq: Graduate standing in Applied Mathematics or Statistics and instructor permission. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MATH 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

MATH 5939 - Internship

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Prereq: Graduate standing in Applied Mathematics or permission of the instructor. Max hours: 9 Credits. **Semester Hours:** 1 to 6

MATH 5950 - Master's Thesis

Prereq: Graduate standing in Applied Mathematics or permission of the instructor. 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. Prereq: Graduate standing in Applied Mathematics or Statistics or instructor permission. AMEN-MS/PHD/STAT-MS. 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. Note: students should obtain permission from the instructor prior to enrolling in this course. Prereq: Graduate standing in Applied Mathematics. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of a two semester course in undergraduate analysis or advanced calculus (e.g. MATH 4310 and 4320) or introductory graduate-level coursework in analysis (e.g. MATH 5070). Term offered: fall. 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: Graduate standing in Applied Mathematics or Statistics or instructor permission. AMEN-MS/PHD/STAT-MS. Note: This course assumes that students have the equivalent of graduate-level coursework in regression analysis (e.g. MATH 5387). Term offered: fall. 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: Graduate standing in Applied Mathematics or Statistics or instructor permission. AMEN-MS/PHD/STAT-MS. Note: This course assumes that students have prior coursework in statistics. 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: Graduate standing in Applied Mathematics or Statistics or instructor permission. AMEN-MS/PHD/STAT-MS. Note: This course assumes that students have prior coursework in statistics (e.g. MATH 4820 or 4830 or 3382) and regression analysis (e.g. MATH 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: Graduate standing in Applied Mathematics or Statistics or instructor permission. AMEN-MS/PHD/STAT-MS. Note: This course assumes that students have the equivalent of undergraduate-level coursework in linear algebra (e.g. MATH 3191) and ordinary differential equations (e.g. MATH 3200), along with undergraduate-level coursework in probability (e.g. MATH 4810). Term offered: fall of odd years. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 6384 - Spatial and Functional Data Analysis

This course will cover various statistical methods for spatial and functional data. This will include quantifying spatial dependence and making predictions for areal and geostatistical spatial data, as well as smoothing, aligning, and principal components for functional data. Prereq: Graduate standing in Applied Mathematics or Statistics or instructor permission. AMEN-MS/PHD/STAT-MS. Term offered: fall of odd years. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 6388 - Statistical and Machine Learning

This course covers a variety of statistical and machine learning methods. Both supervised and unsupervised methods are covered with an emphasis on model training and error estimation. Topics include penalized regression, principal components, k-nearest neighbors, clustering, and neural networks. Additional higher-level topics such as random forests, support vector machines, and boosting are also covered as time permits. Students will gain exposure to high performance computing by working on a Linux cluster. Prereq: Graduate standing in Statistics or Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate-level coursework in regression analysis (e.g. MATH 5387). Term offered: fall of odd years. 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: Graduate standing in Applied Mathematics or Statistics or instructor permission. AMEN-MS/PHD/STAT-MS. Note: This course assumes that students have the equivalent of graduate-level coursework in regression analysis (e.g. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of a two semester course in undergraduate analysis or advanced calculus (e.g. MATH 4310 and 4320) or introductory graduate-level coursework in analysis (e.g. MATH 5070). 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 in Applied Mathematics or permission of the instructor. Term offered: fall. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of a two semester course in undergraduate analysis (e.g. MATH 4310 and 4320) and graduate-level coursework in linear algebra (e.g. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate-level coursework in numerical analysis (e.g. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of undergraduate-level coursework in linear algebra (e.g. MATH 3191) and ordinary differential equations (e.g. MATH 3200). Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 6840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Prereq: Graduate standing in Applied Mathematics or Statistics and instructor permission. Max hours: 3 Credits. **Semester Hours:** 1 to 3

MATH 7101 - Topology

Every other year. Topological spaces, compactness, separation properties and connectedness. Prereq: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of a two semester undergraduate sequence in analysis or advanced calculus (e.g. MATH 4310 and 4320) or a graduate-level course in analysis (e.g. MATH 5070). 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate level coursework in real analysis (e.g. MATH 6131). Term offered: spring of odd years. 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. Note: This course assumes that students have prior coursework in statistics (e.g. MATH 4820 or 4830 or 3382) and regression analysis (e.g. MATH 4387). Cross-listed with MATH 6376. Prereq: Graduate standing in Applied Mathematics or Statistics or instructor permission. AMEN-MS/PHD/STAT-MS. 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: Graduate standing in Applied Mathematics or Statistics or instructor permission. AMEN-MS/PHD/STAT-MS. Note: This course assumes that students have the equivalent of undergraduate-level coursework in linear algebra (e.g. MATH 3191) and statistics (MATH 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: Graduate standing in Applied Mathematics or Statistics or instructor permission. AMEN-MS/PHD/STAT-MS. Note: This course assumes that students have the equivalent of advanced graduate level coursework in mathematical statistics (e.g. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of undergraduate-level coursework in probability (e.g. MATH 4810) and graduate-level coursework in analysis (e.g. MATH 5070 or 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate-level coursework in mathematical probability (e.g. MATH 7384). Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7393 - Bayesian Statistics

Prior and posterior distributions, conjugate models, single and multiparameter models, hierarchical models, numerical methods for evaluating posteriors, Monte Carlo methods, and Markov chain Monte Carlo. Prereq: Graduate standing in Applied Mathematics or Statistics or instructor permission. AMEN-MS/PHD/STAT-MS. Programming experience is strongly recommended. Term offered: spring of odd years. 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: Graduate standing in Applied Mathematics or

Statistics or instructor permission. AMEN-MS/PHD/STAT-MS. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate-level coursework in graph theory (e.g. MATH 6404). Term offered: spring of even years. 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. Prereq: Graduate standing in Applied Mathematics or permission of the instructor. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate-level coursework in combinatorics (e.g. MATH 7409). Max hours: 3 Credits. **Semester Hours:** 3 to 3

MATH 7413 - Modern Algebra I

Every other year. Groups, rings and ideals, integral domains. Prereq: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of undergraduate level coursework in abstract algebra (e.g. MATH 4140). It is recommended that students take MATH 5718 during the same semester as MATH 7413. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate-level coursework in linear algebra (e.g. MATH 5718) and abstract algebra (e.g. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate-level coursework in linear algebra (e.g. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate-level coursework in linear algebra (e.g. MATH 5718) and combinatorics (e.g. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate-level coursework in linear programming (e.g. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate-level coursework in linear programming (e.g. MATH 5593). Term offered: spring of odd years. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate-level coursework addressing computational methods in nonlinear programming (e.g. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate-level coursework in numerical analysis (e.g. MATH 5070) and partial differential equations (e.g. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate-level coursework in numerical

analysis (e.g. MATH 5660) and linear algebra (e.g. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate-level coursework in analysis (e.g. MATH 5070) and linear algebra (e.g. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate-level coursework in projective geometry (e.g. MATH 7821). 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate-level coursework in linear algebra (e.g. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: Students should contact the course instructor to determine the course focus, and to determine if any prior undergraduate- or graduate-level coursework is assumed. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: Students should contact the course instructor to determine the course focus, and to determine if any prior undergraduate- or graduate-level coursework is assumed. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: Students should contact the course instructor to determine the course focus, and to determine if any prior undergraduate- or graduate-level coursework is assumed. 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: Graduate standing in Applied Mathematics or Statistics or instructor permission. AMEN-MS/PHD/STAT-MS. Note: Students should contact the course instructor to determine the course focus, and to determine if any prior undergraduate- or graduate-level coursework is assumed. 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. Prereq: Graduate standing in Applied Mathematics or permission of the instructor. Max hours: 48 Credits.
Semester Hours: 3 to 3

MATH 7840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments

and outcomes, to the Graduate School for approval. Prereq: Graduate standing in Applied Mathematics or Statistics and instructor permission. 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

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Prereq: Graduate standing in Applied Mathematics or Statistics and instructor permission. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate-level coursework in finite element methods (e.g. MATH 6653) or equivalent programming experience, and graduate-level coursework in analysis or functional analysis (e.g. MATH 6131 or MATH 7132). Term offered: spring of odd years. 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: Graduate standing in Applied Mathematics or permission of the instructor. Note: This course assumes that students have the equivalent of graduate-level coursework in numerical analysis (e.g. MATH 5660) and numerical linear algebra (e.g. 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 1045 - 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 or CVEN 1025 with a C- or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 1208 - 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 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 with a C- or higher. Coreq: MATH 2411. Cross-listed with CVEN 2121. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 2024 - Introduction to Materials Science

The development of the physical principles relating the structural features of materials to their observed properties. Prereq: ENGR 1130 or CHEM 1130 or (CHEM 2031 and CHEM 2038 and CHEM 1999AE). Restricted to majors in CEDC Mechanical Engineering. 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 with a grade of C- or higher. 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 2023 or CVEN 2121 with a C- or higher. Cross-listed with CVEN 3111. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 2034 - 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 2024. Restricted to majors in CEDC Mechanical Engineering. Max hours: 1 Credits. **Semester Hours:** 1 to 1

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). Restricted to majors in CEDC Mechanical Engineering. 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 with a C- or higher. 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, MECH 3012 and MATH 2421 with a grade C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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: MECH 3012 or ENGR 3012 and MATH 2421 with a C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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 with C- or higher; MATH 3195 or MATH 3191 and MATH 3200 and MECH 3010 with a C- or higher. Coreq: CVEN 3121 or MECH 3043. Restricted to majors in CEDC Mechanical Engineering. Max hours: 3 Credits. 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 or ELEC 3030, MATH 3195 or (MATH 3191 & MATH 3200) with a C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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. Coreq: MECH 3027. Max hours: 1 Credit. **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 with a C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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: MECH 3012 with a grade of C- or higher. Coreq: MECH 3021 and CVEN 3313. Restricted to majors in CEDC Mechanical Engineering. Max hours: 1 Credit. **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. Restricted to majors in CEDC Mechanical Engineering. Max hours: 1 Credit. **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 2024 and MECH 3043 with a grade C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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: MECH 3021 with a grade C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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 or CVEN 2121 with a C- or higher. 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 with a C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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. Restriction: Restricted to MECH majors with junior standing within the College of Engineering, Design and Computing. 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. Restriction: Restricted to MECH majors within the College of Engineering, Design and Computing. 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. Restriction: Restricted to MECH majors within the College of Engineering, Design and Computing. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MECH 3939 - Internship

Undergraduate internship course for credit. Must be approved by department and handled subject to experiential learning office rules. Max hours: 3 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. Prereq: MECH 2023, 2033, MATH 3195 or 3200 with a C- or higher. Cross-listed with MECH 5020. 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 with a C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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 with a C- or higher. Restricted to majors in CEDC Mechanical Engineering. Cross-listed with MECH 5024. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 4025 - Advanced Biomechanics

This course provides training in computational and experimental methods for biomechanical engineering analysis. Topics include finite element analysis of biological systems, orthopedic device design, medical imaging analysis, mechanical characterization of biological tissues, and biomechanics of human movement. Prereq: MECH 4020. 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 with a grade C- or higher and 40 hours of MECH courses. Restricted to majors in CEDC Mechanical Engineering. 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 with a C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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) with a C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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: MECH 3012 with a C- or higher. Restricted to majors in CEDC Mechanical Engineering. Cross-listed with MECH 5112. 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 or CVEN 3121 with a C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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 with a C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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 with a C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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) with a C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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 with a C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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 with a C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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 with a grade of C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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 with a grade of C- or higher. Restricted to majors in CEDC Mechanical

Engineering. 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: MECH 3010, MECH 3021, and MECH 3042 with a grade of C- or higher. Restricted to majors in CEDC Mechanical Engineering. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 4147 - Engineering Economy

Applies economic and financial principles to an 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. Restriction: Restricted to MECH majors with junior standing within the College of Engineering, Design and Computing. 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 with a grade of C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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) with a grade of C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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) with a grade of C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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.

Restriction: Restricted to MECH majors with junior standing within the College of Engineering, Design and Computing. 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 with a grade of C- or higher. Restricted to majors in CEDC Mechanical Engineering. 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. Recommended Prereq: MECH 2033, 3012 and 3021. Cross-listed with MECH 5176. Max hours: 3 Credits. **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. Recommended Prereq: MECH 3012. Cross-listed with MECH 5177. Max hours: 3 Credits. **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. Recommended Prereq: MECH 3012. Cross-listed with MECH 5178. Max hours: 3 Credits. **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. Recommended Prereq: MECH 3012. Cross-listed with MECH 5179. Max hours: 3 Credits. **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: Restricted to major in CEDC Mechanical Engineering with junior standing. 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. Restricted to majors in CEDC Mechanical Engineering. Cross-listed with MECH 5208. 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. Restricted to majors in CEDC Mechanical Engineering. Max hours: 9 Credits. **Semester Hours:** 1 to 3

MECH 5001 - Seminar: Introduction to Research

This course is intended to introduce graduate students to the fundamental skills and methods needed to perform research. Topics include writing technical papers,

presentation skills, testing methodology, hypothesis creation and more. Max hours: 1 Credit. **Semester Hours:** 1 to 1

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. Graduate standing or permission of the instructor required. Cross-listed with MECH 4020. 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. Graduate standing or permission of the instructor required. Cross-listed with MECH 4024. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5025 - Advanced Biomechanics

This course provides training in computational and experimental methods for biomechanical engineering analysis. Topics include finite element analysis of biological systems, orthopedic device design, medical imaging analysis, mechanical characterization of biological tissues, and biomechanics of human movement. Prereq: MECH 4020 or MECH 5020. 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 required. 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.

Graduate standing or permission of the instructor required. Cross-listed with MECH 4112. Max hours: 3 Credits. **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 required. 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 required. 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 required. 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. Graduate standing or permission of instructor required. 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. Graduate standing or permission of instructor required. 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. Graduate standing or permission of instructor required. 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. Graduate standing or permission of the instructor required. Prereq: MECH 5143 with a grade of B- or higher. 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. Graduate standing or permission of the instructor required. Prereq: MECH 5143 with a B- or higher. 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 required. 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. Graduate standing or permission of instructor required. 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. Graduate standing or permission of instructor required. 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 with a grade of B- or higher and graduate standing or permission of the instructor required. 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 with a grade of B- or higher and graduate standing or permission of the instructor required. 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 required. 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 required. 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 required. 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. Graduate standing or permission of the instructor required. Prereq: MECH 5141 with a B- or higher. 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. Graduate standing or permission of the instructor required. Prereq: MECH 5143 with a B- or higher. 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. Prereq: Graduate standing or permission of the instructor required. Cross-listed with MECH 4176. Max hours: 3 Credits. **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. Prereq: Graduate standing or permission of instructor required. Cross-listed with MECH 4177. Max hours: 3 Credits. **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. Prereq: Graduate standing or permission of instructor required. Cross-listed with MECH 4178. Max hours: 3 Credits. **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. Prereq: Graduate standing or permission of instructor required. Cross-listed with MECH 4179. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5180 - Advanced Heat Transfer

This course provides fundamental concepts and applicable mathematical techniques for understanding the physics of various modes of heat transfer. Topics include heat conduction in finite and semi-infinite domains, phase change, microscale heat conduction, laminar forced and free convection, turbulence forced and free convection, and thermal radiation. Prereq: Graduate standing or permission of instructor required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5182 - Microscale Transport Phenomena

This course provides the foundations on the physics of microscale transport phenomena, where continuum effects break down, with applications in MEMS and NEMS. Topics include gas microflows, liquid microflows, surface tension-driven flows, electrokinetics transport, kinetic theory, simulation techniques, lattice Boltzmann methods. Prereq: MECH 3021 and MECH 3042. Max hours: 3 Credits. **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 required. Cross-listed with MECH 4208. 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. Graduate standing or permission of the instructor required. Max hours: 6 Credits. **Semester Hours:** 1 to 3

MECH 5939 - Internship

Students gain engineering design experience involving application of specific technical concepts and skills in a supervised industrial environment. (Must have approval from MECH faculty.) Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 5950 - Master's Thesis

Graduate standing or permission of the instructor required. 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. Graduate standing or permission of the instructor required. 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 6184 - Advanced Fluid Mechanics

This course provides a description of the advanced concepts for understanding the physics of fluid motion under different regimes. Topics include kinematics, stresses, equation of motion, vorticity transport, low Reynolds number flow, irrotational flow, interfacial flow, acoustics&waves, hydrodynamic stability & transition, turbulent flow. Prereq: MECH 5141. Restriction: Restricted to students with graduate standing, or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MECH 8990 - Doctoral Dissertation

Graduate standing or permission of the instructor required. Max hours: 10 Credits.
Semester Hours: 1 to 10

Minority Access to Research Careers

MARC 2880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Max hours: 6 Credits. **Semester Hours:** 1 to 6

MARC 2990 - Special Topics

Studies special topics to be selected by the instructor. Note: May be repeated for credit under unique course topics. Max hours: 6 Credits. **Semester Hours:** 1 to 6

MARC 3880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Max hours: 6 Credits. **Semester Hours:** 1 to 6

MARC 3990 - Special Topics

Studies special topics to be selected by the instructor. Note: May be repeated for credit under unique course topics. Max hours: 6 Credits. **Semester Hours:** 1 to 6

MARC 4090 - Research Design & Development

This advanced writing and research methods course is designed to help students develop independent research ideas into formal products, such as a thesis proposal, grant application, presentation, and study protocols. Prereq: permission of the instructor. Cross-listed with PSYC 4090. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MARC 4680 - Behavioral & Biomedical Sciences Research Seminar

Introduces research in the behavioral and biomedical sciences. Students will learn about research programs at CU Denver and other centers, present their own research, and interact with the local scientific community. Prereq: permission of the instructor. Cross-listed with PSYC 4680. Max hours: 4 Credits. **Semester Hours:** 1 to 1

MARC 4780 - Behavioral & Biomedical Sciences Research: Ethics & 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

MARC 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

MARC 4990 - Special Topics

Advanced study of special topics to be selected by the instructor. Note: May be repeated for credit under unique course topics. Max hours: 6 Credits. **Semester Hours:** 1 to 6

MARC 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

Modern Languages

MLNG 1111 - First Year Seminar

Restriction: Restricted to Freshman level students. Max hours: 3 Credits. **Semester Hours:** 1 to 3

MLNG 1995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. 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

Studies the methods and practices of teaching modern languages. Note: requirement for language majors in the teacher certification program, School of Education, CU Denver. Cross-listed with MLNG 5690, SPAN 4690, SPAN 5690, FREN 4690, FREN 5690, GRMN 4690, GRMN 5690, CHIN 4690, CHIN 5690. Term offered: fall. 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. Cross-listed with MLNG 5691, SPAN 4691, SPAN 5691, FREN 4691, FREN 5691, GRMN 4691, GRMN 5691, CHIN 4691, CHIN 5691. Prereq: MLNG 4690 or SPAN 4690 or FREN 4690 or GRMN 4690 or CHIN 4690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MLNG 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

MLNG 5690 - Methods of Teaching Modern Languages

Studies the methods and practices of teaching modern languages. Note: requirement for those wishing to be teaching assistants in the Department of Modern Languages, and for language majors in the teacher certification program, School of Education, CU Denver. Note: This course is taught in English and does not fulfill the foreign language proficiency requirement for the College of Liberal Arts and Sciences. Cross-listed with MLNG 4690, SPAN 4690, SPAN 5690, FREN 4690, FREN 5690, GRMN 4690, GRMN 5690, CHIN 4690, CHIN 5690. 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. Cross-listed with MLNG 4691, SPAN 4691, SPAN 5691, FREN 4691, FREN 5691, GRMN 4691, GRMN 5691, CHIN 4691, CHIN 5691. Prereq: MLNG 5690 or SPAN 5690 or FREN 5690 or GRMN 5690 or CHIN 5690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MLNG 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

Music

MUSC 1011 - The Greatest Albums of All Time

Explores the greatest recorded albums of the modern era. Students will gain historical perspective on specific groups and also learn about the tools and techniques used in

their production process. For students who want to learn how to listen to music with greater understanding and appreciation. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 1111 - First-Year Seminar

Restriction: Restricted to Freshman level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 1515 - 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 1540 - Introduction to Audio Production

Operating principles and performance characteristics of microphones, amplifiers, speaker systems, equalizers, mixers and multi-track recorders; acoustics of music, auditoriums and recording studios. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 1541 - 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. Restriction: Restricted to MUSC-BS majors with a sub-plan of MRA or MST within the College of Arts and Media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 1560 - 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. Pre-req: MUSC 1541 or 1540; Restricted to MUSC-BS within the College of Arts & Media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 1800 - Acoustics for Audio Production

This course studies the nature of sound and practical applications for critical listening and recording environments. Topics include the nature of sound, studio and concert hall design measurement and analysis. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 2125 - Electronic Music Production Techniques

Students will learn contemporary electronic music techniques using current software. The class will include MIDI sequencing, looping, sampling, FM synthesis, subtractive synthesis, and wavetable synthesis. Students will also learn how to appropriately use effects and digital editing. Prereq: MUSC 1560; Restricted to MUSC-BS majors with a sub-plan of MRA or MST. 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 2510 - 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: 6 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 2550 - 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. Prereqs: MUSC 1560, 1800; Co-req: MUSC 2580;

Restricted to BS-MUSC MRA or MST sub-plan only. 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 2580 - 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 1560, MUSC 1800; Co-req: MUSC 2550; Restricted to BS-MUSC MRA and MST sub-plans only. Cross-listed with MSRA 5550. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 2590 - 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 2550 & 2580; Restricted to MRA and MST sub-plan only. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 2600 - A History of Audio in 30 objects

Explore the history of audio through the stories of 30 key objects. From Edison cylinders to Apple computers. This class will trace the development of recording technology and techniques, and discuss how they effect the way we work today. 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 2750 - Introduction to Music Business

Introduces music as a business and 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: 12 Credits. **Semester Hours:** 3 to 3

MUSC 2851 - Introduction to the International Music Business

Students are introduced to the fundamentals of the international music business in diverse countries, including through online discussions and research. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 2852 - Introduction to International Music Technology

Historical and current global innovations in music technology and their impact on popular music. From magnetic tape to DAWs, monophonic to immersive audio, Roland's 808 bass to Ableton Live. Japan, Germany, Sweden, and the UK are among those represented. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 2853 - International Music Business Study Abroad

Students engage in music-business field trips to international settings to attend industry events, interact with industry professionals and conduct research for a practical perspective on the increasing globalization of the music industry. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 2854 - International Recording Arts Study Abroad

Students become acquainted with music technology in a different country by visiting music conferences, recording studios, manufacturers, and historical landmarks. Students compare culturally-based standards and expectations of quality and communication to enhance their sense of professionalism in the field. 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 3250 - Music and Entertainment Marketing

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. Restricted to Music Industry Studies Minor MUIS-MIN. Prereq MUSC 2750 or MUSC 2700. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3260 - 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. Restricted to Music Industry Studies Minor MUIS-MIN. Prereq MUSC 2750 or MUSC 2700. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3265 - Music Industry Networking

This course examines key networking strategies, processes and methods within the music industry. Students will research potential markets using social media, face-to-face interaction and other electronic means. Prereq: MUSC 3220. Max hours: 3 Credits.

Semester Hours: 3 to 3

MUSC 3505 - 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 2590; Restricted to MUSC-BS majors with a sub-plan of MRA or MST. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3515 - History of 20th Century Film Music

This survey of the history of 20th century music in film will acquaint aspiring filmmakers and musicians with a history of the music, as well as concepts of film theory and the creative use of film music. Restricted to students with Junior or Senior status. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3545 - Music Editing in Visual Media

Music editing for film and television. Spotting notes, temp tracks, cue sheets, scoring session management, dubbing stage fixes, and Performing Rights Artists notes. Prereq: MUSC 3505. 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 3605 - 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 3505; Restricted to MUSC-BS majors

with a sub-plan of MRA or MST. Cross-listed with MSRA 5605. 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 3699 - 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. Restricted to Music Business Minors. Prereqs: MUSC 3250 and MUSC 3260. 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, 3700, 3710 and 3755. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3730 - Introduction to Music Cities

In this course, students will examine the development and enhancement of music communities, using as templates the music communities in the city of Denver, the state of Colorado, and other cities throughout the world. Restriction: Restricted to Students with a Junior or Senior Standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3731 - Non Profit Entities in Music and Creative Economies

Students explore the viability, creation, effective operation, and sustainability of a music-related non-profit entity within a music community and how it can strengthen the economic and social well-being of that community. Restriction: Restricted to students with a junior or senior standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3732 - Advanced Music Cities

Students explore how investment in a city's music economy can be beneficial to the development of both a city's physical and economic landscape. Restriction: Restricted to students with a junior or senior standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3733 - Music Tourism

Students will learn how to use music to drive local and regional tourism strategies. Restriction: Restricted to students with a junior or senior standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3740 - Location Sound Recording

Studies workflow and techniques for location recording for film, video, TV, and video games. Students will work in field and in the studio recording and producing sound effects. Topics include microphone selection, field recording, editing and related industry studies. Prereq: MUSC 2590; Restricted to MUSC-BS majors with a sub-plan of MRA or MST. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3750 - Women in the Music Industry

An exploration of the role of women in the music industry, from performers to recording professionals, managers, and executives. This course offers historical perspective on gender diversity in the industry, and explores current issues and its impact on music. Prereq: MUSC 2700. 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 3760 - 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. Restricted to Music Business Minors. Prereqs: MUSC 3250 and MUSC 3260. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3775 - Music Supervision

An examination of processes and strategies associated with securing licenses for music in media outside the music industry. This course offers hands-on opportunity to make music selections for a variety of media using licensing/contract deals for composers, publishers, and labels. Prereq: MUSC 3720 and MUSC 3755. 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 3845 - The Beatles

This course explores the music, biography, cultural impact and business of the Beatles. Restriction: Students must be of sophomore-, junior-, or senior-level standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 3850 - History of the Music Industry

This course investigates the historical development of the music industry from an economic, social, artistic, political, and technological perspective. It focuses on organizations, genres, business systems and influential individuals. Restriction: Restricted to MUSC-BS majors within the College of Arts & Media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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 4210 - Advanced Music Law

Students will conduct in-depth research on focused music law issues, and engage in a workshop setting in drafting, reviewing and negotiating music business contracts.

Prereq: MUSC 3720. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 4400 - The International Music Business

Students examine key elements of the music business structures of different countries, including the countries' trade organizations, industry executives, music artists (as examples of music business success), intellectual property principles and current music business issues. Prereq: MUSC 3720. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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 4525 - Multimodal Interaction for Music

This course explores human-computer interaction in music composition and performance. Students will learn to program and use open-source hardware to build novel and creative musical interfaces and instruments. Restriction: Restricted to Junior/Senior level students in the Recording Arts program. 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 3690, 3700, 3710 and 3755. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MUSC 4800 - Music Industry Entrepreneurship

MIE is a project-based course focused on individual entrepreneurial endeavors. Students will supply their own business, music, multi-media or audio projects. The class will focus on principles of entrepreneurship and helping student's develop those projects into viable businesses or creative releases. Restriction: Restricted to Juniors and Seniors. 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. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1022 - Piano Class II for Non-Majors

Intermediate to Advanced instruction in piano skills for non-majors. Course focuses on further development of reading and performance skills for the non-Music Major. Prereq: PMUS 1021 or permission of instructor. Max hours: 1 Credit. **Semester Hours:** 1 to 1

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 advanced 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: 1 Credit. **Semester Hours:** 1 to 1

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: 1 Credit. **Semester Hours:** 1 to 1

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 1105 - Music Theory I

Study of the evolution of harmonic and melodic procedures, as derived from the common periods of practice, and their relationship to contemporary music concepts. Restriction: Restricted to General Music Minors, GMUS-MIN. Co-requisite PMUS 1115. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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 1115 - 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. Restriction: Restricted to General Music Minors, GMUS-MIN. Co-requisite PMUS 1105. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1119 - 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. Co-req: PMUS 1120; Restricted to MUSC-BS majors with a sub-plan of MST. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1120 - Music Theory I

Study of the evolution of harmonic and melodic procedures, as derived from the common periods of practice, and their relationship to contemporary music concepts. Coreq: PMUS 1119; Restricted to MUSC-BS majors with a sub-plan of MST. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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 1023, 1100, and 1110. Coreq: PMUS 1210 and PMUS 1024. 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 1211 - Ear Training and Sight Singing II

An intermediate aural skills laboratory course that examines interval, melodic, harmonic, and rhythmic dictation as well as the preparation and sight singing of music. Prereq: PMUS 1119; Restricted to MUSC-BS majors with a sub-plan of MST. 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, 2.0 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 - Bembe Ensemble (Beginning Percussion)

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 1480 - Improvisation I

Introduction to the techniques and concepts of instrumental improvisation. Major concepts include identifying and improvising over common musical forms, understanding chord construction and chord/scale relationships, and developing an ability to improvise appropriately in a number of common styles. Max hours: 2 Credits. **Semester Hours:** 2 to 2

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 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: 2 Credits. **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: 2 Credits. **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: 2 Credits. **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: 2 Credits. **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: 2 Credits. **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: 2 Credits. **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: 2 Credits. **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: 2 Credits. **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: 2 Credits. **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: 2 Credits. **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: 2 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: 2 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: 2 Credits. **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: 2 Credits. **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: 2 Credits. **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: 2 Credits. **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: 2 Credits. **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: 2 Credits. **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: 2 Credits. **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: 2 Credits. **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: 2 Credits. **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: 2 Credits. **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: 2 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 1901 - Applied Electric Bass

Private music lessons for General Music Minors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Restriction: Restricted to General Music Minors, GMUS-MIN. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1903 - Applied Guitar

Private music lessons for General Music minors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Restriction: Restricted to General Music minors, GMUS-MIN. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1905 - Applied Drum Kit

Private music lessons for General Music minors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Restriction: Restricted to General Music minors, GMUS-MIN. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1906 - Applied Piano

Private music lessons for General Music minors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Restriction: Restricted to General Music Minors, GMUS-MIN. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1908 - Applied Voice

Private music lessons for General Music minors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Restriction: Restricted to General Music minors, GMUS-MIN. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 1923 - Applied Violin

Private music lessons for General Music minors majors. Lessons emphasize developing fundamental technique, learning and performing standard repertoire, understanding the foundations of musicality, sight reading and developing rhythmic accuracy. Restriction: Restricted to General Music minors, GMUS-MIN. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PMUS 2020 - Prague's Musical Legacy

Introduces students to composers and music of central Europe, with an emphasis on Czech music and culture. Additional topics include: aesthetics of central European film music; current trends in Slavic music; and the influence of the Czech language and history in music creation. Max hours: 6 Credits. **Semester Hours:** 3 to 3

PMUS 2050 - The Holistic Musician

This course is designed to examine and explore the development and practice of health and wellness for musicians, identifying and establishing career objectives, and developing core strategies to thrive as a contemporary artist-musician. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 2092 - Commercial Piano Styles I

This course will teach students how the piano is used in major commercial piano styles of the twentieth and twenty-first centuries. Students will develop a found of skills and knowledge that can be applied to professional music settings. Students must pass a piano audition or have permission from the instructor. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PMUS 2093 - Commercial Piano Styles II

This course with teach students in-depth stylistic performance skills, strategic

improvisation, composition, and arranging. Students must pass a piano audition, or complete PMUS 2092, or have permission from the instructor. 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, 2.0 credits from PMUS 1801 to PMUS 1823 (MIS Applied Lesson). Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 2315 - 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 1105, 1115 and (1.0 credit from PMUS 1901-1923). Restriction: Restricted to General Music Minors GMUS-MIN. 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 - Abakua Ensemble (Intermediate Percussion)

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 2435 - Hip Hop/R&B Ensemble

Intermediate Ensemble. This course will focus on group rehearsals of hip hop and R&B 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: 1 Credit. **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: 12 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 2480 - Recording Studio Ensemble

Recording Studio Ensemble prepares students for the musical challenges experienced by studio musicians. Students work to develop instrumental competence in a variety of styles, arrange original songs, execute flawless takes, and work effectively with diverse artists in a recording environment. Max hours: 3 Credits. **Semester Hours:** 1 to 1

PMUS 2490 - Django Jazz Ensemble

Ensemble designed to give students the opportunity to explore the genre "gypsy jazz" and related styles through performance, listening and discussion. Important artists, repertoire, musical trends, and historical perspectives will be studied. Open to advanced instrumentalists and vocalists, audition based. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 2495 - New Electronics Orchestra Ensemble (NEO)

A performance laboratory for the combination of electronic and acoustic instruments, including improvisation, composition, as well as live video and game sound design. Class requires either an audition or meeting with ensemble faculty. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 2502 - Applied 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: 2 Credits. **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: 2 Credits.
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: 2 Credits.
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: 2 Credits.
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: 2 Credits.
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: 2 Credits.
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: 2 Credits.
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: 2 Credits.
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: 2 Credits.
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: 2 Credits.
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: 2 Credits.
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: 2 Credits.
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: 2 Credits.
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: 2 Credits.
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: 2 Credits.
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: 2 Credits.
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: 2 Credits.
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: 2 Credits.
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: 2 Credits.
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: 2 Credits.
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: 2 Credits. **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 3220 - Vocal Pedagogy

Students will develop a working knowledge of postural, breathing, articulatory, and vocal anatomy, vocal hygiene, and methodology prior to teaching voice in to prevent harm. Students will learn how to listen critically and develop intuition, analytical, and diagnostic skills. Restriction: Restricted to Music majors. Max hours: 2 Credits. **Semester Hours:** 2 to 2

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. Prereq: PMUS 1200, PMUS 1210, and PMUS 1024. Restriction: Restricted to MUSC-BS majors within the College of Arts and Media. 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 - Rumba Ensemble (Advanced Percussion)

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 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 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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 3828 - History of Bluegrass

This course will cover the history of the music and musicians that contribute to the development of the Bluegrass musical style. Topics to be covered include early country music, traditional bluegrass, and contemporary bluegrass. Restriction: Restricted to students with a junior or senior standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 3829 - A Survey of Heavy Metal

A history of heavy metal from the 1970's to present day exploring how religion, politics, community, and censorship have helped to shape this unique genre of music. 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 3832 - Music in Culture

A broad introduction to music as a human phenomenon, this course examines how diverse musics live in and as culture. Through a study of diverse musical elements, genres, periods, styles, and composers in jazz, folk, popular, and world music traditions. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PMUS 3840 - Independent Study: PMUS

Max hours: 3 Credits. **Semester Hours:** 1 to 3

PMUS 3850 - History of the Music Industry

This course investigates the historical development of the music industry from an economic, social, artistic, political, and technological perspective. It focuses on organizations, genres, business systems and influential individuals. Restriction: Restricted to MUSC-BS majors within the College of Arts & Media. Max hours: 3 Credits. **Semester Hours:** 3 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 4440 - Voz de la Clave

Signature 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 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: 4 Credits. **Semester Hours:** 1 to 1

PMUS 4470 - Lark/Advanced A Cappella Ensemble

Lark is an advanced a cappella ensemble for female identifying individuals. Admission to this group is by audition only. Members must have strong sight reading skills, advanced musicianship and performance skills. Lark performs several times per semester. Max hours: 8 Credits. **Semester Hours:** 1 to 1

PMUS 4502 - Applied 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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: 4 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. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. 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 - First Year Seminar

Restriction: Restricted to Freshman level students. Term offered: fall. 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 2550 - Investigating Nature: Introduction to the Philosophy of Science

This course is designed to introduce students to the Philosophy of Science. (No background in philosophy is required.) Philosophy of Science is concerned with how best to use observation and experiment to learn about the world, whether we are investigating fundamental physical structures, the complex operations of biological organisms, or the social dynamics of human groups. Drawing on both historical and contemporary works, we will seek to understand, among other topics, what makes scientific inquiry distinct from other forms of human learning, what accounts for the credibility and objectivity of scientific claims, the influence of psycho-social biases on observation and theory formation, as well as whether accepting a scientific theory, explanation or hypothesis means that we think it is true. Term offered: fall. 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. Term offered: fall, spring. 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. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 3030 - Philosophies of the Good Life & Happiness

Examines concepts and theories of happiness and their application in everyday living as discussed by major philosophers since antiquity (e.g., Aristotle, Kant, Nietzsche). Also considers critiques of Happiness (e.g., Freud, Schopenhauer). Recommended preparation: PHIL 1012 or PHIL 1020. 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. Term offered: spring. 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? Term offered: fall. 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 3410 - 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 3410. 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. Prereq: A passing grade in PHIL 2441 or MATH 3000 or permission from the instructor is required in order for students to enroll in this course. 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. Term offered: fall, spring, summer. 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. Strongly Recommended: Three hours of philosophy; preferably PHIL 1012 but if the student does not have coursework, consulting with the instructor prior to registration is strongly recommended. Term offered: fall. 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. Strongly Recommended: English Composition, Intro to Philosophy, World Religions, World History or junior status. If the student does not have coursework or standing, consulting with the instructor prior to registration is strongly recommended. 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 3760 - 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. Strongly Recommended: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course. If the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 3840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. 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: Students must have junior standing and at least a 2.75 GPA and must work with Experiential Learning Center advising to complete a course contract and gain approval. 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. Strongly Recommended: PHIL 3002 or 3022. If the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. 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. Note: PHIL 3002 or 3022 and a minimum grade of C in each previous philosophy course are strongly recommended, but if the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. 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 and a minimum grade of C in each previous philosophy course are strongly recommended, but if the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. 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 and a minimum grade of C in each previous philosophy course are strongly recommended, but if the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. 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, and a minimum grade of C in each previous philosophy course are strongly recommended, but if the student does not have coursework, consulting with the instructor prior to registration is strongly recommended. 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 and a minimum grade of C in each previous philosophy course are strongly recommended, but if the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. 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 and a minimum grade of C in each previous philosophy course are strongly recommended, but if the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. 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 and a minimum grade of C in each previous philosophy course are strongly recommended, but if the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. 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 and a minimum grade of C in each previous philosophy course are strongly recommended, but if the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. 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. Strongly Recommended: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course. If the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. Cross-listed with PHIL 5300. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4308 - Contemporary Feminist Thought

This course explores contemporary feminist thought in philosophy and literature in the 20th and 21st centuries. Topics include lesbianism, black feminism, Chicana feminism, transgender identity, women and work and others. Cross-listed with ENGL 4308, ENGL

5308, PHIL 5308, WGST 4308, WGST 5308. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4350 - Philosophy of Science

This course examines some of the central philosophical questions concerning the nature of scientific investigation, such as the logical relation of evidence to hypothesis, the objective adjudication of competing hypotheses, the logical function of modeling in empirical inquiry, the criterion for a classificatory system to underwrite induction and explanation, the explanatory relationships between the differing sciences, as well as the theoretical and pragmatic function of scientific law and its relationship to explanation. Cross-listed with PHIL 5350. 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. Strongly Recommended: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course. If the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. 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 "problem of evil" as formulated in the philosophical tradition. Presents classical formulation of the problem, traditional solutions & classical critiques of each answer. Considers perspectives of various religious orientations, which deal differently

with the question of suffering. Cross-listed with PHIL 5480, RLST 4480/5480. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4500 - Feminist Philosophy

Seminar on key debates & figures in historical & contemporary feminist philosophy. Topics may include: rights, embodiment, gender, sexuality, race, reason, & violence. Figures may include: Wollstonecraft, Stanton, Beauvoir, Judith Butler, and bell hooks. Crosslisted with PHIL 5500, WGST 4500 & 5500. **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. Strongly Recommended: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course. If the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. 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. Strongly Recommended: PHIL 3002 or 3022, and a minimum grade of "C" in each previous philosophy course. If the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. 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. Strongly Recommended: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course. If the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. 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. Strongly Recommended: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course. If the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. 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. Strongly

Recommended: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course. If the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. Cross-listed with PHIL 5750. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4755 - 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 and PHIL 5755. 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. Strongly Recommended: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course. If the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. 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. Strongly Recommended: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course. If the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. 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. Term offered: spring. 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. Strongly Recommended: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course. If the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. 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. Strongly Recommended: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course. If the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. Cross-listed with PHIL 5810. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4812 - Special Topics in Philosophy

Strongly Recommended: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course. If the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. 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. Strongly Recommended: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course. If the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. 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. Strongly Recommended: PHIL 3002 or 3022, a minimum grade of "C" in each previous philosophy course. If the student does not have this coursework, consulting with the instructor prior to registration is strongly recommended. Cross-listed with PHIL 5833, HUMN 5833 and SSCI 5833. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 4840 - Independent Study: PHIL

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Max hours: 12 Credits. **Semester Hours:** 1 to 3

PHIL 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. 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. Restriction: Graduate Standing. Cross-listed with PHIL 4000, HUMN 5000 and SSCI 5000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5013 - Methods and Practices of Graduate Interdisciplinary Humanities

The second of three required Master of Humanities core courses, this course introduces beginning graduate students to methodologies and intellectual frameworks for gathering, organizing, and developing interdisciplinary research. Focus is on the application of theories and methods of research, interpretation and analysis in humanistic research through readings that explore philosophical and cultural discourses have altered theory and method. Course note: Students must repeat this course if they earn a C+ or lower and must have permission from the instructor to repeat the course. Students will only earn 3 credits for this course, even if they must repeat it. Restriction: Graduate Standing. Cross-listed with HUMN/SSCI 5013. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5020 - Foundations and Theories of Interdisciplinary Social Science

The first of the Master of Social Science core courses, this course exposes beginning graduate student to critical , key analytic models, and their application in disciplines that comprise the social sciences (classical anthropology, sociology, sociology of religion, philosophy of history, political theory, classical psychology, etc.) for the purpose of graduate-level interdisciplinary social science research. Course note: Students must repeat this course if they earn a C+ or lower and must have permission from the instructor to repeat the course. Students will only earn 3 credits for this course, even if they must repeat it. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. Cross-listed with PHIL 4300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5308 - Contemporary Feminist Thought

This course explores contemporary feminist thought in philosophy and literature in the 20th and 21st centuries. Topics include lesbianism, black feminism, Chicana feminism, transgender identity, women and work and others. Restriction: Restricted to students with Graduate standing. Cross-listed with ENGL 4308, ENGL 5308, PHIL 4308, WGST 4308, WGST 5308. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5350 - Philosophy of Science

This course examines some of the central philosophical questions concerning the nature of scientific investigation, such as the logical relation of evidence to hypothesis, the objective adjudication of competing hypotheses, the logical function of modeling in empirical inquiry, the criterion for a classificatory system to underwrite induction and explanation, the explanatory relationships between the differing sciences, as well as the theoretical and pragmatic function of scientific law and its relationship to explanation. Restriction: Restricted to students with Graduate standing. Cross-listed with PHIL 4350. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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 "problem of evil" as formulated in the philosophical tradition. Presents classical formulation of the problem, traditional solutions & classical critiques of each answer. Considers perspectives of various religious orientations, which deal differently with the question of suffering. Restriction: Restricted to students with Graduate standing. Cross-listed with PHIL 4480, RLST 4480/5480. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5500 - Feminist Philosophy

Seminar on key debates & figures in historical & contemporary feminist philosophy. Topics may include: rights, embodiment, gender, sexuality, race, reason, & violence. Figures may include: Wollstonecraft, Stanton, Beauvoir, Judith Butler, and bell hooks. Restriction: Graduate Standing. Crosslisted with PHIL 4500, WGST 4500 & 5500. **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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. Cross-listed with PHIL 4790. Term offered: spring. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. Cross-listed with PHIL 4800. Term offered: spring. 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. Restriction: Graduate Standing. Cross-listed with PHIL 4810. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5812 - Special Topics in Philosophy

Restriction: Graduate Standing. 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. Restriction: Graduate Standing. Cross-listed with PHIL 4820. 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. Restriction: Graduate Standing. Cross-listed with PHIL 4833, HUMN 5833 and SSCI 5833. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHIL 5840 - Independent Study: PHIL

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Max hours: 3 Credits. **Semester Hours:** 1 to 3

PHIL 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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. Restriction: Graduate Standing. 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. **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. Note: High school algebra or equivalent are strongly recommended preparation for 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

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. Note: this course assumes that students have 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 - First Year Seminar

Restriction: Restricted to Freshman level students. Max hours: 3 Credits. **Semester Hours:** 1 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. Note: College algebra and trigonometry are strongly recommended preparation for optimal student success. 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. Prerequisite: PHYS 2010 with a C- or higher. 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

This is an algebra-based physics lab covering subjects studied in PHYS 2010. 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

This is an algebra-based physics lab covering subjects studied in PHYS 2020.

Prerequisite: PHYS 2030 with a C- or higher. 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. Prerequisite: MATH 1401 with a C- or higher. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PHYS 2321 - General Physics Lab I

This is a calculus-based physics lab covering subjects studied in PHYS 2311. 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. Prerequisite: PHYS 2311 and MATH 2411 with a C- or higher. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PHYS 2341 - General Physics Lab II

This is a calculus-based physics lab covering subjects studied in PHYS 2331. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PHYS 2351 - Applied Physics Lab I

Introduces physics majors to several ways that fundamental concepts in mechanics intersect with useful technologies, resulting in documented technical competencies useful in research and industry. Co-req: PHYS 2311. Restriction: Restricted to PHYS majors, minors, or instructor's permission. Max hours: 1 Credit. **Semester Hours:** 1 to 1

PHYS 2361 - Applied Physics Lab II

Introduces physics majors to several ways that fundamental concepts in electrodynamics and optics intersect with useful technologies, resulting in documented technical competencies useful in research and industry. Prereq: PHYS 2351. Co-req:

PHYS 2331. Restriction: Restricted to PHYS majors, minors, or instructor's permission. 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. Prerequisite: PHYS 2331 and MATH 2411 with a C- or higher. 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 with a C- or higher. 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 with a C- or higher. 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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. 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 or PHYS 2010 or PHYS 2311. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 3070 - Physical Cosmology

Designed for science and engineering maj, stud. in quantitative fields/ w req math skills interested in physical universe. Covers large-scale structure of universe & its evolution from birth well into future. Gravitational concepts, neutron stars, black holes, big bang univ, cosmological tests, dark matter & energy. Problem solving emphasized. Note: This course assumes that students have completed PHYS 2010 or PHYS 2311 prior to taking this course. Note: Routine knowledge of algebra, geometry and trigonometry is assumed. Knowledge of trig and calculus also useful. 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. Note: One college-level science course and MATH 1110 or equivalent are strongly recommended as preparation for optimal student success. 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. Pre: MATH 2421 and

either MATH 3195 or MATH 3191 and MATH 3200 with a C-or higher. 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. Note: 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. Note: 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. Pre-req: PHYS 2711, MATH 2421 and either MATH 3195 or MATH 3191 and MATH 3200 with a C-or higher. Co-req PHYS 3120. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PHYS 3251 - Biophysics of the Body

Fundamental ideas of anatomy, physiology, and biomechanics from the viewpoint of physics. Biological topics covered include: skeletal systems, muscular systems, circulatory systems, and human motion. Analytical mechanics topics include: newtonian mechanics, harmonic motion, energy conservation, and introductory fluid dynamics. Prereq: PHYS 2711, 3161, MATH 2421 and 3195 or equivalent or permission of instructor. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PHYS 3252 - Biophysics of the Body NM

Fundamental ideas of anatomy, physiology, and biomechanics from the viewpoint of physics. Biological topics covered include: skeletal systems, muscular systems, circulatory systems, and human motion. Analytical mechanics topics include: newtonian

mechanics, harmonic motion, energy conservation, and introductory fluid dynamics. Prereq: PHYS 2010 and PHYS 2020. 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 with a C- or higher; Coreq: MATH 3195 or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 3451 - Biophysics of the Cell

Fundamentals of cellular biology from the viewpoint of physics. Biological topics covered include: the central dogma of molecular biology, cellular signaling, genetic regulation, molecular crowding, and ion channels. Statistical and thermal physics topics include: statistics, probability, thermodynamics, heat, and entropy. Prereq: PHYS 2811, 3151 and MATH 2421 or permission of instructor. Coreq: MATH 3195. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PHYS 3452 - Biophysics of the Cell NM

Fundamentals of cellular biology from the viewpoint of physics. Biological topics covered include: the central dogma of molecular biology, cellular signaling, genetic regulation, molecular crowding, and ion channels. Statistical and thermal physics topics include: statistics, probability, thermodynamics, heat, and entropy. Prereq: PHYS 2020, 2040 and 3151 or permission of instructor. 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 3711 - Junior Laboratory I

Advanced laboratory in classical and modern physics. Prereq: PHYS 2811 with a C- or higher. Max hours: 2 Credits. **Semester Hours:** 2 to 2

PHYS 3721 - Junior Laboratory II

Advanced laboratory in classical and modern physics. Prereq: PHYS 3711 with a C- or higher. 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 with a C- or higher. Max hours: 4 Credits. **Semester Hours:** 4 to 4

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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. Prereq: Junior standing or higher. Max hours: 9 Credits. **Semester Hours:** 1 to 3

PHYS 4251 - Physical Fluid Dynamics

Fundamental concepts and methods in fluid dynamics are developed through basic laws, the Navier-Stokes equation, viscous fluid flow, dimensional analysis, vorticity, boundary layers, linear stability and turbulent flow. Cross-listed with PHYS 5251. Prereq: Restricted to students who have completed PHYS 2311, PHYS 2331 and PHYS 3120 with a C- or higher or with instructor permission. Max hours: 3 Credits. **Semester Hours:** 3 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 with a C- or higher. 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 3120 or permission of instructor. Cross-listed with PHYS 5351. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PHYS 4352 - Bioelectromagnetism NM

This course is the non-majors' companion to PHYS 4351/5351 (taught simultaneously) using modeling approaches accessible to the general science student. Prereq: PHYS 2010, 2020 and MATH 1401 or permission of instructor. Cross-listed with PHYS 5352. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PHYS 4400 - Scientific Instrumentation

Conceptual and practical knowledge needed to design scientific instruments, develop technical products, and use special laboratory procedures to research. Topics include materials, mechanisms, electronics, and optics. Prereq: Two semesters of 2000-level introductory physics or instructor's permission. Cross-listed with PHYS 5400. Max hours: 6 Credits. **Semester Hours:** 3 to 3

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 with a C- or higher. 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. Note: MATH 3195; PHYS 2821 and 3050 are strongly recommended preparation for optimal student success. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PHYS 4611 - 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.

Note: Students will not earn credit for PHYS 4611, if they have already earned credit for PHYS 4610. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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 PHYS 3811 with a C- or higher. 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 with a C- or higher. 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 with a C- or higher. Max hours: 2 Credits. **Semester Hours:** 2 to 2

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 with a C- or higher. 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 with a C- or higher. 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 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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 4939 - Internship

Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. 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 with a C- or higher. Max hours: 12 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 5351 - Bioelectromagnetism

The fundamental theory of electric and magnetic fields is developed and applied to problems in 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 3120 or permission of instructor. Cross-listed with PHYS 4351. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PHYS 5352 - Bioelectromagnetism NM

This course is the non-majors' companion to PHYS 4351/5351 (taught simultaneously) using modeling approaches accessible to the general science student. Prereq: PHYS 2010, 2020 and MATH 1401 or permission of instructor. Cross-listed with PHYS 4352. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PHYS 5400 - Scientific Instrumentation

Conceptual and practical knowledge needed to design scientific instruments, develop technical products, and use special laboratory procedures to research. Topics include materials, mechanisms, electronics, and optics. Cross-listed with PHYS 4400. Max hours: 6 Credits. **Semester Hours:** 3 to 3

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 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

PHYS 5939 - Internship

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. 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. Note: this course assumes that students have completed PHYS 2811 or equivalent. Prereq: Graduate standing. 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. Term offered: fall, spring, summer. 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 - First Year Seminar

Restriction: Restricted to Freshman level students. Term offered: fall. 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 2011 - Logic of Political Inquiry

This course builds critical thinking techniques, logical habits of mind, and research skills necessary for political study. Includes argumentation basics, logical fallacies, evaluating evidence, understanding statistics, effective writing, and internet research. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 2365 - Politics of Climate Change

This course shows how Political Science addresses today's most severe threat to our planet. It analyzes how societies try to mitigate and adapt to climate change at various governance levels. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 2410 - Political Science through Science Fiction

Explore political science concepts by analyzing works of science fiction. Course examines utopian and dystopian communities, imagined futures, and political theorizing in both classic and unusual works of fiction. 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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. 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 - Political Systems of the World

The class focuses on the analyses of various political systems around the world. Students will look at democracies and dictatorships, industrialized countries and developing countries. Though a structured comparison, students will assess and test key theories in Political Science. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Term offered: fall, spring, summer. 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. Term offered: fall, spring. 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. Term offered: fall, spring. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 3050 - Islamophobia

Islamophobia depicts Islam and its followers as threats to civilization, human rights and progress. Course examines historical and current Islamophobia, including impacts on international relations and on domestic politics. 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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. Prereq: Junior standing or higher. Max hours: 9 Credits. **Semester Hours:** 1 to 9

PSCI 4002 - Topics in Political Science

Specialized areas of politics. Note: May be taken more than once for credit when topics vary. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Term offered: fall, spring, summer. Max hours: 12 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. Term offered: spring. 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4024 - State Politics: Focus Colorado

Examination of American state politics, with an emphasis on Colorado. Course examines the special role of state governments in the American federal system. Focus on

dominant current issues facing Colorado state government. Term offered: fall, summer. 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. 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. 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 4075 - Gentrification and Social Equity

Study causes and consequences of urban gentrification, and explore strategies of grassroots resistance and social equity solutions that are being mobilized to challenge the forces of gentrification. Contrast common celebrations of the waves of capital reinvestment that are fueling urban revitalization with the frequent claim of many low-income neighborhoods: "Gentrification is Class War!" Cross-listed with PSCI 5075. 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 Governance: Environment and Society

Focuses on how public & private actors at various levels of governance address pressing social & environmental issues such as aging societies, drug abuse, air pollution & global warming. Students will learn to analyze the dynamics of conflict & cooperation, using main concepts and theories of governance literature. Cross-list 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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. Cross-listed with PSCI 5145 and ETST 4146. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4150 - Gender Politics in the Middle East: Beyond Orientalism & Islamism

This course is about Middle Eastern women's subjectivity and various forms of agency. It explores the nexus of domestic, regional and international forces that shapes the lives of Middle Eastern women, in particular in the Algerian, Egyptian, Iranian, Israeli and

Palestinian contexts. Far from being silent observers of the contests among these forces, as is often assumed, Middle Eastern women have been active actors in the public arena since the 19th century colonial encounter and the importation of the modern state to the region using an array of means to make their voices heard. Theirs were often more militant than those of their countrymen. The course is divided into two parts. The first part provides an overview of the theoretical notions discussed such as Orientalism, agency, colonialism and post-colonialism. Related to this theoretical section is a historical overview that is necessary to the understanding of the contemporary conditions of Middle Eastern women and the continuities and changes between past and present. The second part covers pressing topics in the lives of Middle Eastern women in the post-independence era such as the rise of Political Islam, the global trend of democratization, war and occupation. The emphasis in this section is on women as active participants in the debates surrounding these issues, rather than as objects of them. The readings assigned include both texts written by scholars from the region and by others from without. They provide analyses of the contexts within which Middle Eastern women's struggles take place. In addition, students will be exposed to materials produced by Middle Eastern women activists that express their own opinions and views in order to avoid misrepresentation and to reflect the diversity among them. Cross-listed with WGST 4150. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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. 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. 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. Note: this course assumes that students have completed at least two political science courses. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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 4240 - International Security

Examines old and emerging "threats" to national security, and policy responses, from theoretical, historical and geographical perspectives. Explores challenges of ethnic conflict, weapons of mass destruction, environmental and economic security. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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. Note: this course is intended for political science majors. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Cross-listed with PSCI 5276. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4280 - The Politics of War Law

Examines international laws governing armed conflict, including human rights law. Investigates the reasons for instances of compliance and violation within this international legal regime regulating war and conflict. 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. 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. Cross-listed with PSCI 5365. 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 - Non-Profits and Social Change

Explores role of non-profits in catalyzing social change. What are obstacles and opportunities to leveraging social change through nonprofits? What factors shape nonprofits to be either transformational or systemstabilizing forces? 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. Term offered: spring. 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 PSCI 4146. 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. Term offered: fall. 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. Term offered: spring. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4535 - Labor and Working Class Politics

Explores the status of the labor movement both in the U.S. and internationally, as well as the political, philosophical, and social implications of socioeconomic class status and identity. Cross-listed with PSCI 5535. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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 - Seminar on U.S. and China Relations

Detailed examination of historical context and current issues in U.S./China relations. Emphasis on modern period, with particular attention to changing relations in context of rising power of China. Cross-listed with PSCI 5726. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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. Note: this course assumes that students have completed ENGL 1020, 2030, and any 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 violates 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 4878 - War, Film, and International Law

This course examines interactions of culture, politics, and law by chronologically investigating 20th-century war movies and the ways experiences and norms have shaped and been shaped by cinematic representations. Cross-listed with PSCI 5878. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

PSCI 4914 - Community Organizing and Community Development

The theory and practice of community organizing strategies and community development innovations. How can social activists build power at the grassroots to build

equitable, sustainable, and healthy communities? Cross-listed with PSCI 5914. Note: Students will not receive credit for this course if they have already earned credit for PSCI 3075. Max hours: 3 Credits. **Semester Hours:** 3 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. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4944 - CU in the City

Investigation of community development strategies through seminar discussions, urban walking tours, and student field placement with a local community based organization, non-profit, or public office engaged in community development work. Cross-listed with PSCI 5944. Recommended Preparation: PSCI 3075 Community Organizing and Development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4960 - Capstone in Political Science

Course facilitates independent student research in Political Science and assists students in developing advanced writing and communication skills. Students will design, execute and present advanced research project. Restriction: Students must have completed 27 credits hours in Political Science (PSCI) with a C- or higher in order to register. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 4995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. Cross-listed with PSCI 5995. Term offered: summer. 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 the instructor. Term offered: fall. 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 the 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. Prereq: Graduate standing or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5008 - Graduate Topics in Political Science

Prereq: Graduate standing or permission of the instructor. Term offered: fall, spring, summer. 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. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. Term offered: spring. 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. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. Term offered: fall, summer. 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 the 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 standing or permission of the 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. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5075 - Gentrification and Social Equity

Study causes and consequences of urban gentrification, and explore strategies of grassroots resistance and social equity solutions that are being mobilized to challenge the forces of gentrification. Contrast common celebrations of the waves of capital reinvestment that are fueling urban revitalization with the frequent claim of many low-income neighborhoods: "Gentrification is Class War!" Cross-listed with PSCI 4075. Restriction: Restricted to Graduate and Graduate Non-Degree majors (NDGR-NHL and NDGR-NLA). 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. Prereq: Graduate standing or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5085 - Comparative Governance: Environment and Society

Focuses on how public & private actors at various levels of governance address pressing social & environmental issues such as aging societies, drug abuse, air pollution & global warming. Students will learn to analyze the dynamics of conflict & cooperation, using main concepts and theories of governance literature. Cross-list PSCI 4085. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. 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 standing or permission of the 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: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5217 - Human Rights in Theory and Practice

Explores the ideas of human rights and the practical efforts to actualize rights in society. Students study the theories of rights and the evolution of rights in history, as well as work with a service organization. Cross-listed with PSCI 4217. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. 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. Prereq:

Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. 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 or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. 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: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. 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 standing or permission of the 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. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5365 - 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. Cross-listed with PSCI 4365. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5414 - Non-Profits and Social Change

Explores role of non-profits in catalyzing social change. What are obstacles and opportunities to leveraging social change through nonprofits? What factors shape nonprofits to be either transformational or systemstabilizing forces? Cross-listed with PSCI 4414. Prereq: Graduate standing or permission of the instructor. 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). Prereq: Graduate standing or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5424 - The Social Economy and Sustainable Development

Theory and practice of social economy initiatives like worker cooperatives, micro-credit networks, mutual aid associations and the fair trade movement. How do grass-roots activists and legal frameworks affect the direction and possibilities of the solidarity economy? Restriction: Restricted to Graduate and Graduate Non-Degree majors (NDGR-NHL and NDGR-NLA). Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5434 - The Cooperative Movement: Politics and Policy

Explores the history, current status, and emerging developments in the cooperative movement, both domestic and global. Topics include the political, organizational, and financial challenges and opportunities facing worker, producer, and consumer cooperatives. Examines how cooperative enterprises have adopted both reformist and revolutionary responses to the capitalist system, and how legal regimes and grassroots movements shape the future of cooperative enterprises. Restriction: Restricted to Graduate and Graduate Non-Degree majors (NDGR-NHL and NDGR-NLA). 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. Note: this course assumes that students have completed PSCI 4144 or 4146 or equivalent. Prereq: Graduate standing or permission of the 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. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. 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. Note: this course assumes that students have completed PSCI 4477 or 4487 or equivalent. Prereq: Graduate standing or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5535 - Labor and Working Class Politics

Explores the status of the labor movement both in the U.S. and internationally, as well as the political, philosophical, and social implications of socioeconomic class status and identity. Cross-listed with PSCI 4535. Restriction: Restricted to Graduate and Graduate Non-Degree majors (NDGR-NHL and NDGR-NLA). 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. Prereq: Graduate standing or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5548 - Labor Law and Collective Bargaining

Explores the history, current status, and emerging developments in U.S. labor law. Examines how labor law structures worker organizing and collective bargaining efforts. Focus on labor/management relations in such processes as contract administration, workplace anti-discrimination efforts, and labor organizing rights. Explore new

developments like labor law in relations to social media usage and independent contracting. Restriction: Restricted to Graduate and Graduate Non-Degree majors (NDGR-NHL and NDGR-NLA). Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5550 - Labor, Trade Unions and the Global Economy

Examines transnational trade unionism amid the global economy, with an emphasis on trade unions in a comparative perspective. How do labor activists and trade unions strive to establish institutions and mechanisms to assert worker rights and power in today's international political-economy? Restriction: Restricted to Graduate and Graduate Non-Degree majors (NDGR-NHL and NDGR-NLA). 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 standing or permission of the 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. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. 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 modern period, with particular attention to changing relations in context of rising power of China. Cross-listed with PSCI 4726. Prereq: Graduate standing or permission of the 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. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. 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. Note: this course assumes that students have a political science or psychology background. Prereq: Graduate standing or permission of the instructor. 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. Prereq: Graduate standing or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5840 - Independent Study: PSCI

Prereq: Graduate standing or permission of the instructor. Max hours: 6 Credits.
Semester Hours: 1 to 3

PSCI 5878 - War, Film, & International Law

This course examines interactions of culture, politics, and law by chronologically investigating 20th-century war movies and the ways experiences and norms have shaped and been shaped by cinematic representations. Prereq: Graduate standing or permission of the instructor. Cross-listed with PSCI 4878. Max hours: 3 Credits.
Semester Hours: 3 to 3

PSCI 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Prereq: Graduate standing or permission of the instructor. Max hours: 6 Credits. **Semester Hours:** 1 to 6

PSCI 5914 - Community Organizing and Community Development

The theory and practice of community organizing strategies and community development innovations. How can social activists build power at the grassroots to build equitable, sustainable, and healthy communities? Cross-listed with PSCI 4914. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5939 - Internship

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Prereq: Graduate standing or permission of the instructor. Max hours: 9 Credits. **Semester Hours:** 1 to 6

PSCI 5944 - CU in the City

Investigation of community development strategies through seminar discussions, urban walking tours, and student field placement with a local community based organization, non-profit, or public office engaged in community development work. Cross-listed with PSCI 4944. Prereq: Graduate standing or permission of the instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSCI 5950 - Master's Thesis

Prereq: Graduate standing or permission of the instructor. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

PSCI 5960 - Master's Project

Prereq: Graduate standing or permission of the instructor. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 1 to 3

PSCI 5995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global Education. Prereq: Graduate standing or permission of the instructor. Cross-listed with PSCI 4995. Term offered: summer. Max hours: 3 Credits. **Semester Hours:** 1 to 3

PSCI 6840 - Independent Study: PSCI

Prereq: Graduate standing or permission of the instructor. 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. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. 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 - First Year Seminar

Restriction: Restricted to Freshman level students. Term offered: fall. 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. Term offered: fall, spring, summer. Max hours: 4 Credits. **Semester Hours:** 4 to 4

PSYC 2205 - Lifespan Developmental Psychology for Health Majors

This course will examine the normative physical, cognitive and soci-emotional changes and milestones that occur through the human lifespan highlighting health-related issues at each stage. Prereq: PSYC 1000 or PSYC 1005. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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. Term offered: fall, spring, summer. 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: Students must have completed 15 hours of PSYC courses with a 2.75 GPA and must work with Experiential Learning Center advising to complete a course contract and gain approval. 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. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3104 - Behavioral Genetics

Interdisciplinary course on relationships between behavior and heredity, with emphasis on human behavioral genetics. One year of general biology or general psychology are strongly recommended for optimal student success. 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. Term offered: fall, spring. 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. Term offered: fall. 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 and PSYC 1005 or PSYC 3215 with a grade of C- or higher. Term offered: fall, spring, summer. 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 PSYC 1005 or PSYC 3205. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. 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. Term offered: fall, spring. 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. One semester of general biology, biological anthropology, or other course emphasizing evolutionary perspective is strongly recommended as preparation for optimal student success. Term offered: fall. 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. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3264 - Exercise, Brain and Behavior

This course explores the impact of physical activity status-being sedentary or physically active-on brain function and behavior. Topics include effects of exercise on cognitive function, mood disorders, stress, anxiety, sleep and drug addiction. Emphasis will be placed on understanding the neurobiological mechanisms by which exercise impacts behavior. Students who have received credit for this topic listed under PSYC 3600 may not receive credit for this course. Prereq: PSYC 1000 and PSYC 2220 with a C- or higher. Term offered: fall. 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. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3305 - Abnormal Psychology

This course applies a scientific approach to the examination of the symptoms, etiologies, and treatments of mental illnesses, including disorders of mood, anxiety, stress, addictions and those seen in childhood and older age. Prereq: PSYC 1000 and 1005. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 3385 - Psychology of Mindfulness

This course will explore significant psychological, neurological, historical, societal and cultural aspects of mindfulness. It will integrate this current knowledge with more traditional aspects of the concept through classroom activities, guest lecturers, projects and field trips. Prereq: PSYC 1000 or 1005. Term offered: spring. 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. Term offered: spring. 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. Term offered: spring. 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. Term offered: fall, spring. 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. Term offered: fall, spring. 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. Term offered: fall, summer. 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. Term offered: fall. 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. Term offered: spring. 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. Term offered: fall. 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. Term offered: fall, spring. 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. Term offered: fall. 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. Term offered: fall. 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: Students must have Junior standing, have completed at least 12 hours in PSYC courses with a 2.0 GPA in PSYC courses and must work with Experiential Learning Center advising to complete a course contract and gain approval to enroll. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. 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 into formal products, such as a thesis proposal, grant application, presentation, and study protocols. Prereq: PSYC 3090 and instructor permission. Cross-listed with MARC 4090. Term offered: fall, spring. 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. Students are recommended to have taken and completed at least one statistics course, at any level, as preparation for optimal success. 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 4111 - Senior Seminar in Psychology: Career Capstone

This course provides a focused integration of the skills and knowledge gained through the psychology major curriculum. As a capstone course, it will prepare students to apply what they have learned to their professional careers. Prereq: PSYC 3090 with a grade of C- or higher. Term offered: fall. 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. Term offered: fall, summer. 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. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 4680 - Behavioral & Biomedical Sciences Research Seminar

Introduces research in the behavioral and biomedical sciences. Students will learn about research programs at CU Denver and other centers, present their own research, and interact with the local scientific community. Prereq: permission of the instructor. Cross-listed with MARC 4680. Term offered: fall, spring. 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. Term offered: spring. Max hours: 3 Credits.

Semester Hours: 3 to 3

PSYC 4780 - Behavioral & Biomedical Sciences Research: Ethics & 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. Term offered: fall. 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. Students are recommended to have taken and completed at least one statistics course, at any level, as preparation for optimal success. Cross-listed with PSYC 5803. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 4840 - Independent Study: PSYC

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Prereq: Permission of instructor. Term offered: fall, spring, summer. Max hours: 12 Credits.

Semester Hours: 1 to 3

PSYC 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

PSYC 4939 - Internship

Prereq: Students must have Junior standing, have completed at least 12 hours in PSYC courses with a 2.0 GPA in PSYC courses and must work with Experiential Learning Center advising to complete a course contract and gain approval to enroll. Term offered: fall, spring, summer. 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

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Max hours: 12 Credits. **Semester Hours:** 1 to 3

PSYC 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Max hours: 6 Credits. **Semester Hours:** 1 to 6

PSYC 5939 - Internship

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. 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. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Prereq: Admission to the graduate program in psychology. Max hours: 12 Credits. **Semester Hours:** 1 to 3

PSYC 6841 - Independent Study: PSYC

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Max hours: 9 Credits. **Semester Hours:** 1 to 3

PSYC 6910 - Research Practicum

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. 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. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. 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

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. 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. Term offered: spring. 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. Term offered: fall. 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. Term offered: fall. 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. Term offered: fall. 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. Term offered: spring. 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. Term offered: fall. 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 - Assessment I: Personality

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. Term offered: fall. Max hours: 3 Credits. **Semester Hours: 3 to 3**

PSYC 7420 - Assessment I: Intellectual and 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. Term offered: fall. 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. Restrictions: Restricted to Graduate majors in PSYC and PSYH. Term offered: spring. 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. Term offered: summer. Max hours: 6 Credits. **Semester Hours: 1 to 3**

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. Term offered: fall. 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. Term offered: fall. 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. Term offered: spring. 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. Prereq: Admission to the Clinical Health Psychology Ph.D. Program or with Permission of instructor and Graduate program director. Term offered: spring. 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. Term offered: fall. 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. Term offered: spring.

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. Students should enroll in 1 credit hour during year one (spring and summer semesters only) and 3 credit hours during years two (fall, spring, and summer semesters) and three (fall semester only). A total of 14 credit hours of PSYC 7910 are required. Restrictions: Restricted to Graduate majors in PSYC and PSYH. Term offered: fall, spring, summer. Max hours: 14 Credits. **Semester Hours:** 1 to 3

PSYC 7911 - Clinical Practicum II

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. Restrictions: Restricted to Graduate majors in PSYC and PSYH. Term offered: fall, spring, summer. Max hours: 6 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. Term offered: spring. 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). Term offered: spring. 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. Term offered: fall. 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. Term offered: fall. 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. Prereq: Admission to the Clinical Health Psychology Ph.D. Program or with Permission of instructor and Graduate program director. Term offered: fall. 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. Restrictions: Restricted to Graduate majors in PSYC and PSYH. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PSYC 8910 - Advanced Clinical 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. Students should enroll in 3 credit hours during years three (spring and summer semesters only) and four (fall and spring semesters only). A total of 12 credit hours of PSYC 8910 are required. Restrictions: Restricted to Graduate majors in PSYC and PSYH. Term offered: fall, spring, summer. Max hours: 12 Credits. **Semester Hours:** 1 to 4

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. Restrictions: Restricted to Graduate majors in PSYC and PSYH. Term offered: fall, spring, summer. 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. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 10 Credits. **Semester Hours:** 1 to 10

Public Administration

PUAD 1000 - Public Service Online Success and Career Exploration

Offers Public Service majors the chance to explore their career field and adapt to an online learning environment. Topics will include Canvas tips, online course etiquette, community building for the online learner, how online students can utilize CU Denver student-success resources, writing and citation tips, and contemporary time management techniques. Restriction: Restricted to BAPS Majors only. Max hours: 1 Credit. **Semester Hours:** 1 to 1

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 2001 - Management for Public Service

Learn how managers in public sector organizations foster human capital and manage performance in a diverse, inclusive, and collaborative workforce. Examine strategic management techniques, human resource law and procedures. Explore the values of

character and competence in creating effective organizations. Max hours: 3 Credits.

Semester Hours: 3 to 3

PUAD 3001 - Financial Management for Public Service

Explore topics in public financial management including budget preparation, monitoring, and reporting. Learn how to build public service capacity through sound fiscal discipline and equitable allocation of resources for the public good. Max hours: 3 Credits.

Semester Hours: 3 to 3

PUAD 3002 - Program Design, Evaluation, and Decision-Making

Effective public service program outcomes are systematically managed, monitored, and evaluated. Learn the analytical, critical thinking, and problem-solving skills required for program design, implementation, evaluation, and evidence based decision-making. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 3003 - Introduction to Nonprofit Organizations

Explore the historical background, development, role, auspices, organization, and purposes of nonprofit agencies. Expand awareness of the scope and breadth of the nonprofit sector in the U.S., examine the inner workings of nonprofit organizations as the foundation for further study. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 3004 - Managing Nonprofit Organizations

Examine leadership and decision-making theory and practice in the nonprofit sector. Explore classic and contemporary theories on leadership, management, governance and organizational effectiveness of nonprofit organizations. Techniques for effective board meetings, committee work, development of board members, and policy development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 3005 - Collaboration Across Sectors

Organizations across sectors respond to complex problems with innovative and flexible responses through networks. Managing within and across organizations is essential to effective performance in a networked system. Explore collaborative governance across sectors--nonprofit, for-profit, and public--with analyses and applications. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 3110 - 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 and CRJU 5010. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 4001 - Ethics in Public Service

Understand ethics in public service, explore ethical concerns in public affairs, and confront ethical challenges in government and nonprofit organizations. Through theoretical and case study readings and applied projects, students analyze ethical issues and proposed responses. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 4002 - Leading for the Public Good

Explore how service and regulation intersect and challenge public servants to balance management, politics, and law. Investigate cultural competency, social justice, and citizenship, and issues related to organizational development, leadership, motivation, change management, and teamwork. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 4003 - Effective Communication for Public Service

Cultivate skills in making a well-reasoned argument, locating supporting evidence, speaking and writing persuasively, and effectively fostering partnerships across sectors and media. Address varied audiences with presentations that communicate diverse viewpoints in the public service context. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 4004 - Building Public and Financial Support for Nonprofit Organizations

Examines methods, techniques, and directed experience in fundraising for nonprofit agencies. Explores relationships with umbrella organizations, government funding, grantsmanship, budget control, and accountability. Discusses social entrepreneurship and social innovation. Examines communications, marketing, and public relations intersection with resource development. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 4006 - Organizational Development

Examine structures, life-cycles, and change dynamics of government and nonprofit organizations including organizational culture, the relationship between organizational structure and service provision, and organizational strategy and effectiveness. Learn diagnostic and assessment tools, methods, and processes for improving organizational performance. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 4007 - Nonprofit HR: Governance, Staff, Volunteer Management

Current issues in human resource administration for employees of nonprofit organizations. Topics include such areas as recruitment, staff development, volunteer management, performance, evaluation, labor-management issues, and affirmative action. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 4008 - Current Issues in Public Sector Organizations

Explore the impact on public sector organizations of emergent issues such as globalization, changing demographics of the citizenry and workforce, sustainability, declining budgets, and information technology. Examine ways public sector organizations adapt to these trends. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 4009 - Human Service Organizations

Provides an overview of human services delivery in government and nonprofit organizations. Explore causes and conditions that give rise to the need for effective and equitable human service organizations. Learn essential skills including cultural competencies, boundaries, and collaboration. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 4010 - Public Service in Emergency Management and Homeland Security

Introduces emergency management and homeland security including: management of hazards, emergencies, disasters, and the networks of government and nonprofit organizations providing services. Focuses on principles of emergency management and homeland security at state and local jurisdictional levels. Cross-listed with PUAD 5650, CRJU 4010, and CRJU 5650. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 4020 - Social Entrepreneurship

Social entrepreneurship, practices, theories, and allied concepts. Using private,

nonprofit, and government examples, explore innovation, creativity, profit for social welfare, and innovative management. Advance an organization's social good mission, and increase effectiveness, accountability, and efficiency through market-based techniques. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 4140 - Nonprofit Financial Management

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 and CRJU 5140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 4160 - 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. Crosslisted with PUAD 5160. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 4600 - Special Topics in Public Service

This highly specialized seminar addresses cutting-edge and emerging developments in the field of public service 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. Max hours: 18 Credits. **Semester Hours:** 1 to 6

PUAD 4630 - Economic Development

As governments search for new ways to be efficient, improve performance and leverage

resources, they are also looking at their communities, states and regions in terms of competitiveness, international trade and globalization innovation, collaboration and partnerships. This course will look at practices where economic development includes these elements: the Colorado Innovation Network, the Colorado Office of Economic Development and International Trade, the Metro Denver and Denver South Economic Development Partnerships, Mile High Connects, the Downtown Denver Partnership, and public-private partnerships across multiple sectors in transportation, broadband, water and innovation. Students will develop an economic development strategy based on knowledge and tools learned in the course. Political and professional leadership will be part of the dialog. Crosslisted with PUAD 5630. Max hours: 3 credits **Semester Hours:** 3 to 3

PUAD 4840 - Independent Study

This course consists of faculty-guided research in an area of mutual interest to the student and instructor. Students are responsible for selecting their area of inquiry prior to contacting the instructor. Permission of instructor is required. Max hours: 6 Credits. **Semester Hours:** 1 to 6

PUAD 4939 - Public Service Internship

The internship course, required for all Public Service majors unless waived, provides career-related experiential learning in a government agency or nonprofit organization. Students must apply to the internship course in the semester before they hope to enroll and obtain permission from their advisor and the instructor prior to enrolling. Prereq: PUAD 1001 plus any other 2000 level (or higher) PUAD course, a GPA of 2.0, and a minimum of 15 UCD credit hours completed. Max hours: 6 Credits. **Semester Hours:** 1 to 6

PUAD 5001 - Introduction to Public Administration and Public Service

Examines fundamental theories, structures, and processes of governance in the United States, including the evolving roles and responsibilities of public, nonprofit, and private sectors. Covers topics including public service values and ethics, cross-sector and intergovernmental partnerships, and comparative public administration. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5002 - Organizational Management and Behavior

Course covers elements which, when combined, create a resilient learning organization. Topics include organization theory and design, managing human capital, group development and performance, inter- and intra-group communication, information management, and ethical decision-making. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5003 - Research and Analytic Methods

Examines qualitative and quantitative research methods used to answer questions and inform decisions in public and nonprofit settings. Methods covered include reviewing scholarly literature; formulating research questions; selecting appropriate design, data collection and sampling strategies; and analyzing data. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5004 - Economics and Public Finance

Evaluates the role of government with respect to provision and financing of public goods. Explores 5 broad topics: 1) welfare & microeconomics 2) expenditure theory 3) resource mobilization (emphasis on taxation) 4) fiscal federalism 5) basic budgeting & analytical tools. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5005 - The Policy Process and Democracy

Introduces theoretical and applied studies of the policy process. Policy process includes how (I) issues are conceptualized and brought forward as problems needing action; (II) policies are designed and selected; and (III) enacted policies are implemented, monitored, evaluated, and revised. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5006 - Public Service Leadership and Ethics

Provides understanding of the role played by leaders within and across public and nonprofit organizations, and in complex social environments. Examines theories of leadership, skills and processes employed by effective leaders, and ethical conduct of leaders in shaping societal values. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Prereq: PUAD 5003 with a B- or higher. Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with PUAD 7007. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5008 - Evidence-Based Decision-Making

Course provides opportunities for students to use skills developed in Research and Analytic Methods (including developing research/evaluation questions, designing surveys/interview guides, and analyzing data) to inform decisions and/or develop recommendations in multiple policy, management, and program evaluation scenarios. Prereq: PUAD 5003 with a B- or higher. Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with PUAD 3110 and CRJU 5010. 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). Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5140 - Nonprofit Financial Management

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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with PUAD 4140 and CRJU 5140. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Crosslisted with PUAD 4160. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5200 - Education Policy

This course provides a broad overview of the history, purposes, and structure of public education in the United States, including topics such as education systems and governance, institutional actors, funding, education reform trends, and policy implementation and outcomes. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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 non-profit organizations; case studies, with an emphasis on applying theory to current issues in public policy and management. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5361 - Capstone Seminar

Synthesizes competencies gained throughout the course of study into a client-based research project. Students conduct independent research, complete a final written project demonstrating their qualifications and expertise, and orally present findings to a committee of faculty and public administration professionals. Prereq: PUAD 5001, 5002, 5003, 5004, 5005 and 5006 with a B- or higher. Restriction: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5455 - Environmental and All-Hazards Management Law

Conveys knowledge of the statutes, regulations, administrative law, and court decisions governing the management of hazards, natural resources, and environmental protection, with a focus on the risk and liability that individuals and organizations face in these areas of law. Cross-listed with PUAD 5455. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5455 - Environmental and All-Hazards Management Law

Conveys knowledge of the statutes, regulations, administrative law, and court decisions governing the management of hazards, natural resources, and environmental protection, with a focus on the risk and liability that individuals and organizations face in these areas of law. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with CRJU 5455. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours: 3 to 3**

PUAD 5503 - Public Budgeting and Finance

Covers concepts to manage the fiscal purse, prioritize resources, use financial documentation, and analyze fiscal data. Includes budget policy, content, format, processes, performance management, forecasting, inflation adjustment, time value of money, cost analysis, financial condition analysis, and spreadsheet competency. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with URPL 6449. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5630 - Economic Development

As governments search for new ways to be efficient, improve performance and leverage resources, they are also looking at their communities, states and regions in terms of competitiveness, international trade and globalization innovation, collaboration and partnerships. This course will look at practices where economic development includes these elements: the Colorado Innovation Network, the Colorado Office of Economic Development and International Trade, the Metro Denver and Denver South Economic Development Partnerships, Mile High Connects, the Downtown Denver Partnership, and public-private partnerships across multiple sectors in transportation, broadband, water and innovation. Students will develop an economic development strategy based on knowledge and tools learned in the course. Political and professional leadership will be part of the dialog. Crosslisted with PUAD 4630. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5644 - Environmental and Hazards Law

This course provides a broad overview of issues in all hazards management as well as natural resource and environmental health law. It will convey knowledge of the statutes, regulations and court decisions governing the management of hazards by governmental agencies. The course will also cover aspects of environmental policy implementation and enforcement including the legal aspects of natural resource allocation and management and environmental protection. Cross-listed with CRJU 5644. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5650 - Public Service in Emergency Management and Homeland Security

Introduces emergency management and homeland security including: management of hazards, emergencies, disasters, and the networks of government and nonprofit organizations providing services. Focuses on principles of emergency management and homeland security at state and local jurisdictional levels. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with PUAD 4010, CRJU 4010, and CRJU 5650. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5655 - Principles of Emergency Management

Introduces the discipline and practice of emergency management. Topics include administrative practice and processes by which public policy shapes governmental

responses to hazards, emergencies, and disasters. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with CRJU 5655. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5720 - Public Policies for Hazards and Disasters

Examines public policymaking and administration related to homeland security and disasters in the United States, including the interplay between security and traditional hazards management concerns. Assesses the role of institutional processes, governmental and nongovernmental organizations in policy development and implementation. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with CRJU 5720. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5910 - Nature and Scope of Interpersonal Violence

Analyzes the social, historical, political, legal, and psychological aspects of gender-based violence. Topics include definitions of the problem, demographics, children and youth exposure, and national and global perspectives. Strategies for prevention, intervention, treatment, and social change are explored. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with CRJU 5910. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5920 - The Psychology of Interpersonal Violence

Addresses the contributions and limitations of current empirical and clinical psychological literatures on interpersonal violence (IPV). Special attention is paid to the effects of IPV on adult and child survivors, their psychological needs, and the contribution of psychological knowledge to understanding and addressing the problem of IPV. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with CRJU 5920. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5930 - Interpersonal Violence Law and Policy

Examines public policy and law related to interpersonal violence (e.g., welfare reform, child maltreatment, criminal and civil court responses). Topics include the role of law enforcement agents, victim advocacy, and methods to change law and policy.

Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with CRJU 5930. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 5940 - Interpersonal Violence Leadership, Advocacy, and Social Change

Examines different models of social change and various approaches to public address, including social movements and campaigns. Strategies for engaging diverse individuals, systems and communities to address interpersonal violence will be emphasized.

Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with CRJU 5940. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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.

Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to

Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 15 Credits.
Semester Hours: 3 to 3

PUAD 6650 - Professional Topics in Public Service

This series of elective courses delivers just-in-time professional skills and topical content relevant to the needs of today's public service workforce. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits.
Semester Hours: 1 to 3

PUAD 6700 - Community-Based Field Experience and Seminar

Students work in small groups to complete substantive projects for government agencies and community organizations, led by faculty instructor. Topics addressed will vary depending on the needs of the community partner. Prerequisite: Completion of PUAD 5003 and permission of instructor. Restriction: Restricted to SPA graduate students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 6840 - Independent Study: PUAD

Affords students the opportunity to do independent, creative work. Prereq: Permission of instructor. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 9 Credits. **Semester Hours:** 1 to 6

PUAD 6910 - Internship

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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 6950 - Master's Thesis

Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Cross-listed with PUAD 5007. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PUAD 7010 - Advanced Seminar in International Public Policy

Explores advanced approaches and techniques in the study of public policy from international perspectives. The course includes lectures, student research presentations, and discussions with international public policy scholars. The course also includes public policy readings and writing assignments tailored to the student interests and needs. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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.

Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. 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. Restrictions: Restricted to Graduate and Graduate Non-Degree majors within CU Denver. Max hours: 30 Credits. **Semester Hours:** 1 to 10

Public Health

PBHL 1001 - Race, Gender, Class, & Health

Course focuses on the principles, tools, and population approach of social epidemiology as it relates health to race, gender, and class. Contemporary topics in public health will be used as case studies to illuminate principles and tools both in lecture and in recitation sections. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 1111 - First Year Seminar

Restriction: Restricted to Freshman level students. 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. Term offered: fall, spring. 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

PBHL 2052 - Global Demography and Health

This course examines current issues in population growth, fertility, mortality and migration throughout the globe; introduces basic demographic tools; encourages critical thinking about the causes and consequences of population change. Term offered: fall, spring. 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 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. Term offered: fall, spring. 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 3020 - 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 or 2001 with a C or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

PBHL 3020 - 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 or 2001 with a C or higher. Note: Students

will not earn credit for this course if they have already earned credit for PBHL 2020.
Term offered: fall, spring. 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 or 2001 with a C or higher. Term offered: fall, spring. 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. Term offered: fall, spring. 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 or 2001 with a C or higher. Term offered: fall, spring. 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: Students must have junior standing and at least a 2.75 GPA and must work with Experiential Learning Center advising to complete a course contract and gain approval. Term offered: fall, spring, summer. Max hours: 9 Credits.

Semester Hours: 1 to 3

PBHL 3999 - Special Topics in Public Health

Explores topics in public health. Topics will vary from semester to semester, with a particular emphasis on current topics. Prereq: Junior or senior standing or permission of instructor. **Semester Hours:** 1 to 4

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: Junior or Senior standing or permission from instructor. 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. 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: PBHL 2000 or 2001 with a C or higher. Term offered: fall, spring. 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 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 with a grade of C- or better. 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: Junior or Senior standing or permission from instructor. Cross-listed with ANTH 4080/5080. Max hours: 3 Credits.

Semester Hours: 3 to 3

PBHL 4090 - Drug Syndemic

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: Junior or Senior standing or permission from instructor. Cross-listed with ANTH 4090/5090. 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/Co-req: PBHL 2000 or 2001 and all or all but one of PBHL 2020, PBHL 3001,

PBHL 3030, PBHL 3070, PBHL 4040 with a C or better. Students must enroll in that remaining course concurrently with PBHL 4099. Term offered: fall, spring. 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: Junior or Senior standing or permission from instructor. 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. 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 COMM 4620/5620 and 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. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Permission of instructor required. Term offered: fall, spring, summer. Max hours: 4 Credits. **Semester Hours:** 1 to 4

PBHL 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty.

Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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. 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 5515 - History of 20th Century Film Music

This survey of the history of 20th century music in film will acquaint aspiring filmmakers and musicians with a history of the music, as well as concepts of film theory and the creative use of film music. Restricted to RCDA-MS majors within the College of Arts and Media. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MSRA 5525 - Multimodal Interaction for Music

This course explores human-computer interaction in music composition and performance. Students will learn to program and use open-source hardware to build novel and creative musical interfaces and instruments. Restriction: Restricted to Graduate Students. 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 5555 - Dialogue Editing & Mixing for Visual Media

Dialogue editing and mixing for film and television. Recording Voiceover, Automated Dialogue Replacement, Group ADR, Efforts. Noise-reduction, mix levels, compression, limiting, EQ and used of reflected sound. Prerequisite: MSRA 5605. 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 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. Cross-listed with GREK 1010. Max hours: 5 Credits. **Semester Hours:** 5 to 5

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. Term offered: fall, spring, summer. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Term offered: fall, spring, summer. 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. Term offered: spring. 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 C.E. 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 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. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 3120 - Islamic Traditions

Examines birth and history of Islam, its evolution from beginning to current trends and issues. Covers core beliefs, practices, differences between Sunni and Shi'a sects, and

relationship to other Western religions. Term offered: fall, spring. 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-listed with ETST 3300. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 3410 - 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 3410. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 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. Cross-listed with HIST 3486. Term offered: fall. 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. Term offered: fall. 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. Term offered: spring. 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. Term offered: spring. 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. Term offered: spring. 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

This course introduces students to the nature and functions of religion in society, emphasizing western religions in the U.S. Students will develop and apply an understanding of classic and modern sociological theories of religion to current events and disciplinary developments. Cross-listed with SOCY 4610, SOCY 5610, RLST 5020. Prereq: Junior or Senior standing or permission from instructor. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4030 - Race, Religion and Belonging in the United States

Race/ethnicity and religion are conconstitutive social and cultural formations that have played a fundamental part in determining the boundaries of belonging of the United States. In this course, students will interrogate when, why and how race/ethnicity and religion have been used to delineate borders, determine citizenship, navigate legal classifications, dictate social mobility, and regulate economic possibilities. We will analyze both primary sources ?such as sermons, reality TV shows, court cases and graphic images?as well as scholarly writing to explore how formations of race and religion have shaped notions of belonging in the US nation?state, thereby constructing the boundaries of the state itself. Cross-listed with ETST 4030, ETST 5030 and RLST 5030. 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. Term offered: spring. 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. Term offered: summer. 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. Term offered: spring. 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. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4200 - Religion and the Environment

This course will examine the historical and contemporary attitudes and actions of religion in responding to environmental concerns. We will investigate four worldviews in particular: Native American traditions, Christianity, Judaism and Buddhism and also consider how these traditions interact with public policy debates and their position on current environmental issues. This course will consider ethical and moral approaches, philosophical principles and movements including ecofeminism to provide tools for dialogue and critical thinking around ecological challenges. Cross-listed with RLST 5200. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4250 - Spirituality and Ecology in Global Societies

This course will examine the historical and contemporary attitudes and actions of religion in responding to the societal impacts of environmental concerns. We will investigate four worldviews in particular: indigenous traditions, Christianity, Judaism and Buddhism, and also consider how these traditions interact with public policy debates and their position on social justice and environmental issues. Religions both create and mitigate conflict. This course will consider ethical and moral approaches, philosophical principles and social movements including ecofeminism and ethics to provide tools for dialogue and critical thinking around ecological challenges. Term offered: spring. 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. Term offered: spring. 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: Junior or Senior standing or permission from instructor. 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. 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. "Spiritual" approaches to dreams are examined, as well as some major theorists on dreams, especially the work of Sigmund Freud and C. G. Jung. Cross-listed with RLST 5360. Term offered: fall. 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. Term offered: fall. 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. Term offered: spring. 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. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4462 - Islam in Modern History

This course studies Islamic thought and practice over the last two centuries in terms of major historical processes that have operated at local, national, and global scales. Cross-listed with RLST 5462, HIST 4462, HIST 5462. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 4480 - Perspectives on Good and Evil

Examines "problem of evil" as formulated in the philosophical tradition. Presents classical formulation of the problem, traditional solutions & classical critiques of each answer. Considers perspectives of various religious orientations, which deal differently with the question of suffering. Cross-listed with PHIL 4480/5480, RLST 5480. Term offered: fall. 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. This course assumes that students have completed at least 9 hours of literature coursework. 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. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 1 to 3

RLST 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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. Restriction: Restricted to Graduate level students. Cross-listed with ANTH 4130, 5130, RLST 4010. Max hours: 3 Credits.
Semester Hours: 3 to 3

RLST 5020 - Sociology of Religion

This course introduces students to the nature and functions of religion in society, emphasizing western religions in the U.S. Students will develop and apply an understanding of classic and modern sociological theories of religion to current events and disciplinary developments. Restriction: Restricted to Graduate level students. Cross-listed with SOCY 4610, SOCY 5610, RLST 4020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5030 - Race, Religion and Belonging in the United States

Race/ethnicity and religion are conconstitutive social and cultural formations that have played a fundamental part in determining the boundaries of belonging of the United States. In this course, students will interrogate when, why and how race/ethnicity and religion have been used to delineate borders, determine citizenship, navigate legal classifications, dictate social mobility, and regulate economic possibilities. We will analyze both primary sources ?such as sermons, reality TV shows, court cases and graphic images?as well as scholarly writing to explore how formations of race and religion have shaped notions of belonging in the US nation?state, thereby constructing the boundaries of the state itself. Restriction: Graduate standing or instructor permission required to register. Cross-listed with ETST 4030, ETST 5030 and RLST 4030. 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. Restriction: Restricted to Graduate level students. Cross-listed with RLST 4040. Term offered: spring. Max hours: 3 Credits.
Semester Hours: 3 to 3

RLST 5060 - Philosophy of Religion

Nature of religion and methods of studying it. Restriction: Restricted to Graduate level

students. Cross-listed with HUMN 5600, PHIL 4600, 5600, RLST 4060, and SSCI 5600. Term offered: summer. 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. Restriction: Restricted to Graduate level students. Cross-listed with RLST 4160. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5200 - Religion and the Environment

This course will examine the historical and contemporary attitudes and actions of religion in responding to environmental concerns. We will investigate four worldviews in particular: Native American traditions, Christianity, Judaism and Buddhism and also consider how these traditions interact with public policy debates and their position on current environmental issues. This course will consider ethical and moral approaches, philosophical principles and movements including ecofeminism to provide tools for dialogue and critical thinking around ecological challenges. Cross-listed with RLST 4200. 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. Restriction: Restricted to Graduate level students. Cross-listed with RLST 4300. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5360 - 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. "Spiritual" approaches to dreams are examined, as well as some major theorists on dreams, especially the work of Sigmund Freud and C. G. Jung. Restriction: Restricted to Graduate level students. Cross-listed with RLST 4360. Term offered: fall. 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. Restriction: Restricted to Graduate level students. Cross-listed with RLST 4400, PHIL 4650 and 5655. Term offered: fall. 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. Restriction: Restricted to Graduate level students. Cross-listed with RLST 4420 and WGST 4420/5420. Term offered: spring. 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. Restriction: Restricted to Graduate level students. Cross-listed with RLST 4440 and PHIL 4470, 5470. Term offered: spring. 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. Restriction: Restricted to Graduate level students. Cross-listed with RLST 4460. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5462 - Islam in Modern History

This course studies Islamic thought and practice over the last two centuries in terms of major historical processes that have operated at local, national, and global scales.

Restriction: Restricted to Graduate level students. Cross-listed with RLST 4462, HIST 4462, HIST 5462. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5480 - Perspectives on Good and Evil

Examines "problem of evil" as formulated in the philosophical tradition. Presents classical formulation of the problem, traditional solutions & classical critiques of each answer. Considers perspectives of various religious orientations, which deal differently with the question of suffering. Restriction: Restricted to Graduate level students. Cross-listed with PHIL 4480/5480, RLST 4480. Term offered: fall. 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. Restriction: Restricted to Graduate level students.

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. Restriction: Restricted to Graduate level students. 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. Restriction: Restricted to Graduate level students. Cross-listed with ENGL 4510/5510, RLST 4730 and WGST 4510/5510. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RLST 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

Research & Eval Methods

RSEM 4001 - Special Topics

Specific topics vary from semester to semester. Cross listed with RSEM 5001. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 4100 - Research and Statistics in Families and Human Development

This course will prepare students to read, critique, and conceptualize research on families and human development. Statistical concepts will be taught along with examination of statistical studies. The second half emphasizes qualitative studies employing ethnographic and case study methodologies. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 4120 - Introduction to Research Methods

This is a survey course that examines the purposes of research, the methods of quantitative, qualitative, and mixed research, and the processes involved in research studies. The primary aims of this course are to improve your skills as an informed consumer of research and to provide you with the skills to conduct your own research. Cross-listed with RSEM 5120. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 5001 - Special Topics

Specific topics vary from semester to semester. Cross listed with RSEM 4001. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 5050 - Classroom Assessment

This course strengthens educator classroom assessment practice. It provides students with a foundational understanding of quality measurement practices to support evaluation of assessment instruments and tasks, determination of appropriate scoring approaches, and interpretation of state and district assessment results. It also deepens students' formative assessment practice supported by practical strategies and tools. Finally, it facilitates student integration of formative and summative uses of assessment with instruction and planning. 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

This is a survey course that examines the purposes of research, the methods of quantitative, qualitative, and mixed research, and the processes involved in research studies. The primary aims of this course are to improve your skills as an informed consumer of research and to provide you with the skills to conduct your own research. Cross-listed with RSEM 4120. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 5600 - Issues in Assessment Development

This is the first course of a three-course series for a Classroom Assessment Certificate. The course focuses on developing the conceptual knowledge and technical skills required to help K-12 practitioners to develop valid, reliable, and fair assessment of student learning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 5610 - Formative and Summative Assessment in the Classroom

This is the second course of a three-course series for a Classroom Assessment Certificate. The course focuses on developing conceptual knowledge and technical skills required to develop and implement formative and summative assessments to support student learning. Prereq: RSEM 5600. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 5620 - Analyzing, Using, and Reporting Assessment Results

This is the third course of a three-course series for a Classroom Assessment Certificate. The course focuses on developing conceptual knowledge and technical skills required to develop and implement formative and summative assessments to support student learning. Prereq: RSEM 5610. Max hours: 3 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: 9 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 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. 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 SCRD's. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 7000 - Doctoral Seminar in Research Methods

Designed for students beginning doctoral work, explores conceptual and practical bases for doing and evaluating educational research. The chain of reasoning linking the conceptualization of a research problem, the posing of questions in a social process of inquiry, and the collection and interpretation of evidence is examined through the use of examples. Restriction: Restricted to EDHDPHD, LDRE-EDd, EDLI-PhD and SPSY-PsyD majors within the School of Education and Human Development. Max hours: 3 Credits.

Semester Hours: 3 to 3

RSEM 7001 - Applied Research Methods I

Introduces students to principles of quality research design, and provides a conceptual and hands-on procedural introduction to quantitative and qualitative methods common in education-related research. Takes an explicit focus on understanding and mitigating potential biases in research methods and design. Restriction: Restricted to LDRE-EDD students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 7002 - Applied Research Methods II

Prepares students with conceptual knowledge and procedural skills of designing quality, applied research from critical and pragmatic perspectives. Focus on quantitative analysis methods, including survey and assessment item development. Students continue deeper review of extant literature for intended dissertation topic. Restriction: Restricted to LDRE-EDD students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 7003 - Applied Research Methods III

Content will focus on qualitative data collection and analysis methods, and mixed methods design including program evaluation and improvement research. Students will work with faculty on development of dissertation in practice design. Restriction: Restricted to LDRE-EDD students. 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. 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. 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. 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. 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, co-relational, 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. Max hours: 6 Credits. **Semester Hours: 3 to 3**

RSEM 7130 - Advanced Measurement using Item Response Theory

This course will consider theory and methods for the educational and psychological measurement of latent variables using item response theory. Students will understand and be able to apply concepts from item response theory, specifically the Rasch model, to understand, evaluate, and construct measures. Recommended students have Introduction to Statistics and a survey design course. Max hours: 3 Credits. **Semester Hours: 3 to 3**

RSEM 7140 - Management & Secondary Analysis of Large Datasets

Large education, community, and health datasets are underutilized research resources, providing large samples and longitudinal data otherwise too costly and time-consuming to collect. Students will work in their discipline area to learn to access, manage, and appropriately analyze extant datasets. Prereq: RSEM 7110 Intermediate stats or permission of instructor. Max hours: 3 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: RSEM 6100 and RSEM 7110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 7200 - Educational Ethnography: Studying Learning in Family and Community

This course is designed for persons interested in studying the phenomenon of learning in family and community contexts. The course blends foundational readings in the learning sciences and the ethnography of education with "participant-observation" fieldwork. The fundamentals of ethics regarding studies involving human persons, building relationships with study participants, becoming an "observant participant," writing field notes, and co-authoring meaning with study participants will be covered. 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 7500 - Special Topics: Research and Evaluation Methods

Specific topics vary from semester to semester. Restriction: Restricted to graduate level students. Max hours: 12 Credits. **Semester Hours:** 1 to 6

RSEM 7700 - Multi-Level Data Analysis

Focus is on the analysis of nested data (e.g., students within classrooms and schools, public transportation users within cities) using HLM. Applications include multilevel multiple regression, growth models, and experimental designs. Familiarity with multiple regression and factorial ANOVA is required. Prereq: RSEM 7110 Intermediate Statistics or equivalent. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 7800 - Intro to Structural Equation

This course assumes no prior experience with Structural Equation Modeling, and serves as both theoretical and practical introduction. We will relate SEM to participants' previous knowledge of multiple linear regression, then expand to examine correlated and causally

related latent constructs. Prereq: RSEM 7110: Intermediate Statistics or equivalent, or instructor consent. Restriction: Restricted to Graduate level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RSEM 7840 - Independent Study: RSEM

Max hours: 9 Credits. **Semester Hours:** 1 to 4

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. No co-credit with RISK 1001. Max hours: 1 Credit. **Semester Hours:** 1 to 1

RISK 1001 - Careers in Risk Management

This course introduces high school students to the many and varied opportunities in the risk management and insurance industry via visiting professionals and on site industry visits. The course meets 1 hour each week. It is pass/fail. This course is equivalent to RISK 1000 Introduction to Risk Management and Insurance Careers in content. Note: Must be a high school student or recent high school graduate to enroll. CU Denver students cannot enroll. No co-credit with RISK 1000. Max hours: 1 Credit. **Semester Hours:** 1 to 1

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. Coreq: FNCE 3000. Insurance carrier operations are also considered. Restriction: junior/senior standing required. 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. Restriction: junior/senior standing required. 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. Coreq: FNCE 3500. Cross-listed with RISK 6129. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 4209 - Cyber Risk Management

Computer networks and the data that travels upon them are under constant and increasing attack. This course will focus on a discussion of how state and non-state actors utilize this form of asymmetrical warfare to infiltrate government and corporate networks, risk management responds and risk strategies apply. Cross-listed with RISK 4209. Restriction: junior/senior standing or instructor permission. 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. Restriction: Junior or Senior standing. 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. Prereq: One RISK course. Restriction: Junior or Senior standing. Cross-listed with RISK 6509. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 4609 - Claims Management

This course will provide an overview of the claims process in the Property and Casualty Insurance world. Students will learn about basic claims handling for personal and commercial claims as well as how to determine coverage and legal issues. Prereq: RISK 3809 with a grade of at least C (GPA 2.0). Restriction: Junior/Senior standing required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 4709 - Life & Health Insurance

This course introduces students to life and health insurance concepts and policy types with an emphasis on insurance planning for individuals and businesses. The insurance industry and trends within it are also explored. Prereq: RISK 3809 and FNCE 3000 with a grade of at least C (GPA 2.0). Restriction: Junior/Senior standing required. 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. Restriction: Junior/Senior Standing, or permission of the instructor. 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. Coreq: FNCE 3500. Cross-listed with FNCE 4909/6909 and RISK 6909. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 4950 - Special Topics: Cyber Risk Management & Cyber Warfare

This course will focus on the evolution of cybercrime, cyber warfare and cyber terrorism, how state and non-state actors utilize asymmetrical warfare to infiltrate government and corporate networks, to manage the risks associated with information technology and mitigate the effects of cybercrime and cyber warfare. Cross-listed with RISK 6800. Restriction: Restricted to students with Junior or Senior standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 6209 - Cyber Risk Management

Computer networks and the data that travels upon them are under constant and increasing attack. This course will focus on a discussion of how state and non-state actors utilize this form of asymmetrical warfare to infiltrate government and corporate networks, risk management responds and risk strategies apply. Cross-listed with RISK 4209. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 6309 - Strategic Risk Management

This course introduces strategic risk management, the process of managing the uncertain and unknown risks to a firm's plans to add value to its owners and society. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 6409 - 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 4409 and MGMT 4460/6760. 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. Prereq: One RISK course. Cross-listed with RISK 4509. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 6800 - Special Topics: Cyber Risk Management & Cyber Warfare

This course will focus on the evolution of cybercrime, cyber warfare and cyber terrorism, how state and non-state actors utilize asymmetrical warfare to infiltrate government and corporate networks, to manage the risks associated with information technology and mitigate the effects of cybercrime and cyber warfare. Cross-listed with RISK 4950. 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. Coreq: BUSN 6640 or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

RISK 6840 - Independent Study

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. Co-req: BUSN 6640. Max hours: 3 Credits. **Semester Hours:** 3 to 3

School Library Program

SCHL 4030 - Information Literacy

Teaching, assessment, and integration of information literacy skills. 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. Cross-listed with SCHL 5030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCHL 4160 - Managing School Libraries

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 strategies, copyright and intellectual freedom. Cross-listed with SCHL5160. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCHL 5030 - Information Literacy

Teaching, assessment, and integration of information literacy skills. 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. Cross-listed with SCHL 4030. 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: 3 Credits. **Semester Hours:** 3 to 3

SCHL 5160 - Managing School Libraries

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 strategies, copyright and intellectual freedom. Cross-listed with SCHL 4160. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCHL 5200 - Promoting Literature in Schools

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 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 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

School Psychology

SPSY 2200 - Child and Adolescent Mental Health in Schools and Communities

Introduces students to child and adolescent mental health and treatment, with a focus on trends in children's mental health, evidence-based treatments for childhood mental health challenges, and child mental health careers. Course includes an emphasis on school-based mental health practices. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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 6100. 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. Restriction: SPSY PsyD: Restricted to SPSY PsyD majors within the School of Education and Human Development. 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 - Applied Developmental Science and Assessment

Examines theories and research in developmental psychology to provide a foundation for clinical services to children and families in applied settings. Includes coverage of developmental assessments and services for infants/toddlers. Prereq: SPSY 6150. 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 5110, COUN 5010, or 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 5110, COUN 5010. 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: COUN 5010. 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: SPSY 6100. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 6500 - Affective Bases of Behavior and Psychopathology

This course provides students with advanced concentrated study of the affective bases of behavior, including affect, mood, and emotion. This course also includes coverage of psychopathology and the diagnosis of mental disorders. 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 6700 - Advanced Seminar in School Psychology

This course covers advanced topics related to the practice of school psychology including applying and interviewing for internship, certification/ licensure, capstone preparation and completion, and the development of a professional identity. Prereq: Prereq: SPSY 6911. Restriction: Restricted to School Psychology majors. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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 or consent of instructor. Max hours: 6 Credits. **Semester Hours:** 3 to 3

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 mental health professionals. Students participate in assessment and/or 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. 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 6350, SPSY 6400, SPSY 6450, SPSY 6500, or 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

SPSY 7500 - Biological and Neuropsychological Bases of Behavior

Examines the biological basis of behavior emphasizing the relationship between the functions and structures of the brain including neuroanatomy, brain development, neurophysiology, neurochemistry, and psychopharmacology; and neuropsychological assessment principles. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 7980 - Clinical Supervision & Admin of Psych Services

Course prepares school psychologists to function in supervisory and administrative capacities in delivering mental health services. Content includes examination of clinical supervision theories, models, techniques; focus on development of skills for administrative roles, and understanding organizations from a systems perspective. Prereq: SPSY 6918. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPSY 8980 - School Psychology Doctoral Capstone Project

The Capstone Project is a culminating component of the program. Production of a scholarly project that illustrates the student's understanding of relevant topics in school psychology, the scope of contemporary practice, and the various roles of the professional school psychologist. Prereq: SPSY 6911 and SPSY 6700. Restriction: Restricted to SPSY-PSYD majors within the School of Education and Human Development. Max hours: 2 Credits. **Semester Hours:** 2 to 2

Sci, Tech, Engineer & Math Ed

STME 4001 - Planning for Learning in Mathematics and Science

This course explores aspects of complex curriculum and instructional concepts through the lens of mathematics and science educators. A focus will include: Socio-cultural learning theory in Math and Science; standards-based instruction; instructional design; formative & summative assessment, and differentiation so that meaningful instruction becomes accessible to all students. Cross-listed with STME 5001. Max hours: 3 Credits. **Semester Hours:** 3 to 3

STME 4051 - STEM Capstone: Secondary Education

This course provides Secondary STEM Education students with a capstone learning experience that integrates knowledge of STEM content, students, and school context into socially-just and culturally responsive practices. Cross-listed with STME 5051. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

STME 5001 - Planning for Learning in Mathematics and Science

This course explores aspects of complex curriculum and instructional concepts through the lens of mathematics and science educators. A focus will include: Socio-cultural learning theory in Math and Science; standards-based instruction; instructional design; formative & summative assessment, and differentiation so that meaningful instruction becomes accessible to all students. Cross-listed with STME 4001. Max hours: 3 Credits. **Semester Hours:** 3 to 3

STME 5051 - STEM Capstone: Secondary Education

This course provides Secondary STEM Education students with a capstone learning experience that integrates knowledge of STEM content, students, and school context into socially-just and culturally responsive practices. Cross-listed with STME 4051. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Science Education

SCED 2010 - Physical Science and Everyday Thinking

An introductory course in physical science course designed for non-science majors, emphasizing topics relevant to everyday life. The course focuses on major physical concepts and their implications for making sense of the world around us. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 4004 - Elementary Science Teaching

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 SCED 5004. Restriction: Professional Year Admission required. Max hours: 9 Credits. **Semester Hours:** 3 to 3

SCED 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

SCED 4400 - Theory and Pedagogy of Science Learning

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 SCED 5400. Restriction: Professional Year Admission required. Max hours: 9 Credits. **Semester Hours:** 3 to 3

SCED 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 SCED 5401. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 5004 - Elementary Science Teaching

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 SCED 4004. Restriction: Professional Year Admission required. Max hours: 9 Credits. **Semester Hours:** 3 to 3

SCED 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

SCED 5340 - Equity & Culture in Science Education: Local/Global

This course examines literature in science education related to issues of culture and equity. Topics will be framed by an understanding of equity in diverse classrooms and how it informs research, curriculum and instruction. Cross-listed with ENVS 5340. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 5350 - Issues and Trends in Science Education

Explores the current issues and trends in science education related to theory, pedagogy, practices, curriculum, and other contemporary topics. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 5400 - Theory and Pedagogy of Science Learning

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 SCED 4400. Max hours: 9 Credits. **Semester Hours:** 3 to 3

SCED 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 SCED 4401. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 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

SCED 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 SCED 7500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 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. Max hours: 3 Credits.

Semester Hours: 3 to 3

SCED 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 5650 - Environmental Education

This course links the theory and practice of environmental education to inform curricular development and pedagogical knowledge. Cross-listed with ENVS 4650 and ENVS 5650. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 5670 - Experiential Learning In The Parks

This course guides students through their experiences in a summer field placement, using readings, discussions and other interactive tools that focus on place-based education. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 5690 - Curriculum Development in Place-Based Education

Students in this course apply knowledge about place-based education in schools and communities for educational purposes. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 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. Max hours: 4 Credits. **Semester Hours:** 1 to 4

SCED 5800 - Curriculum Workshop for Science Teachers

Opportunity to work on curricular projects and problems in the schools. Explore various formal and informal learning environments such as study groups and after-school activities. Prereq: 18 semester hours in education and teaching experience or permission of instructor. Max hours: 36 Credits. **Semester Hours:** 0.5 to 4

SCED 5840 - Independent Study

Max hours: 9 Credits. **Semester Hours:** 1 to 4

SCED 5920 - Readings in Elementary Education

Max hours: 4 Credits. **Semester Hours:** 1 to 4

SCED 5930 - Internship in Secondary Education

Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 5950 - Master's Thesis

Max hours: 8 Credits. **Semester Hours:** 1 to 8

SCED 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. Cross-listed with SCED 7110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 6840 - Independent Study

Max hours: 4 Credits. **Semester Hours:** 1 to 4

SCED 6950 - Master's Thesis

Max hours: 4 Credits. **Semester Hours:** 4 to 4

SCED 6990 - Special Topics

Max hours: 6 Credits. **Semester Hours:** 1 to 6

SCED 7110 - Science Math Curriculum Study

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. Restriction: Graduate student status. Cross-listed with SCED 6110. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 7500 - 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 SCED 5500. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SCED 7840 - Independent Study

Max hours: 3 Credits. **Semester Hours:** 1 to 3

Social Justice

SJUS 2000 - Foundations in 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. Term offered: fall. 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: Students must have junior standing and at least a 2.75 GPA and must work with Experiential Learning Center advising to complete a course contract and gain approval. Term offered: fall, spring, summer. 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. Note: Students may not receive credit for SJUS 4000 if they have already received credit for SJUS 4001 and may not receive credit for SJUS 4001 if they have already received credit for SJUS 4000. Prereq: Junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SJUS 4001 - Social Justice Senior Project

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. This is an individually structured version of SJUS 4000 so students may not receive credit for SJUS 4001 if they have already received credit for SJUS 4000 and may not receive credit for SJUS 4000 if they have already received credit for SJUS 4001. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SJUS 4050 - Special Topics: Social Justice

Special Topics in Social Justice will be covered. Cross-listed with SJUS 5050. Max hours: 12 Credits. **Semester Hours:** 3 to 3

SJUS 4840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SJUS 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

SJUS 5050 - Special Topics: Social Justice

Special Topics in Social Justice will be covered. Cross-listed with SJUS 4050. Max hours: 12 Credits. **Semester Hours:** 3 to 3

SJUS 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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. Term offered: fall, spring. Max hours: 6 Credits. **Semester Hours:** 3 to 6

SSCI 4251 - Introduction to Legal Studies

A survey of the United States legal system, including lawmaking powers, jurisdiction, court procedures, professional ethics and major principles of business law, contracts, estates and probate, family law, property and torts. Cross-listed with HUMN 4251/HUMN 5251/SSCI 5251. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 4325 - First Amendment: Theory and Context

First Amendment jurisprudence including free speech/responsibility, sedition/seditious libel/dissent, prior restraints, time/place/manner restrictions, hate/intimidating speech, defamation, privacy/security tensions, intellectual property/public good, advertising, corporate speech, sexual expression, and public status of religion. Cross-listed with HUMN 4325, HUMN 5325, SSCI 5325, PSCI 4325 and PSCI 5325. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 3

SSCI 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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. Restriction: Restricted to Graduate Level students. PHIL 3002 or PHIL 3022 are strongly recommended preparation for optimal student success. Cross-listed with PHIL 4000/5000 and HUMN 5000. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5013 - Methods and Practices of Graduate Interdisciplinary Humanities

The second of three required Master of Humanities core courses, this course introduces beginning graduate students to methodologies and intellectual frameworks for gathering, organizing, and developing interdisciplinary research. Focus is on the application of theories and methods of research, interpretation and analysis in humanistic research through readings that explore philosophical and cultural discourses have altered theory and method. Course note: Students must repeat this course if they earn a C+ or lower and must have permission from the instructor to repeat the course. Students will only earn 3 credits for this course, even if they must repeat it. Restriction: Restricted to

Graduate Level students. Cross-listed with HUMN/PHIL 5013. Term offered: summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5020 - Foundations and Theories of Interdisciplinary Social Science

The first of the Master of Social Science core courses, this course exposes beginning graduate student to critical , key analytic models, and their application in disciplines that comprise the social sciences (classical anthropology, sociology, sociology of religion, philosophy of history, political theory, classical psychology, etc.) for the purpose of graduate-level interdisciplinary social science research. Course note: Students must repeat this course if they earn a C+ or lower and must have permission from the instructor to repeat the course. Students will only earn 3 credits for this course, even if they must repeat it. Restriction: Restricted to Graduate Level students. Cross-listed with HUMN 5020 and PHIL 5020. Term offered: fall. 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. Restriction: Restricted to Graduate Level students. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5025 - Foundations and Theories of Interdisciplinary Humanities

Exposes the beginning graduate student to exemplary works and methodologies of disciplines oriented to humanities and social sciences, such as philosophy, sociology, history, communication, fine arts, and literature. Restriction: Restricted to Graduate Level students. Cross-listed with HUMN 5025. Term offered: fall. 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. Restriction: Restricted to Graduate Level students. Term offered: fall, spring. 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. Restriction: Restricted to Graduate Level students. An introductory course in philosophy is strongly recommended for optimal success. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. Cross-listed with PHIL 4250/5250 and HUMN 5250. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5251 - Introduction to Legal Studies

A survey of the United States legal system, including lawmaking powers, jurisdiction, court procedures, professional ethics and major principles of business law, contracts, estates and probate, family law, property and torts. Restriction: Restricted to Graduate Level students. Cross-listed with HUMN 4251/HUMN 5251/SSCI 4241. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5325 - First Amendment: Theory and Context

First Amendment jurisprudence including free speech/responsibility, sedition/seditious

libel/dissent, prior restraints, time/place/manner restrictions, hate/intimidating speech, defamation, privacy/security tensions, intellectual property/public good, advertising, corporate speech, sexual expression, and public status of religion. Restriction: Graduate level students. Cross-listed with HUMN 4325, HUMN 5325, SSCI 4325, PSCI 4325 and PSCI 5325. Term offered: spring. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5540 - Law, Diversity and Community in United States History

Engaging extensive primary and secondary source material, course applies an interdisciplinary approach to diversity and conflict that often surrounds the quest for economic, moral and social inclusion in the United States. Restricted to Graduate level students. Cross-listed with HUMN 5540. Term offered: fall. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. Cross-listed with HUMN 5720 and WGST 5720. Term offered: fall, spring. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. Cross-listed with HUMN 5770. Term offered: fall, spring. 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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. Cross-listed with PHIL 4833/5833 and HUMN 5833. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5840 - Independent Study: SSCI

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 3

SSCI 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School

for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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. Restriction: Restricted to Graduate Level students. 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. Restriction: Restricted to Graduate Level students. Cross-listed with PHIL 4933, WGST 4933/5933 and HUMN 5933. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 5939 - Internship

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. 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. Restriction: Restricted to Graduate Level students. Cross-listed with WGST 6010 and HUMN 6010. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SSCI 6950 - Master's Thesis

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. Max hours: 8 Credits. **Semester Hours:** 1 to 8

SSCI 6960 - Master's Project or Report

Research which may be based on field work. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. 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 1111 - First Year Seminar

Restriction: Restricted to Freshman level students. 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. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 2440 - Deviance and Social Control

This class explores different forms of deviance and ways in which deviant categories are created, and examines sociological theories of deviance, social order, and social power. The course also addresses how different groups gain control over social definitions and the consequences these definitions have in the form of norms, laws, and informal social sanctions. The impact of these definitions for individuals also is considered, namely for how people construct and manage their identities. Topics covered include drug

smuggling, gang membership, computer hacking, shoplifting, homelessness, eating disorders, transability, BDSM, self-injury, and sex work. Term offered: fall, spring. 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 on the import of symbols for human behavior, development of self-concepts, and processes of competition and cooperation in group dynamics. Term offered: fall, spring, summer. 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

Explores U.S. cities as built environments, cultural spaces, and sources of community. Topics include the history of urbanization; social and spatial organization of cities; race and residential segregation; suburbanization; and urban problems such as crime, environmental hazards, and gentrification. Prereq: Sophomore standing or higher. Term offered: fall, spring. 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. Prereq: sophomore standing or higher or permission of instructor. Cross-listed with WGST 3010. Term offered: spring. 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: sophomore standing or higher or permission of instructor. Term offered: fall, spring, summer. 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 ways in which they have shaped our society. Prereq: sophomore standing or higher or permission of instructor. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3050 - Sociology of Education

Drawing from theories in the sociology of education, this course evaluates the relationship between race, ethnicity, gender, class, immigration status and educational experiences, aspirations, and outcomes. Topics include socialization, tracking, educational policy, college access, and educational equity. Prereq: sophomore standing or higher or permission of instructor. Term offered: spring. 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. Prereq: sophomore standing or higher or permission of instructor. Cross-listed with WGST 3080. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3115 - Quantitative Methods & Analysis

This course provides students with a basic understanding of survey methods and statistical analysis. In addition to learning the basics of inferential statistics and sampling methods, students will conduct their own survey research, analyze data, and produce reports. Prereq: SOCY 1001 with a C or higher. Term offered: fall, spring, summer. Max hours: 4 Credits. **Semester Hours:** 4 to 4

SOCY 3119 - Qualitative Methods

This course focuses on the development of skills involved in designing qualitative research studies, collecting and analyzing qualitative data and evaluating qualitative research. Primary focus is on ethnography, in-depth interviewing, and content analysis. Students read, analyze, and conduct qualitative research. Prereq: SOCY 1001 with a C or higher. Term offered: fall, spring. Max hours: 4 Credits. **Semester Hours:** 4 to 4

SOCY 3140 - Sociological Theory

An overview of major sociological theories and concepts. The emergence of the discipline and the contemporary development of sociological theories are examined. Prereq: SOCY 1001. Term offered: fall, spring. 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. Prereq: sophomore standing or higher or permission of instructor. Cross-listed with ETST 3297 and HIST 3297. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3300 - Social Problems

Explores how societies define and attempt to solve "social problems." Possible topics: income disparities, race/ethnic relations, gender inequality, and sexuality, in addition to the relationship between these issues and social institutions such as education, religion, health care, and criminal justice. Prereq: sophomore standing or higher or permission of instructor. Term offered: fall, spring. 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. Prereq: sophomore standing or higher or permission of instructor. Cross-listed with PBHL 3440. Term offered: fall, spring, summer. 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. Prereq: sophomore standing or higher or permission of instructor. Term offered: fall, spring. 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. Prereq: sophomore standing or higher or permission of instructor. Max hours: 9 Credits. **Semester Hours:** 1 to 3

SOCY 3510 - Topics in Sociology

Prereq: sophomore standing or higher or permission of instructor. Max hours: 9 Credits.
Semester Hours: 1 to 3

SOCY 3520 - Topics in Sociology

Prereq: sophomore standing or higher or permission of instructor. Max hours: 9 Credits.
Semester Hours: 1 to 3

SOCY 3530 - Topics in Sociology

Prereq: sophomore standing or higher or permission of instructor. Max hours: 9 Credits.
Semester Hours: 1 to 3

SOCY 3540 - Topics in Sociology

Prereq: sophomore standing or higher or permission of instructor. Max hours: 9 Credits.
Semester Hours: 1 to 3

SOCY 3550 - Topics in Sociology

Prereq: sophomore standing or higher or permission of instructor. Max hours: 9 Credits.
Semester Hours: 1 to 3

SOCY 3570 - Death & Dying: Social & Medical Perspectives

Focusing on death, dying and bereavement using medical and social perspectives, this course explores how illness, prolonged dying and sudden death impact care providers, families and communities. Discussion, film, readings and music address the connection of social and medical issues. Cross-listed with HEHM 3570. Term offered: fall. 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. Prereq: sophomore standing or higher or permission of instructor. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3697 - Contemporary Asian American Experience

Examines the contemporary Asian American experience, including the adaptation of new immigrants or refugees, economic and educational problems, ethnic identity, intermarriage, anti-Asian discrimination and other civil rights issues, and recent political activism. Prereq: sophomore standing or higher or permission of instructor. Cross-listed with ETST 3697. 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 contemporary American families. Prereq: sophomore standing or higher or permission of instructor. Cross-listed with WGST 3700. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3720 - Global Perspectives on Social Issues

Various cultural and social frameworks are used in a sociological examination and international comparison of select social issues, such as globalization, terrorism, inequality and discrimination. Analysis of selected issues across cultures explores how societal and cultural characteristics shape these issues. Prereq: sophomore standing or higher or permission of instructor. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 3840 - Independent Study: SOCY

Prereq: sophomore standing or permission of the instructor. 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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. Prereq: sophomore standing or higher or permission of instructor. Max hours: 9 Credits.

Semester Hours: 1 to 3

SOCY 4020 - Race, Culture and Immigration

In this course, we will consider the social and legal construction of race and immigration. We will also explore how immigrants have been racialized both historically and in the current moment. In addition, we will consider the role of culture in shaping the immigrant experience and immigrant outcomes. Restriction: Junior standing or higher or instructor permission. Cross-listed with SOCY 5020, ETST 4020 and ETST 5020. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4050 - Health Disparities

This course focuses on social, economic, and political factors that shape the uneven distribution of health and illness in the United States. Social determinants of health are explored, including socioeconomic status, race and ethnicity, neighborhood environments, social relationships, and gender. Cross-listed with SOCY 5050. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4110 - Sociology of Health Care

Examines U.S. health care institutions and issues such as rising costs, the effects of class, racial and gender inequality, professionalization and monopolization of roles, construction of illness and health, managed care, for-profit health care, and ethics of health care decisions. Prereq: junior standing or higher or permission of instructor. Cross-listed with SOCY 5110. Term offered: fall. 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. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4270 - Social Meanings of Reproduction

Reproduction involves more than biological processes, assuming symbolic, political, and ideological meanings. This course examines contested meanings of reproduction, including how people experience reproduction, controversies over who should reproduce (and under what circumstances), and how public policy mediates these conflicts. Prereq: Junior standing or permission of the instructor. Cross-listed with SOCY 5270, WGST 4270 and WGST 5270. Term offered: fall. Max hours 3 Credits. **Semester Hours:** 3 to 3

SOCY 4290 - Aging, Society and Social Policy

A sociological examination of central issues (e.g., work, retirement, family support, health) pertaining to the aging population. Heterogeneity in aging, as shaped by gender, race, ethnicity and social class is addressed, as well as policies pertaining to the adult population. Prereq: Junior standing or permission of the instructor. Cross-listed with SOCY 5290. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4340 - Juvenile Delinquency

Factors involved in delinquent behavior. Problems of adjustment for delinquents, and factors in treatment and post-treatment adjustment. Major theories covered include strain theory, social learning theory, control theory, and labeling theory. Course also reviews methods for testing these theories. Prereq: junior standing or higher or permission of the instructor. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4440 - Poverty and Social Inequality

Investigates the distribution of wealth, income, 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. Term offered: spring. 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 5460. Term offered: fall. 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 of self-conception, identity, presentation of self, and self and emotion management. Examines major theories and research in social psychology. Prereq: Junior standing or permission of the instructor. Cross-listed with SOCY 5475. Term offered: summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4610 - Sociology of Religion

This course introduces students to the nature and functions of religion in society, emphasizing western religions in the U.S. Students will develop and apply an understanding of classic and modern sociological theories of religion to current events and disciplinary developments. Cross-listed with SOCY 5610, RLST 4020, RLST 5020. Prereq: junior standing or higher or permission of instructor. Term offered: spring. 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 higher or permission of instructor. Cross-listed with SOCY 5640. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4650 - Sociology of Adulthood and Aging

Examination of the adult life course—post-adolescence to death, focusing on key social transitions of adulthood (e.g., independence from parents, marriage, retirement), and historical, institutional, and social factors that create variation in their timing, meaning, and individuals' role experiences. Prereq: junior standing or higher or permission of 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. Prereq: junior standing or higher or permission of instructor. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4740 - Courts & Society

Courts are a centerpiece of modern legal systems that mediate social relationships and people's relationship to the state. This course explores the connection between courts and democratic society by considering the operation and evolution of courts in the U.S. Cross-listed with SOCY 5740. Restriction: Restricted to Junior standing or above. Term offered: spring. 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 higher or permission of instructor. Cross-listed with SOCY 5770. Max hours: 9 Credits. **Semester Hours:** 3 to 3

SOCY 4774 - 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. 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: junior standing or higher or permission of instructor. Cross-listed with SOCY 5780, WGST 4780 and WGST 5780. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4830 - Senior Capstone: Worklife Practices & Policies

Introduces students to tools and develops skills to facilitate internship and job search. Students gain understanding of work contexts, exploring employment laws and policies, dynamics of race and gender in job searching, and research on careers and job negotiation. Prereq: Must have earned a minimum of 75 credits. Term offered: fall, spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 4840 - Independent Study: SOCY

Prereq: junior standing or higher or permission of instructor. Max hours: 12 Credits.
Semester Hours: 1 to 3

SOCY 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Prereq: junior standing or higher. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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: junior standing or higher or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 1 to 3

SOCY 5000 - Professional Seminar: Sociological Inquiry

Introduces sociology graduate students to sociology as a discipline and profession. Conveys practical skills and knowledge useful to the pursuit of a graduate degree. Introduces students to sociology graduate faculty members and their research interests. Restriction: Students must be accepted to the MA in Sociology or get instructor permission in order to enroll in this course. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5016 - Social Theory

An overview of major theories across the social behavioral sciences examining social order, integration, conflict, and change. The course emphasizes a cross disciplinary approach, highlighting works of historical and contemporary relevance. Prereq: graduate standing. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5020 - Race, Culture and Immigration

In this course, we will consider the social and legal construction of race and immigration. We will also explore how immigrants have been racialized both historically and in the current moment. In addition, we will consider the role of culture in shaping the immigrant experience and immigrant outcomes. Restriction: Graduate standing or instructor

permission. Cross-listed with SOCY 4020, ETST 4020 and ETST 5020. Term offered: spring. 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. Prereq: Graduate standing. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5050 - Health Disparities

This course focuses on social, economic, and political factors that shape the uneven distribution of health and illness in the United States. Social determinants of health are explored, including socioeconomic status, race and ethnicity, neighborhood environments, social relationships, and gender. Prereq: graduate standing. Cross-listed with SOCY 4050. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5110 - Sociology of Health Care

Examines U.S. health care institutions and issues such as rising costs, the effects of class, racial and gender inequality, professionalization and monopolization of roles, construction of illness and health, managed care, for-profit health care, and ethics of health care decisions. Prereq: Graduate standing. Cross-listed with SOCY 4110. Term offered: fall. 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. Prereq: Graduate standing. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5193 - Seminar: Qualitative Data Analysis

Develops skills for designing studies, collecting and analyzing data, and evaluating qualitative research. Concentrates on ethnography, in-depth interviewing, and content analysis. Students read examples of qualitative research and about the process of qualitative research, as well as conducting independent research. Note: Required for M.A. graduate students in sociology. Prereq: graduate standing. Term offered: spring. 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. Prereq: Graduate standing. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5270 - Soci Meanings of Reproduction

Reproduction involves more than biological processes, assuming symbolic, political, and ideological meanings. This course examines contested meanings of reproduction, including how people experience reproduction, controversies over who should reproduce (and under what circumstances), and how public policy mediates these conflicts. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Cross-listed with SOCY 4270, WGST 4270 and WGST 5270. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5290 - Aging, Society and Social Policy

A sociological examination of central issues (e.g., work, retirement, family support, health) pertaining to the aging population. Heterogeneity in aging, as shaped by gender, race, ethnicity and social class is addressed, as well as policies pertaining to the adult population. Restriction: Restricted to Graduate and Graduate Non-Degree majors. Cross-listed with SOCY 4290. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5440 - Poverty and Social Inequality

Investigates the distribution of wealth, income, and economic power in the United States with a focus on social institutions and factors that shape inequality. Prereq: Graduate standing. Cross-listed with SOCY 4440. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5460 - 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. Prereq: Graduate standing. Term offered: fall. 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 of self-conception, identity, presentation of self, and self and emotion management. Examines major theories and research in social psychology. Prereq: Graduate standing. Cross-listed with SOCY 4475. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5550 - Seminar: Sociology of the Family

An intensive review and analysis of the family as a social institution. Prereq: Graduate standing. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5610 - Sociology of Religion

This course introduces students to the nature and functions of religion in society, emphasizing western religions in the U.S. Students will develop and apply an understanding of classic and modern sociological theories of religion to current events and disciplinary developments. Cross-listed with SOCY 4610, RLST 4020, RLST 5020. Prereq: Graduate standing. Term offered: spring. 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. Prereq: Graduate standing. Term offered: summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5650 - Sociology of Adulthood and Aging

Examination of the adult life course—post-adolescence to death, focusing on key social transitions of adulthood (e.g., independence from parents, marriage, retirement), and historical, institutional, and social factors that create variation in their timing, meaning, and individuals' role experiences. Cross-listed with SOCY 4650. Prereq: Graduate standing. 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. Prereq: Graduate standing. Term offered: summer. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5690 - Crime and Inequality Over the Life Course

Life-course perspective on inequality and crime. Studies transitions, trajectories and turning points as key features of the life course. Considers how inequalities and criminal behavior are shaped by timing of experiences, historical and geographic contexts, others' lives, and human agency. Prereq: Graduate standing. Cross-listed with SOCY 4690. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5740 - Courts & Society

Courts are a centerpiece of modern legal systems that mediate social relationships and people's relationship to the state. This course explores the connection between courts and democratic society by considering the operation and evolution of courts in the U.S. Cross-listed with SOCY 4740. Prereq: graduate standing. Term offered: spring. 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. Prereq: Graduate standing. Term offered: fall. 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. Prereq: Graduate standing. 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: Graduate standing. Cross-listed with SOCY 4780. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SOCY 5840 - Independent Study: SOCY

Prereq: Graduate standing. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 1 to 3

SOCY 5939 - Internship

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Prereq: Graduate standing. Term offered: fall, spring, summer. Max hours: 9 Credits. **Semester Hours:** 1 to 6

SOCY 5955 - Master's Thesis

Prereq: Graduate standing. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

SOCY 5964 - Master's Report

Prereq: Graduate standing. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. 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. Term offered: fall, spring, summer. 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. Note: Students who have studied Spanish previously should not enroll in SPAN 1011/1021 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. Note: This course assumes that students have passed SPAN 1010 or equivalent, or have taken one year of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 1010 is recommended for success in this course. This course is not intended for native speakers. Term offered: fall, spring, summer. 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. Note: Students who have 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 - First Year Seminar

Restriction: Restricted to Freshman level students. Max hours: 3 Credits. **Semester Hours:** 1 to 3

SPAN 1995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global 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. Note: This course assumes that students have passed SPAN 1020 or equivalent, or have taken two years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 1020 is recommended for success in this course. This course is not intended for native speakers. Term offered: fall, spring, summer. 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. Note: This course assumes that students have passed SPAN 2110 or equivalent, or have taken three years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2110 is recommended for success in this course. This course is not intended for native speakers. Term offered: fall, spring, summer. 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. Note: This course is for individuals who grew up in Spanish speaking environments but had little or no formal instruction 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. Note: This course is for individuals who grew up in Spanish speaking environments but had little or no formal instruction in Spanish. This course assumes that students have passed SPAN 2125 or equivalent. 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. Note: This course assumes that students have passed SPAN 2110 or equivalent, or have taken three years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2110 is recommended for success in this course. 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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. Prereq: Sophomore standing. Max hours: 9 Credits. **Semester Hours:** 1 to 3

SPAN 2995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Note: This course assumes that students have passed SPAN 2120 or 2130 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 or 2130 is recommended for success in this course. Term offered: fall, spring. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Note: This course assumes that students have passed SPAN 2120 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 is recommended for success in this course. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3025 - Writing for Latinos

Writing class for students who grew up speaking Spanish, especially those who grew up in the United States. Focuses on different types of formal writing, spelling, difficult grammar points and writing as a process. 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. Note: This course assumes that students have passed SPAN 2120 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. This course is not intended for heritage Spanish speakers. A grade of C- or higher in SPAN 2120 is recommended for success in this course. Term offered: fall. 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. Note: This course assumes that students have passed SPAN 2120 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 is recommended for success in this course. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Note: This course assumes that students have passed SPAN 2120 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 is recommended for success in this course. Term offered: spring. 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. Note: This course assumes that students have passed SPAN 2120 or 2130 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 or 2130 is recommended for success in this course. This course is a prerequisite/corequisite for all other literature courses taught in Spanish. Term offered: fall. 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 or Coreq: SPAN 3101. 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. Note: This course assumes that students have passed SPAN 2120 or 2130 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 or 2130 is recommended for success in this course. 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. Note: This course assumes that students have passed SPAN 2120 or 2130 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 or 2130 is recommended for success in this course. 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. Note: This course assumes that students have passed SPAN 2120 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 is recommended for success in this course. 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. Note: This course assumes that students have passed SPAN 2120 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 is recommended for success in this course. 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. Note: This course assumes that students have passed SPAN 2120 or 2130 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 or 2130 is recommended for success in this course. 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. Note: This course assumes that students have passed SPAN 2120 or 2130 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 or 2130 is recommended for success in this course. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Note: This course assumes that students have passed SPAN 2120 or 2130 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 or 2130 is recommended for success in this course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3240 - Food Metaphors: Ibero-American Cuisine and Culture

Intermediate/advanced Spanish students study interactions between Ibero-American cuisine and cultures. While improving Spanish skills, students learn how to cook Hispanic meals, study scholarly materials on food and cultures, watch films featuring meals as protagonists and read literary works of fiction and poetry. Taught in Spanish. Note: This course assumes that students have passed SPAN 2120 or 2130 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 or 2130 is recommended for success in this course. 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. Note: This course assumes that students have passed SPAN 2120 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 is recommended for success in this course. 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 3101. 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 3101. 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 3101. 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. Note: This course assumes that students have passed SPAN 2120 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 is recommended for success in this course. 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. Note: This course assumes that students have passed SPAN 2120 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 is recommended for success in this course. SPAN 3700 desirable. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3730 - Special Topics in Spanish for the Professions

Variable topics in Spanish for the Professions not otherwise covered in regular course offerings. Note: May be taken more than once, provided that the topic is different each time. Note: This course assumes that students have passed SPAN 2120 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 is recommended for success in this course. Max hours: 15 Credits. **Semester Hours:** 3 to 3

SPAN 3740 - Spanish for the Healthcare Professions I

This course seeks to enhance the communication between healthcare professionals and their Spanish speaking patients or clients. It entails practice of the medical interview while improving linguistic and intercultural competence. Note: SPAN 2120 or proficiency in Spanish equivalent to a fourth semester of college-level coursework is strongly recommended for optimal student success. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3750 - Spanish for the Healthcare Professions II

SPAN 3750 is a continuation of SPAN 3740. Students will continue to enhance the communication between healthcare professionals and their Spanish speaking patients or clients. It entails practice of the medical interview while improving linguistic and intercultural competence. Note: SPAN 2120 or proficiency in Spanish equivalent to a fourth semester of collegelevel coursework is strongly recommended for optimal student success. Max hours: 3 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Note: This course assumes that students have passed SPAN 2120 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 is recommended for success in this course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 3792 - Introduction to Translation II

Second course in a two-semester sequence (see SPAN 3782). Note: This course assumes that students have passed SPAN 2120 or equivalent, or have taken four years of high school Spanish, or possess equivalent proficiency. A grade of C- or higher in SPAN 2120 is recommended for success in this course. 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. Note: students must work with the Experiential Learning Center advising to complete a course contract and gain approval. Prereq: Junior standing. Max hours: 9 Credits. **Semester Hours:** 1 to 3

SPAN 3995 - Global Study Topics

This course is reserved for CU Denver faculty-led study abroad experiences. The course topic will vary based on the location and course content. Students register through the Office of Global 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 or Coreq: SPAN 3060. Cross-listed with SPAN 5010. Term offered: spring. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Prereq or Coreq: SPAN 3060. Cross-listed with SPAN 5020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4030 - The Learning and Teaching of Heritage Speakers

Studies Spanish heritage speakers, including characteristics of how they learn and how best to teach them. Includes definitions of heritage speakers, strengths and weaknesses in learning Spanish, and attitudes of and towards heritage speakers in the classroom. Prereq: SPAN 3060 with a C? or higher. Cross-listed with SPAN 5030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4040 - Spanish Classroom Methods and Practice

Focuses on the second language learning and teaching of Spanish in a classroom context. Looks at topics including second language vocabulary, pronunciation, grammar, and types of feed back. Practical component of activity design and learning/teaching strategies. Prereq: SPAN 3060 with a C? or higher. Cross-listed with SPAN 5040. 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 or Coreq: 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 or Coreq: SPAN 3060. 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 or Coreq: 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 or Coreq: 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Prereq or Coreq: SPAN 3060. 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 or Coreq: SPAN 3101. 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 or Coreq: SPAN 3101. 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 or

Coreq: SPAN 3101. 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 or Coreq: SPAN 3101. 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 Rodriguez and others. Prereq or Coreq: SPAN 3101. 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 or Coreq: SPAN 3101. 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 or Coreq: SPAN 3101. 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 or Coreq: SPAN 3101. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Prereq or Coreq: SPAN 3101. 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 or Coreq: SPAN 3101. 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 or Coreq: SPAN 3101. Cross-listed with SPAN 5350. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4360 - Women and the Spanish Civil War

Focuses on the role of Spanish women during the Second Republic, the Civil War, the dark & starving postwar, & the inescapable exile that was a consequence of the conflict. Discusses several texts & films that portray this silenced odyssey, as well as historical, ideological & cultural documents of critical value & significance. Cross-listed with SPAN 5360. 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 or Coreq: SPAN 3101. 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. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. Prereq or Coreq: 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 19th Century. Prereq or Coreq: SPAN 3101. 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 or Coreq: SPAN 3101. 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 or Coreq: SPAN 3101. 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 or Coreq: SPAN 3101. 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 Mujica 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 or Coreq: SPAN 3101. 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 or Coreq: SPAN 3101. Note: This course may count for the International Studies major or minor. See your INTS advisor for more information. 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 or Coreq: SPAN 3101. 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 or Coreq: SPAN 3101. 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 or Coreq: SPAN 3101. 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 or Coreq: SPAN 3101. 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 or Coreq: SPAN 3101. 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 or Coreq: 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 4690 - Methods of Teaching Modern Languages

Studies the methods and practices of teaching modern languages. Note: requirement for language majors in the teacher certification program, School of Education, CU Denver. Note: This course is taught in English and does not fulfill the foreign language proficiency requirement for the College of Liberal Arts and Sciences. Cross-listed with MLNG 4690, MLNG 5690, SPAN 5690, FREN 4690, FREN 5690, GRMN 4690, GRMN 5690, CHIN 4690, CHIN 5690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 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. Cross-listed with MLNG 4691, MLNG 5691, SPAN 5691, FREN 4691, FREN 5691, GRMN 4691, GRMN 5691, CHIN 4691, CHIN 5691. Prereq: MLNG 4690 or SPAN 4690 or FREN 4690 or GRMN 4690 or CHIN 4690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 4840 - Independent Study: SPAN

Max hours: 12 Credits. **Semester Hours:** 1 to 3

SPAN 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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 or Coreq: SPAN 3101. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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. 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. Cross-listed with SPAN 4020. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5030 - The Learning and Teaching of Heritage Speakers

Studies Spanish heritage speakers, including characteristics of how they learn and how best to teach them. Includes definitions of heritage speakers, strengths and weaknesses in learning Spanish, and attitudes of and towards heritage speakers in the classroom.

Restriction: Restricted to Graduate and Graduate Non-Degree majors (NDGR-NHL and NDGR-NLA). Cross-listed with SPAN 4030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5040 - Spanish Classroom Methods and Practice

Focuses on the second language learning and teaching of Spanish in a classroom context. Looks at topics including second language vocabulary, pronunciation, grammar, and types of feed back. Practical component of activity design and learning/teaching strategies. Restriction: Restricted to Graduate and Graduate Non-Degree majors (NDGR-NHL and NDGR-NLA). Cross-listed with SPAN 4040. 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. 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. 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. 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. 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. 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: Graduate standing. 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. 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 Rodriguez 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. 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. 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 5360 - Women and the Spanish Civil War

Focuses on the role of Spanish women during the Second Republic, the Civil War, the dark & starving postwar, & the inescapable exile that was a consequence of the conflict. Discusses several texts & films that portray this silenced odyssey, as well as historical, ideological & cultural documents of critical value & significance. Cross-listed with SPAN 4360. 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. Restriction: Restricted to Graduate and Graduate Non-Degree majors. 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, 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: 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 5690 - Methods of Teaching Modern Languages

Studies the methods and practices of teaching modern languages. Note: requirement for those wishing to be teaching assistants in the Department of Modern Languages, and for

language majors in the teacher certification program, School of Education, CU Denver. This course is taught in English and does not fulfill the foreign language proficiency requirement for the College of Liberal Arts and Sciences. Cross-listed with MLNG 4690, MLNG 5690, SPAN 4690, FREN 4690, FREN 5690, GRMN 4690, GRMN 5690, CHIN 4690, CHIN 5690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 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. Cross-listed with MLNG 4691, MLNG 5691, SPAN 4691, FREN 4691, FREN 5691, GRMN 4691, GRMN 5691, CHIN 4691, CHIN 5691. Prereq: MLNG 5690 or SPAN 5690 or FREN 5690 or GRMN 5690 or CHIN 5690. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPAN 5840 - Independent Study: SPAN

Max hours: 3 Credits. **Semester Hours:** 1 to 3

SPAN 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

SPAN 5939 - Internship

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. 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. Cross-listed with SPAN 4970. Max hours: 9 Credits. **Semester Hours:** 3 to 3

Special Education

SPED 1030 - Understanding (dis)Ability in Contemporary Classrooms

This course provides an overview of special education by examining the history of special education, construction of dis/ability, characteristics of individuals with disabilities, aspects of disproportionality, and introduction to evidence-based instructional practices. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 4010 - Intentional Interventions for Exceptional Learners

This course provides instructional strategies and interventions for students with a wide variety of disabilities. Implications for targeted and intensive interventions and assessment are considered. Cross-listed with SPED 5010. Restriction: Professional Year Admission required. Max hours: 3 Credits **Semester Hours:** 3 to 3

SPED 4030 - Understanding (dis)Ability in Contemporary Classrooms

This course provides an overview of special education by examining the history of special education, construction of dis/ability, characteristics of individuals with disabilities, aspects of disproportionality, and introduction to evidence-based instructional practices. Prereq or coreq: CLDE 3830 and EDHD 3930. Restriction: Restricted to students in Education and Human Development with between 40 and 180 cumulative credit hours, or students in the Education Minor EDST-MIN. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 4140 - Assessment: Inquiry, Instruction, & Intervention

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, with attention to pervasive issues pertaining to students from culturally and linguistically diverse backgrounds. Cross-listed with SPED 5140.

Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours: 3 to 3**

SPED 4151 - Slashing Stigmas: Promoting Positive Behaviors

This course works to transform perspectives and practices related to supporting student behavior in classrooms. Students will learn important considerations related to culture, race, gender and socioeconomic status, as they intersect with behavior and social emotional development. Cross-listed with SPED 5151. Restriction: Restricted to students in Education and Human Development with between 57 and 180 cumulative credit hours. Max hours: 3 Credits. **Semester Hours: 3 to 3**

SPED 4300 - Family, Professional, and Community Collaboration

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 5300. Restriction: Restricted to students in Education and Human Development with between 57 and 180 cumulative credit hours. 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. Cross-listed with SPED 5000. Restriction: Restricted to students in Education and Human Development with between 57 and 180 cumulative credit hours. Max hours: 3 Credits. **Semester Hours: 3 to 3**

SPED 4500 - Transition and Secondary Methods in Special Education

This course provides school leaders and 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. Restriction: Restricted to students in Education and Human Development with between 57 and 180 cumulative credit hours, and Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 4600 - Special Education Law: Ethics and Compliance

Designed for school leaders and professionals to understand special education law and compare and contrast service delivery options . 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 - Intersections of Literacy, Culture, & Exceptionality

This course provides a foundational understanding of the complex intersections between literacy, culture, language, learning, and students with (dis)abilities. A primary goal is to address the particular needs of culturally and linguistically diverse learners with exceptionalities, while also exploring the distinctions between language development and learning disabilities. Cross-listed with SPED 5740. Restriction: Restricted to students in Education and Human Development with between 57 and 180 cumulative credit hours. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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 Exceptional Learners

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 4931 - Internship & Learning Community I

SPED 4931 is the first internship in a series of three completed during the professional year of the SPED program providing the necessary learning opportunities for candidates to gradually develop their practice to be licensed as a special education teacher. Restriction: Professional Year Admission required. Max hours: 2 Credits. **Semester Hours:** 2 to 2

SPED 4932 - Internship & Learning Community II

SPED 4932 is the second internship in a series of three completed during the professional year of the SPED program providing the necessary learning opportunities for candidates to gradually develop their practice to be licensed as a special education teacher. Restriction: Professional Year Admission required. Max hours: 2 Credits. **Semester Hours:** 2 to 2

SPED 4933 - Internship & Learning Community III

SPED 4933 is the final internship in a series of three completed during the professional year of the SPED program providing the necessary learning opportunities for candidates to gradually develop their practice to be licensed as a special education teacher. Restriction: Professional Year Admission required. Max hours: 6 Credits. **Semester Hours:** 6 to 6

SPED 5000 - 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. Cross-listed with SPED 4400. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5010 - Intentional Interventions for Exceptional Learners

This course provides instructional strategies and interventions for students with a wide

variety of disabilities. Implications for targeted and intensive interventions and assessment are considered. Cross-listed with SPED 4010. Max hours: 3 Credits
Semester Hours: 3 to 3

SPED 5030 - Understanding (dis)Ability in Contemporary Classrooms

This course provides an overview of special education by examining the history of special education, construction of dis/ability, characteristics of individuals with disabilities, aspects of disproportionality, and introduction to evidence-based instructional practices. Cross-listed with SPED 4030. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5050 - Assessment & Advocacy for Multilingual Learners

Students learn to gather and use assessment results within a strengths-based framework to advocate for appropriate programming, placement, instruction, and ongoing progress monitoring of multilingual students. Special attention is paid to linguistic and cultural bias in the field of assessment. 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 5140 - Assessment: Inquiry, Instruction, & Intervention

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, with attention to pervasive issues pertaining to students from culturally and linguistically diverse backgrounds. Cross-listed with SPED 4140. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5151 - Slashing Stigmas: Promoting Positive Behaviors

This course works to transform perspectives and practices related to supporting student behavior in classrooms. Students will learn important considerations related to culture,

race, gender and socioeconomic status, as they intersect with behavior and social emotional development. Cross-listed with SPED 4151. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5210 - Foundations for Understanding Behavior

This course is designed to provide a foundational understanding of behaviors commonly witnessed in the classroom. It will provide strategies for assessment and guidance on legal processes which guide the development of individualized education and behavior plans. Specialize instructional methods and current events impacting the social emotional educations of students will also be discussed. Max hours: 3 Credits.

Semester Hours: 3 to 3

SPED 5300 - Family, Professional, and Community Collaboration

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 5401 - Advanced 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. Max hours: 6 Credits. **Semester Hours:** 3 to 3

SPED 5440 - Ethics and Implementation ABA

This course is designed to teach you ethical and professional conduct considerations in applied behavior analysis. We will review behavior change systems and implementation issues in the conduct of applied behavior analysis. Max hours: 3 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 Methods in Special Education

This course provides school leaders and 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. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5600 - Special Education Law: Ethics and Compliance

Designed for school leaders and professionals to understand special education law and compare and contrast service delivery options . Cross-listed with SPED 4600. Max hours: 6 Credits. **Semester Hours:** 3 to 3

SPED 5740 - Intersections of Literacy, Culture, & Exceptionality

This course provides a foundational understanding of the complex intersections between literacy, culture, language, learning, and students with (dis)abilities. A primary goal is to address the particular needs of culturally and linguistically diverse learners with exceptionalities, while also exploring the distinctions between language development and learning disabilities. Cross-listed with SPED 4740. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5780 - Literacy Intervention for Exceptional Learners

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. Cross-listed with SPED 4780. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SPED 5835 - Special Topics

Max hours: 6 Credits. **Semester Hours:** 1 to 6

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. 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. 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. 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. Max hours: 9 Credits. **Semester Hours:** 3 to 8

Sustainability

SUST 3010 - Sustainability: Past, Present, and Future

This course draws on theoretical perspectives to critically analyze contemporary environmental issues across ecological, sociocultural, historical, political and economic contexts. Term offered: fall, spring. 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. Note: this course assumes that students have completed 1 Natural Science Core course and 1 Social Science Core course. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SUST 3416 - Aquaponic Farming

"Aquaponic Farming" is an intensive hands-on course that trains students to grow organic food using a combination of lecture and activities in an operating, commercial-scale aquaponic system. Aquaponics is a growing technique in which fish and plants are grown together. Note: this course assumes that students have completed one course in Biological or Physical Sciences. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SUST 3840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Prereq: permission of instructor required. Term offered: fall, spring, summer. 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: Students must have junior standing and at least a 2.75 GPA and must work with Experiential Learning Center advising to complete a course contract and gain approval. Term offered: fall, spring, summer. Max hours: 3 Credits. **Semester Hours:** 1 to 3

SUST 4840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Prereq: permission of instructor required. Term offered: fall, spring, summer. Max hours: 12 Credits. **Semester Hours:** 1 to 3

SUST 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS

undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

SUST 4995 - Travel Study

Students study various topics in a foreign country led by a CU-Denver instructor; registration is restricted and coordinated through the Office of Global Education, study.abroad@ucdenver.edu. Max hours: 9 Credits. **Semester Hours:** 1 to 9

SUST 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Max hours: 6 Credits. **Semester Hours:** 1 to 6

Taxation

MTAX 6400 - Taxation of C Corporations and Shareholders

This course is a study of federal income tax problems facing corporations and corporate shareholders. The course addresses introductory corporate tax issues found in Subchapter C of the Internal Revenue Code, including defining a "corporation" for federal income tax purposes; tax consequences associated with the formation of a corporation; taxation of corporate operations (including an analysis of the differences that exist between earnings and profits, dividend distributions and taxable income); corporate redemption transactions; partial liquidations; complete liquidations; and the acquisition, sale and disposition of corporate entities in transactions governed by Sections 336(e) and 338 of the Internal Revenue Code. Coreq: ACCT 6140. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 6405 - Taxation of Property Transactions

This course focuses on the fundamental concepts regarding the taxation of transactions involving property, including concepts such as basis of property, realization and recognition of gain or loss, effects of taxing gains and losses from capital assets, depreciable status, amortization of intangible property, depreciation methods, property casualties and losses, limitations on passive losses, and non-recognition transactions. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 6410 - Individual Income Tax

This course is an 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 include items of gross income inclusion, exclusions, deductions, items of non-recognition, characterization of income, and tax rates. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 6415 - Employment Taxes and Related Topics

This course explores existing employment tax risks and employment tax planning opportunities through appropriate compensation and entity structuring techniques, analyzes proper worker classification, and highlights preventive techniques to avoid personal liability. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 1 Credit. **Semester Hours:** 1 to 1

MTAX 6420 - Estate and Gift Taxes

This course is an introduction to principles and practices associated with the taxation of estates, gifts, and other gratuitous transfers under Subtitle B of the Internal Revenue Code. Using relevant examples, this course also focuses on the practical aspects of completing IRS Form 706, United States Estate (and Generation-Skipping Transfer) Tax Return, and IRS Form 709, United States Gift (and Generation-Skipping Transfer) Tax Return. Prereq: Grade of C (2.0) or higher in ACCT 6140 or ACCT 4410 or at least 6 credit hours of MTAX courses. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 6425 - Taxation of S Corporations and Their Shareholders

This course focuses on fundamental tax issues relating to S corporations and their shareholders arising from the formation, operation, and liquidation of S corporations. Course work includes an examination of pertinent federal income tax returns of a S corporation. Prereq: Grade of C (2.0) or higher in ACCT 6140 or ACCT 4410 or at least 6 credit hours of MTAX courses. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 6430 - International Taxation

International taxation focuses on the U.S. taxation of cross-border transactions. A review of the Internal Revenue Code's basic international tax rules is covered, including residency rules, sourcing of income and expenses, taxation of in-bound transactions (FDAP and "effectively connected income" rules), overview of U.S. model tax treaty provisions, anti-deferral regimes, and foreign tax credits. Students are often required to study the tax regimes of another country to compare and contrast foreign tax laws to U.S. laws. A brief review of interest-charge domestic international sales corporations is often covered. Prereq: Grade of C (2.0) or higher in ACCT 6140 or ACCT 4410 or at least 6 credit hours of MTAX courses. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 6431 - Inbound International Taxation

An inbound transaction deals with a foreign person (e.g., a foreign individual, partnership, or corporation) doing business in the U.S. This course begins by discussing that a foreign person is taxed on two types of U.S. income: (1) FDAP (generally, investment income) and (2) effectively connected income (business income). FDAP includes a foreign person investing in marketable securities, as well as key planning issues when a foreign person invests in U.S. real estate. The effectively connected income discussion includes the branch profits tax. Planning opportunities such as avoiding U.S. income tax when a foreign person exports goods into the U.S.; choice of U.S. business entity; and structuring U.S. business entities between different foreign tax systems (world-wide taxation by the foreign country or territorial taxation by the foreign country) are also presented. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 6432 - Outbound International Taxation

Topics in this course include the adoption of and change in accounting periods; income recognition and deduction allowance under the cash and accrual methods of tax accounting; the time value of money and original interest discount rules; prepaid and contested income and expenses; income and deduction reversals; accounting method changes; installment sales; long-term contracts; inventory accounting, including LIFO, FIFO and manufacturers' inventories; and net operating losses. Prereq: Grade of C (2.0) or higher in ACCT 6140 or ACCT 4410 or at least 6 credit hours of MTAX courses. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. Semester Hours: 3 to 3
Semester Hours: 3 to 3

MTAX 6435 - Income Tax Accounting and Methods

Topics in this course include the adoption of and change in accounting periods; income recognition and deduction allowance under the cash and accrual methods of accounting; the time value of money and original interest discount rules; prepaid and contested income and expenses; income and deduction reversals; accounting method changes; installment sales; long-term contracts; inventory accounting, including LIFO, FIFO and manufacturers' inventories; and net operating losses. Prereq: Grade of C (2.0) or higher in ACCT 6140 or ACCT 4410 or at least 6 credit hours of MTAX courses. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours: 3 to 3**

MTAX 6440 - Tax Practice and Procedures

This course provides a study of the organization, policies, and procedures of federal and state taxing authorities. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits.
Semester Hours: 3 to 3

MTAX 6445 - Entrepreneurs' Tax and Finance

This course focuses on entrepreneurs and start-ups. Topics include choice of entity considerations regarding the proper business entity for conducting the new venture, tax efficient ways of raising capital, incentivizing employees, planning for retirement, and taking a successful company public. This course provides students with the tools and background to make intelligent, thoughtful decisions regarding tax and finance issues impacting the formation, operation, funding, and expansion of entrepreneurial ventures. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours: 3 to 3**

MTAX 6450 - Research Problems and Business Communications in Taxation

This course provides a study of various methodologies used in tax research and tax planning and requires students to present their results through various forms of business communication. In particular, this course explores techniques (with an emphasis on electronic/on-line techniques) for locating and researching judicial cases, statutory materials and legislative histories, and administrative materials promulgated by the Internal Revenue Service applicable to tax-related issues and problems. Students must present their tax research results for various client-based hypothetical factual patterns in written formats, including memoranda and client letters, and through individual oral and group presentations. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 6455 - Tax Aspects Relating to Exempt Organizations

This course focuses on the statutory exemptions for "charities" and other entities organized under IRC section 501(c). It also addresses the political campaign activities, funds, and lobbying activities of political organizations and entities organized under IRC section 501(c); the "prohibited transactions" rules; private foundations; the "unrelated business income" tax; the dissolution of, and distribution of assets held by, exempt organizations; and the charitable contribution. Prereq: Grade of C (2.0) or higher in ACCT 6140 or ACCT 4410 or at least 6 credit hours of MTAX courses. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 6460 - Advance Topics in Taxation

This course focuses on a variety of advanced tax topics for businesses and individuals. This course is offered on an infrequent basis. Prereq: Grade of C (2.0) or higher in ACCT 6140 or ACCT 4410 or at least 6 credit hours of MTAX courses. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 6465 - State and Local Taxation

This course focuses on various state and local taxation issues, such as the constitutionality of certain state and local tax regimes; nexus or jurisdictional tax due process; allocation and apportionment formulae under various state and local tax regimes; business versus nonbusiness income; the multi-state tax compact; the "unitary"

concept; residency definitions; nonresident income sources; sales of tangible personal property and their taxation, including the impact of sales and use taxes on selected transactions, such as interstate purchases and sales, drop shipments, purchases from and sales to state and federal governments, occasional or "casual" sales, leasing transactions, and construction and manufacturing transactions; retail and wholesale sales; valuation techniques for real and personal property for purposes of certain state and local property taxes; and administrative procedures applied by various state and local tax jurisdictions. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 6470 - Professional Judgment and Ethical Decision Making in Accounting and Tax

The content of this course includes the following: the ethical responsibilities of accountants, both personal and professional; ethical dilemmas facing accountants; ethical theory; the various accounting codes of conduct and ethical guidance for accountants; and the application of ethical theory, codes of conduct, and professional standards. In addition, this course includes discussions on ethical considerations, mandates, and penalties germane to a tax accounting practice, with an emphasis on Treasury Department Circular No. 230; on tax penalties under IRC Code sections 6662, 6664, 6694, 6695, and 6696 as those penalties relate to taxpayers and tax return preparers; on the standards governing the issuance of tax opinions to clients, and on AICPA statements on standards for tax services. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 6473 - Auditing for Taxes and Tax Fraud

This course provides an introduction to and guidance for creation of an effective audit program for tax-based systems, with a focus on auditing tax fraud. The tax audit is designed specifically to detect potential misreporting of income and deductions and potential tax fraud. This course focuses on various methodologies that allow auditors to develop standards, objectives and procedures to examine systematically tax returns and tax strategies for misreported tax items and tax fraud. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 6475 - Accounting for Income Taxes

This course addresses financial accounting reporting standards for income taxes.

Principal topics include an understanding financial statement disclosures, identification of permanent and temporary differences, and calculation of current and deferred tax provisions. Additional topics include uncertain tax positions and valuation allowances. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 6480 - Partnership Taxation

This course focuses 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 a partnership. Coreq: ACCT 6140. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 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. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or NBD within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 6485 - Advanced Partnership Taxation

This course is an advanced federal income tax course focusing on the taxation of partnerships and their partners. Topics often include discussions on allocations of partnership income and loss under the "substantial economic effect" and the partner's interest in the partnership rules, targeted capital accounts, 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. Students cannot receive credit for both MTAX 6485 and MTAX 6482. Prereq: Grade of C (2.0) or higher in ACCT 6140 or ACCT 4410 or at least 6 credit hours of MTAX courses. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 6490 - Income Tax of Trusts, Estates, and Beneficiaries

There are five major income tax areas that are fundamental to a CPA or legal tax

practice: (1) individual; (2) partnership; (3) C corporations; (4) S corporations; and (5) "fiduciary" taxation. This course focuses on the last of the core types of income taxation – fundamentally, the taxation of trusts, estates and their beneficiaries under Subchapter J of the Internal Revenue Code. There are three major areas covered by Subchapter J. First, the grantor trust rules deal with revocable trusts and, to many practitioner's surprise, many irrevocable trusts. Second, estates and irrevocable trusts that are not grantor trusts are governed by the distributable net income rules. Third, when someone inherits an asset that was not taxed to the decedent, such as a retirement plan, the income in respect of a decedent rules apply to the heir. This course examines each of these three major areas of income taxation under Subchapter J and focuses on the practical aspects of completing IRS Form 1041, U.S. Income Tax Return for Estates and Trusts, using real life examples. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 6495 - Travel Study: Washington, D.C. Tax Experience

By petition only. This course is a travel program. Students will travel to Washington, D.C. to meet with representatives from the various governmental entities that influence federal taxation. In particular, students will meet with representatives (i) from the various Congressional committees and legislative advisory committees involved in drafting tax legislation, (ii) from the Internal Revenue Service and Treasury Department, and (iii) from the United States Tax Court and other courts that consider federal tax cases. Prereq: At least 6 credit hours of MTAX courses and a cumulative MTAX GPA of no less than 3.00. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 2 Credits. **Semester Hours:** 2 to 2

MTAX 6500 - Advanced Corporate Taxation

A study of the statutory and judicial tax rules and problems relating primarily to corporate reorganizations and commonly controlled corporations, with a special emphasis on the tax rules associated with restructuring of corporate entities in the context of corporate merger and acquisition transactions. Prereq: Grade of C (2.0) or higher in ACCT 6140 or ACCT 4410 or at least 6 credit hours of MTAX courses. Restriction: Restricted to graduate majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours:** 3 to 3

MTAX 6800 - Special Topics in Taxation

Courses offered irregularly for the purpose of presenting new subject matter in Taxation.

Consult the current 'Schedule Planner' for semester offerings. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 9 Credits. **Semester Hours:** 1 to 9

MTAX 6840 - Tax Independent Study

Permission of instructor required. Allowed only under special and unusual circumstances. Regularly scheduled courses cannot be taken as independent study. Prereq: At least 9 credit hours of MTAX courses. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours:** 1 to 3

MTAX 6939 - Tax Internship/Cooperative Education

Supervised experiences involving the application of tax return preparation and tax planning concepts and skills in an employment situation. Prereq: At least 6 credit hours of MTAX courses. Restriction: Restricted to graduate business majors and NDGR majors with a sub-plan of NBA or CPA within the Business School. Max hours: 3 Credits. **Semester Hours:** 1 to 3

Theatre

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 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 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 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 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 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 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 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 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 a way 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 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

Univ Honors and Leadership

UNHL 1100 - The Life of the Mind

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 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 3150 - Negotiation, Bargaining, and Leadership

This course integrates leadership theory and practice within a principled negotiation philosophy. Students will develop lifelong negotiation skills that reflect a principled negotiation framework for conflict management and strategic bargaining. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3160 - Mindfulness and the Evolution of Consciousness

The desire to understand consciousness has captivated the human imagination and raises important questions about human experience, awareness, nature, and life. This course is an exploration of the communication and evolution of consciousness in both historical and contemporary times. Consciousness scholarship covers broad areas of intellectual development, in particular, the relationship between our sense of human awareness and: biology, science, religion, art, nature, cosmology, culture, philosophy, metaphysics, and communication. Restriction: Restricted to students in the University Honors and Leaders Program (UNHL). 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 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 3530 - Making the Modern Environment

Delve into how human societies have shaped the natural world. Interdisciplinary course asks how a distinctly modern environment was produced and discusses the origins of the contemporary environmental crisis. Analyzes historical contexts and scientific developments that have refashioned landscapes, altered human and ecological systems, and deeply affected ways of knowing and understanding environmental change. Restriction: Restricted to students in the University Honors and Leaders Program. 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 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 3816 - Ethical Problems with Emerging Technologies

This course identifies a number of the emerging technologies across various industries and disciplines, and seeks to understand the technologies and its practical applications in the real world, as well as any additional potential utilizations. It then explores the potential ethical challenges for both the developer and the industry, as well as for the nation in which it is developed, the U.S. and the world. Restriction: Restricted to students in the University Honors and Leaders Program (UNHL). 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 3827 - American Music, American Culture: Folk, Roots, and the Blues

Explores 20th-century American history, integrating a multiplicity of cultural perspectives, regional identities, and musical events and personalities. We will explore the relatively recent history of race relations in this country, as well as cultural policies and changemakers throughout the development of the modern music industry. Restriction: Restricted to students in the University Honors and Leaders Program (UNHL). 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 3832 - Theater Practices, Politics, and Social Justice

This class will emphasize performance techniques from master theatre practitioners, as they illuminate the relevance of theatre both as a form of artistic expression and a vehicle for social change. Students will read major dramatic works, attend plays and create original performances exploring issues of political and social concern. Restriction:

Restricted to students in the University Honors and Leaders Program (UNHL). Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3837 - Representing Community in Literature, Drama, and Film

This writing intensive course examines several artistic genres that illustrate and interrogate notions of community. Communities may include family, utopias, military, or towns, and students will be required to identify and investigate a community of their choosing. Community in the classroom is crucial to the class, and students will assign homework to each other in addition to presenting their work in class. Restriction: Restricted to students in the University Honors and Leaders Program (UNHL). Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 3840 - Creativity and Social Change

This course draws on historical cases and contemporary movements to examine the ways human creativity - broadly situated across artistic, scientific, and social activities - can foster social change. Restriction: Restricted to students in the University Honors and Leaders Program (UNHL). 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 4420 - Health Behaviors, Markets, and Policy

This course is focused on policies that affect the provision of health care, the consumption of health care, and health behaviors. Students will be exposed to research from a variety of disciplines on health care markets, the role of government, and the causes and consequences of risky health behaviors. Restriction: Restricted to students in the University Honors and Leaders Program (UNHL). 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 4820 - Scientific Thinking

Intensive analysis of primary literature from across the sciences. Students will expand their understanding and appreciation of the scientific method and develop the ability to critically analyze and evaluate experimental design in both scientific and social contexts. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNHL 4825 - Nuclear Technology: Dilemmas & Policies of Science

From promise to devastation, nuclear technology highlights the modern dilemma of how to manage our prodigious knowledge of science with our limited understanding of human decision-making. Begins with basic nuclear chemistry and moves to the political history of our nuclear age, prompting discussions ranging from physics to metaphysics. 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 3000 - Planning the Built Environment

Learn the multidisciplinary field of urban planning, focusing on how to plan and design sustainably at multiple scales: site, neighborhood, city, region. We use lecture, discussion, and applied learning techniques, including fieldwork, mapping, case studies, guest practitioners, and in-class workshops. Restriction: Restricted to undergrads with sophomore standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 4000 - Sustainable Urban Planning

Covers the multidisciplinary practice of urban planning, focusing on concepts, policies, and tools to plan sustainably at multiple scales; site, neighborhood, city, and region, using lecture, discussion, and applied learning through field work, case studies, guest practitioners, and in-class workshops. Prereq: ENGL 1020 Restriction: Restricted to students with junior standing or higher. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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 - Urban Sustainability

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. 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 and 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 5060 or 6630. 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 Engagement

This course focuses on roles and methods of public engagement in planning. Topics include planning advocacy; public meetings; public engagement techniques; diverse publics; controversial planning topics; mediation. Restriction: Restricted to Graduate Urban and Regional Planning students. 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 BANA 6650. 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

Students will be introduced to the hardware, software, theory, and skills required to use Geographical Information Systems (GIS). In this course, students will learn how to use GIS software to manage, analyze, map, and present spatial data to support the planning

and design processes. Prereq: An introductory GIS class is required before taking this class. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6300 - Community and Environmental Health Planning

A place-based approach to understanding the social, economic, environmental, and political factors that influence individual and community health with a focus on reducing 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 ARCH 6270, URBN 6633, and LDAR 5530. 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 6370 - Sprawl and Growth Management

This course addresses causes of sprawl (large lot zoning, highway subsidies, suburban amenities, taxes and municipal services), social and environmental consequences of sprawl, anti-sprawl growth management policies, open space preservation methods, and retrofitting suburbs. 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

Advances current practice by exploring innovative methods of design analysis, production, representation, and communication. Community participation and civic engagement are integral components of seminar. 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. Cross-listed with ARCH 6256. Restriction: Graduate level students. 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. Cross-listed with LDAR 6755 and ARCH 6205. 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. Cross-listed with LDAR 6637 and ARCH 6258. Restriction: Graduate level students. 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 Analysis

This course introduces students to the fundamentals of urban, land, and transportation economics, covering topics such as land markets, environmental regulation, infrastructure and service finance, impact fees, land value capture, pricing incentives, decision analysis, and cost-benefit analysis. Restriction: Restricted to graduate level students. 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 Planning/Management

This course addresses issues related to planning under major environmental laws,

ecosystem service-based management, urban green infrastructure, urban watershed and river management, urban forest and parks planning. 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, Land Use, and the Environment

Students will learn how current transportation modes shape regions and how future transportation technologies might impact us. Topics include policy making and governance; land use interactions with transportation investments; climate change and resilience; energy use; environmental justice; and equity considerations. Restriction: Graduate level students. Cross-listed with GEOG 4630. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6560 - Transit, Pedestrian, and Bicycle Planning

Course provides a comprehensive exploration of planning for transit and non-motorized modes (bicycling and walking). Topics include demand estimation, travel behavior, design and suitability analysis, land use interactions, public policy, and evolving technologies. Restriction: Graduate level students. 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 6598 - 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. Cross-listed with CVEN 6512. Restriction: Graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6599 - Case Studies in Sustainable Transportation

This course examines notable topics in sustainable transportation: demystifies conventional transportation engineering methods; and explores empirical examples of why such methods are often misguided. The intent is to enlighten engineering students and help support planning/policy students interested in transportation sustainability. Cross-listed with CVEN 5633. Restriction: graduate standing or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6600 - Regional Growth and Equity

Explores the institutions, policies, laws and funding that support planning for housing, transportation, infrastructure, air quality, and job creation at the metropolitan scale. Students will learn analytic techniques to study the labor market, economic growth and performance, commuting patterns, etc. Restriction: Restricted to graduate level students. 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, Rural, and Resort 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 Planning for Tourism and Small Towns

This course is about sustainably planning for tourism-dependent communities, particularly small towns. It focuses on the impacts of tourism on fragile cultural and ecological environments and addresses how to assess impacts, mitigation approaches and tools, and communication with the public. 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 - International Development Planning: Theory and Practice

This course examines key development issues and planning approaches in cities of the Global South. Topics include: development theory; legacies of colonial urbanisms; actors and institutions in development; urban informality; water and sanitation; housing and land tenure; and climate change, among other topics. 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 6675 - International Field Research: Methods and Analysis

This course will teach students the fundamentals of data collection, analysis, and dissemination in an international - and mostly developing world - context. Restriction: Restricted to graduate students within the College of Architecture and Planning. 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 6850 - 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. Cross-listed with ARCH 6470 and LDAR 6470. Restriction: Restricted to majors within the College of Architecture and Planning. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URPL 6900 - Planning Capstone

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: URPL 6000 or instructor consent. Max hours: 6 Credits. **Semester Hours:** 6 to 6

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 - Design Studio I

Working at the urban/metropolitan scale, this studio introduces design through urban structure and morphology, presenting the city as a complex ecological organism comprised of interrelated systems. Max hours: 12 Credits. **Semester Hours:** 6 to 6

URBN 6611 - Design Studio II

understanding and application of urban design tools, methods and practice. Studio

emphasizes designer's proactive role in shaping design using regulations and policy. Students consider real estate development, economics, aesthetic criteria, historic preservation, and methods of effective community participation. Max hours: 12 Credits. **Semester Hours:** 6 to 6

URBN 6612 - Advanced Travel Design Studio

Students travel to international or US urban location(s) to engage advanced design questions. Studio operates within network of professionals involved in contemporary projects. Focus on complexities of issues-based practice. Students develop complete project and consider context, politics, economics and regulations. 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, ARCH 6270, and LDAR 5530. 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

Advances current practice by exploring innovative methods of design analysis, production, representation, and communication. Community participation and civic engagement are integral components of seminar. Cross-listed with URPL 6398. Max hours: 3 Credits. **Semester Hours:** 3 to 3

URBN 6642 - Design Policy

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. Cross-listed with LDAR 6652. 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: 3 Credits.

Semester Hours: 3 to 3

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 - Introduction to Socially Just 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 4040 - Planning for Learning

This course explores multiple aspects of student learning: Including 1) standards-based instruction 2) cultural responsive instructional design, 3) assessment and data, and 4) differentiation in curriculum and instruction so that meaningful instruction becomes accessible to all students. Restriction: Professional Year Admission required. Cross-listed with 5040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 4050 - Elementary Capstone: Planning, Instruction & Assessment

The purpose of this course is to re-visit multiple aspects of instructional and curriculum design, implementation, and evaluation. The goal is to promote access to knowledge for all learners, including those who are diverse linguistically and culturally and those identified with special needs. Cross listed with UEDU 5050. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 4052 - English/LA & Social Studies Capstone: Secondary Ed

Through teaching units of instruction in school placements, secondary English/LA and Social Studies teacher candidates learn both unit and lesson design, assessment of student learning, and differentiation of curriculum and instruction to promote access to knowledge for all learners. Cross-listed with UEDU 5052. Restriction: Professional Year Admission required. 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 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. Restriction: Professional Year Admission required. 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. Restriction: Professional Year Admission required. 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 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. Restriction: Professional Year Admission required. 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. Restriction: Professional Year Admission required. 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. Restriction: Professional Year Admission required. 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 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 5040 - Planning for Learning

This course explores multiple aspects of student learning: Including 1) standards-based instruction 2) cultural responsive instructional design, 3) assessment and data, and 4) differentiation in curriculum and instruction so that meaningful instruction becomes accessible to all students. Restriction: Professional Year Admission required. Cross-listed with 4040. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5050 - Elementary Capstone: Planning, Instruction & Assessment

The purpose of this course is to re-visit multiple aspects of instructional and curriculum design, implementation, and evaluation. The goal is to promote access to knowledge for all learners, including those who are diverse linguistically and culturally and those identified with special needs. Cross listed with UEDU 4050. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5052 - English/LA & Social Studies Capstone: Secondary Ed

Through teaching units of instruction in school placements, secondary English/LA and Social Studies teacher candidates learn both unit and lesson design, assessment of student learning, and differentiation of curriculum and instruction to promote access to knowledge for all learners. Cross-listed with UEDU 4052. Restriction: Professional Year Admission required. 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 5075 - Transforming Pedagogy for the 21st Century

students' 21st Century Success skills: collaboration, communication, creativity, and critical thinking. Teachers will explore ways of implementing and supporting 21st-century skills in planning and instruction. 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 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. Restriction: Professional Year Admission required. 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. Restriction: Professional Year Admission required. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UEDU 5470 - Democracy and Social Studies Education

This course explores the current and historical relationship between democracy and social studies education and challenges teachers to think critically about challenging students to not only participate in democracy but transform it. 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 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 5850 - Capstone for Integrated MA

The capstone is a culminating project that provides a way for students to demonstrate the knowledge and skills they acquired during the MA program skills by planning, completing, and presenting a culminating project linked to the United States educational system. Max hours: 3 Credits. **Semester Hours:** 3 to 3

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: 3 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 - First Year Seminar

Restriction: Restricted to Freshman level students. 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 - Contemporary 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: sophomore standing or higher. 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 contemporary American families. Cross-listed with SOCY 3700. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 3840 - Independent Study: WGST

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. 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. Prereq: Students must have junior standing and at least a 2.75 GPA and must work with Experiential Learning Center advising to complete a course contract and gain approval. Max hours: 9 Credits. **Semester Hours:** 1 to 3

WGST 4010 - Special Topics in Women's and Gender Studies

Examines current topics in the field of Women's studies and Gender studies. Topics vary from term to term. May be repeated as long as the topic is distinct and different from courses student has already received credit for. Max hours: 9 Credits. **Semester Hours:** 1 to 3

WGST 4150 - Gender Politics in the Middle East: Beyond Orientalism & Islamism

This course is about Middle Eastern women's subjectivity and various forms of agency. It explores the nexus of domestic, regional and international forces that shapes the lives of Middle Eastern women, in particular in the Algerian, Egyptian, Iranian, Israeli and Palestinian contexts. Far from being silent observers of the contests among these forces, as is often assumed, Middle Eastern women have been active actors in the public arena since the 19th century colonial encounter and the importation of the modern state to the region using an array of means to make their voices heard. Theirs were often more militant than those of their countrymen. The course is divided into two parts. The first part provides an overview of the theoretical notions discussed such as Orientalism, agency, colonialism and post-colonialism. Related to this theoretical section is a historical overview that is necessary to the understanding of the contemporary conditions of Middle Eastern women and the continuities and changes between past and present. The second part covers pressing topics in the lives of Middle Eastern women in the post-independence era such as the rise of Political Islam, the global trend of democratization, war and occupation. The emphasis in this section is on women as active participants in the debates surrounding these issues, rather than as objects of them. The readings assigned include both texts written by scholars from the region and by others from without. They provide analyses of the contexts within which Middle Eastern women's struggles take place. In addition, students will be exposed to materials produced by Middle Eastern women activists that express their own opinions and views in order to avoid misrepresentation and to reflect the diversity among them. Cross-listed with PSCI 4150. Max hours: 3 Credits. **Semester Hours:** 3 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 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 4225, HIST 5225, WGST 5225, GEOG 4625. 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 4270 - Social Meanings of Reproduction

Reproduction involves more than biological processes, assuming symbolic, political, and ideological meanings. This course examines contested meanings of reproduction, including how people experience reproduction, controversies over who should reproduce (and under what circumstances), and how public policy mediates these conflicts. Cross-listed with SOCY 4270, SOCY 5270 and WGST 5270. Prereq: junior standing or higher or permission of instructor. 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 4308 - Contemporary Feminist Thought

This course explores contemporary feminist thought in philosophy and literature in the 20th and 21st centuries. Topics include lesbianism, black feminism, Chicana feminism, transgender identity, women and work and others. Cross-listed with ENGL 4308, ENGL 5308, PHIL 4308, PHIL 5308, WGST 5308. 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 4500 - Feminist Philosophy

Seminar on key debates & figures in historical & contemporary feminist philosophy.

Topics may include: rights, embodiment, gender, sexuality, race, reason, & violence. Figures may include: Wollstonecraft, Stanton, Beauvoir, Judith Butler, and bell hooks. Crosslisted with WGST 5500, PHIL 4500 & 5500. **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. Note: This course assumes that students have passed FREN 3112 or 3122 or an equivalent course, plus one other 3000 level course in French. 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 or Coreq: SPAN 3101. 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 4610 - Communication, media, and sexuality

Develop the tools to think critically about representations of sexuality and to understand the social construction of sexuality, the role of sexual representations in mass media and society, and the complex relationships between sexual acts, identities, and desires. Cross-listed with COMM 4610. Restriction: Restricted to Junior, Senior, or permission of instructor. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 4660 - Queer Media Studies

Queer Media Studies is a discussion-based, writing-intensive seminar that examines the history and development of U.S. LGBTQI media by focusing on media texts and production, sociocultural context, and media reception. Cross-listed with COMM 4660, COMM 5660, WGST 5660. 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 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. Cross-listed with SOCY 4780, SOCY 5780 and WGST 5780. Prereq: junior standing or higher or permission of instructor. 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

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Prereq: permission of instructor. Max hours: 12 Credits. **Semester Hours:** 1 to 3

WGST 4880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty. Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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 5010 - Special Topics in Women's and Gender Studies

Examines current topics in the field of Women's studies and Gender studies. Topics vary from term to term. May be repeated as long as the topic is distinct and different from courses student has already received credit for. Prereq: Graduate standing (Grad or Non-Degree Grad). Max hours: 9 Credits. **Semester Hours:** 1 to 3

WGST 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. Prereq: Graduate standing (Grad or Non-Degree Grad). Cross-listed with HIST 4225, HIST 5225, WGST 5225, GEOG 4625. 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5270 - Social Meanings of Reproduction

Reproduction involves more than biological processes, assuming symbolic, political, and ideological meanings. This course examines contested meanings of reproduction, including how people experience reproduction, controversies over who should reproduce (and under what circumstances), and how public policy mediates these conflicts. Cross-listed with SOCY 4270, SOCY 5270 and WGST 4270. Prereq: Graduate standing. 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5308 - Contemporary Feminist Thought

This course explores contemporary feminist thought in philosophy and literature in the 20th and 21st centuries. Topics include lesbianism, black feminism, Chicana feminism, transgender identity, women and work and others. Cross-listed with ENGL 4308, ENGL 5308, PHIL 4308, PHIL 5308, WGST 4308. Prereq: Graduate standing. 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5500 - Feminist Philosophy

Seminar on key debates & figures in historical & contemporary feminist philosophy. Topics may include: rights, embodiment, gender, sexuality, race, reason, & violence. Figures may include: Wollstonecraft, Stanton, Beauvoir, Judith Butler, and bell hooks.

Cross-listed with WGST 4500, PHIL 4500 & 5500. Prereq: Graduate standing. 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. Prereq: Graduate standing. 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. Note: This course assumes that students have passed FREN 3112 or 3122 or an equivalent course, plus one other 3000 level course in French. Prereq: Graduate standing. 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. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5660 - Queer Media Studies

Queer Media Studies is a discussion-based, writing-intensive seminar that examines the history and development of U.S. LGBTQI media by focusing on media texts and

production, sociocultural context, and media reception. Cross-listed with COMM 4660, COMM 5660, WGST 4660. Prereq: Graduate standing (Grad or Non-Degree Grad). 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. Prereq: Graduate standing. 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. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 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. Cross-listed with SOCY 4780, SOCY 5780 and WGST 4780. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

WGST 5840 - Independent Study

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Prereq: permission of instructor. Max hours: 12 Credits. **Semester Hours:** 1 to 3

WGST 5880 - Directed Research

Students will engage in original research projects supervised and mentored by faculty.

Students must work with faculty prior to registration to develop a proposal for their project and receive permission to take this course. Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the Graduate School for approval. Max hours: 6 Credits. **Semester Hours:** 1 to 6

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. Prereq: Graduate standing. 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. Prereq: Graduate standing. 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 and HUMN 6010. Prereq: Graduate standing. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Digital Animation

DACD 2810 - DAC: 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. Prereq: FINE 1810, FINE 1820, Acceptance into DAC. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DACD 2820 - DAC: Texturing and Shading

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 textures and materials with an emphasis on artistic excellence through application of current 3D technologies. Prereq: FINE 1810, FINE 1820, Acceptance into DAC. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DACD 2822 - DAC: Digital Cinematography

A lecture/lab course focuses on mastery of digital cinematography and visual storytelling. This course translates key production techniques: composition, camera craft, depth of field, camera blocking, and more, into the 3D world. This unique approach bridges the gap between traditional live-action cinematography and cutting-edge 3D animation, giving the students skills/knowledge about cinematic theory, practices and methods, as applied to digital 3D content creation. Prereq: FINE 1810, FINE 1820, Acceptance into DAC. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DACD 2830 - DAC: Lighting and Rendering

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. Prereq: DACD 2810, DACD 2820, Acceptance into DAC. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DACD 2850 - DAC: 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, and deform digital 3D shapes. Focus will be on creating digital characters, with an emphasis on artistic excellence through application of current 3D technologies. Prereq: DACD 2810, DACD 2820, Acceptance into DAC. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DACD 3810 - DAC: Environment Production

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/environments utilizing current 3D technologies. Prereq: DACD 2830, DACD 2850, Acceptance into DAC. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DACD 3820 - Character Rigging & Animation

A studio course focused on foundational 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. Prereq: DACD 2830, DACD 2850, Acceptance into DAC. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DACD 3821 - DAC: VFX Rigging & Animation I

A studio course focused on foundational skills for animating and rigging full digital 3D characters. Students explore the process/techniques of rigging for motion capture characters and adjusting their performance with consideration for thought, and animation with an emphasis on realistic VFX driven character performance. Prereq: DACD 2830, DACD 2850, Acceptance into DAC. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DACD 3830 - Advanced Character Animation

A studio course focused on mastery of skills for rigging and animating digital 3D characters. Students explore the processes/techniques of animation rigging and its relationship to animating character performances. Prereq: DACD 3820, Acceptance into DAC. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DACD 3831 - Character FX

A studio course focused on mastery of skills for rigging and animating digital 3D characters and objects and advance motion capture techniques. Students explore the processes/techniques of animation rigging and its relationship to realistic simulation of dynamic objects. Prereq: DACD 3820 and acceptance into DAC (FINE-BFA ANI). Max hours: 3 Credits. **Semester Hours:** 3 to 3

DACD 3835 - DAC: Visual Effects

A lecture/lab course exploring the theory/techniques of creating visual effects sequences. Students explore how to develop complete effects shots, including shooting live plates, camera tracking, visual effects, and compositing, with an emphasis on artistic

excellence through application of current 3D technologies. Prereq: DACD 2830, DACD 2850, Acceptance into DAC. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DACD 3846 - DAC: Preproduction for LookDev

A seminar course focused on the development and preproduction phases for the DAC senior thesis short. The principle focus of the course will be look, lighting, effects, and pipeline development and production organization for the DAC thesis short film. Prereq: DACD 2830, DACD 2850, Acceptance into DAC. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DACD 3850 - DAC: 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. Prereq: DACD 2830, DACD 2850, Acceptance into DAC. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DACD 4810 - DAC: Production I

The first semester of a year-long capstone focuses on production of the BFA thesis short. As a team, students assemble to organize, produce and complete a high-production value animated short and student "demo reel" with real-world production pipeline. Prereq: DACD 3845 or DACD 3846, Acceptance into DAC. Max hours: 3 Credits. **Semester Hours:** 3 to 3

DACD 4820 - DAC: Production II

The second semester of a year-long capstone focuses on production of the BFA thesis short. As a team, students assemble to organize, produce and complete a high-production value animated short and student "demo reel" with real-world production pipeline. Prereq: DACD 3845 or DACD 3846, Acceptance into DAC. Max hours: 3 Credits. **Semester Hours:** 3 to 3

Linguistics

LING 2000 - Foundations of Linguistics

Provides students with the foundations of the scientific study of language. Examines core areas within theoretical linguistics, sociolinguistics, historical linguistics, language acquisition, and writing systems, using a variety of languages. Term offered: fall. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LING 3100 - Language in Society

Introduces students to language use in the context of American society. Examines the interaction between language and age, gender, race, ethnicity, education, income, social class, language attitudes, policy and politics. Term offered: spring. Max hours: 3 Credits. **Semester Hours:** 3 to 3

LING 3840 - Independent Study - LING

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Max hours: 6 Credits. **Semester Hours:** 1 to 3

LING 4840 - Independent Study - LING

Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Max hours: 6 Credits. **Semester Hours:** 1 to 3

University Skills & Engagement

UNIV 1110 - College Success

This first-year course supports students by fostering academic skills and strategies, university engagement, personal strengths and goals, and diversity awareness and inclusion. No co-credit with UNIV 1111. Restriction: Restricted to Freshman level students. Max hours: 1 Credit. **Semester Hours:** 1 to 1

UNIV 1111 - College Success

This first-year course supports students by fostering academic skills and strategies,

university engagement, personal strengths and goals, and diversity awareness and inclusion. No co-credit with UNIV 1110. Restriction: Restricted to Freshman level students. Max hours: 3 Credits. **Semester Hours:** 3 to 3

UNIV 1112 - College Success - Major and Career Exploration

UNIV 1112 is designed for first-year college students and new transfer students who are navigating their major and career exploration process. This course explores college majors, examines career development theories, and introduces students to experiential learning opportunities. Students will connect to campus resources that support major and career exploration. Restriction: Restricted to first-year students and new transfer students with less than 30 credit hours. Max hours: 1 Credit. **Semester Hours:** 1 to 1