Course Descriptions 2009-2010

ACCT3000 Financial Statement Analysis **Credit Hours: 3**

An elective dealing with financial statement information in decision making. Course requirements include both written and oral presentation of an in-depth analysis of the financial reports of a corporation.

Prerequisites: BUAD 2050 FOR LEVEL UG WITH MIN. GRADE OF D-

ACCT3010 Cost Accounting For Nonaccounting Majors **Credit Hours: 3**

Introduction to concepts and applications of cost accounting for manufacturing and service organizations. Covers cost management, activity costs, job costing, overhead analysis and uses of cost information in decision-making.

Prerequisites: BUAD 2050 FOR LEVEL UG WITH MIN. GRADE OF D-

ACCT3030 Tax Accounting For Nonaccounting Majors **Credit Hours: 3**

An introduction to federal income taxes for individuals. This course covers the concepts of income, deductions, taxes and credits. Students gain practical experience in preparing form 1040 for individuals.

Prerequisites: BUAD 2050 FOR LEVEL UG WITH MIN. GRADE OF D-

ACCT3100 Financial Accounting And Systems **Credit Hours: 3**

This class focuses on the general purpose financial statements and the accounting information system that develops information included in those financial statements.

Prerequisites: (BUAD 2040 FOR LEVEL UG WITH MIN. GRADE OF C AND BUAD 2050 FOR LEVEL UG WITH MIN. GRADE OF C)

ACCT3110 External Financial Reporting I **Credit Hours: 3**

This course covers accounting topics applicable to asset valuation, income measurement and financial statement disclosure. It concentrates on accounting for corporations and emphasizes the accounting cycle and the asset side of the balance sheet.

Prerequisites: ACCT 3100 FOR LEVEL UG WITH MIN. GRADE OF C

ACCT3210 Individual Taxation **Credit Hours: 3**

This class focuses on the concepts and principles applicable to the taxation of individuals.

Prerequisites: ACCT 3100 FOR LEVEL UG WITH MIN. GRADE OF C

ACCT3310 Accounting Information Systems And Controls **Credit Hours: 3**

This course provides an introduction to processing and reporting of accounting information. Major emphasis is placed on basic accounting information processing including accounting applications in an advanced information technology environment.

Prerequisites: ACCT 3100 FOR LEVEL UG WITH MIN. GRADE OF C

ACCT4120 External Financial Reporting II **Credit Hours: 3**

This course concentrates on financial accounting for corporations and emphasizes the liability and stockholders' equity sections of the balance sheet, and related income statement issues.

Prerequisites: ACCT 3110 FOR LEVEL UG WITH MIN. GRADE OF C

ACCT4130 External Financial Reporting III **Credit Hours: 3**

This is the third course in the external financial reporting sequence. This course covers topics such as foreign exchange, partnerships, business consolidations and mergers.

Prerequisites: ACCT 3120 FOR LEVEL UG WITH MIN. GRADE OF C OR ACCT 4120 FOR LEVEL UG WITH MIN. GRADE OF C

ACCT4310 Internal Reporting **Credit Hours: 3**

Internal Reporting focuses on budgeting, product and service costing and the ability to recognize and provide management with relevant information for strategic cost management and performance evaluation.

Prerequisites: ACCT 3100 FOR LEVEL UG WITH MIN. GRADE OF C

ACCT4410 Governmental And Not-For-profit Accounting **Credit Hours: 3**

Principles, procedures and ethics of financial reporting for not-for-profit organizations, including state and local government. Includes the use of funds, budgets, appropriations and encumbrances as means of control.

Prerequisites: ACCT 3110 FOR LEVEL UG WITH MIN. GRADE OF C

ACCT4420 Auditing **Credit Hours: 3**

Auditing integrates financial and cost accounting, ethics, accounting theory, information systems and control structure concepts into a systematic process of obtaining, evaluating and reporting on economic events and activities.

Prerequisites: (ACCT 3110 FOR LEVEL UG WITH MIN. GRADE OF C AND ACCT 3310 FOR LEVEL UG WITH MIN. GRADE OF C)

ACCT4940 Accounting Internship **Credit Hours: 1-3**

The accounting internship allows superior accounting students to obtain practical training through a rigorous learning experience. This program enables students to secure a broad exposure to business operations and problems.

Prerequisites: ACCT 3100 FOR LEVEL UG WITH MIN. GRADE OF D-

ACCT4990 Independent Study: Readings And Research **Credit Hours: 1-3**

The student will write a research report on an accounting topic of interest to both student and faculty adviser. The topic must not be covered in another undergraduate accounting course.

Prerequisites: ACCT 3120 FOR LEVEL UG WITH MIN. GRADE OF D-

ACCT5000 Financial And Managerial Accounting **Credit Hours: 3**

The study of the principles of Financial and Managerial accounting. The financial accounting segment of the course will focus on the preparation, interpretation and analysis of financial statements and the use of the financial information. The managerial accounting segment of the course will focus on an introduction to cost accounting, managerial accounting concepts and the use of accounting information in managerial decision-making.

ACCT5120 External Financial Reporting II **Credit Hours: 3**

This class concentrates on financial accounting for coporations and emphasizes the liability and owner's equity sections of the balance sheet and related income statement issues.

Prerequisites: ACCT 5110 FOR LEVEL GR WITH MIN. GRADE OF D-

ACCT5320 Internal Reporting **Credit Hours: 3**

This course focuses on budgeting, product and service costing, and the ability to recognize and provide management with relevant information for strategic cost management and performance evaluation. This class will include a project for additional analysis. Prerequisite: Acct 5100 with a grade of C (2.0) or better.

Prerequisites: ACCT 5100 FOR LEVEL GR WITH MIN. GRADE OF D-

ACCT5940 Internship **Credit Hours: 1-3**

A combination of practical experience at a business concern with discussion to be held at the University with others in the program. An oral and written report is required.

ACCT6130 External Financial Reporting III **Credit Hours: 3**

This is the third course in the external financial reporting sequence. This course covers topics such as foreign exchange, partnerships, business consolidations and mergers.

Prerequisites: ACCT 4120 FOR LEVEL UG WITH MIN. GRADE OF D-

ACCT6150 International Accounting And Taxation **Credit Hours: 3**

Analysis of accounting issues crucial to multinational companies. Issues to be addressed include: comparing accounting across countries, effects of harmonization of financial reporting requirements and the translation of foreign currency financial statements.

Prerequisites: ACCT 6210 FOR LEVEL GR WITH MIN. GRADE OF D-

ACCT6190 Contemporary Accounting Problems **Credit Hours: 3**

An overview of current topics and issues concerning the profession. The course includes, but is not limited to, problems and opportunities related to the practice of public accounting.

Prerequisites: (ACCT 6210 FOR LEVEL GR WITH MIN. GRADE OF D- AND ACCT 6130 FOR LEVEL GR WITH MIN. GRADE OF D-)

ACCT6210 Research In Accounting And Taxation **Credit Hours: 3**

Provides the methodology necessary for accountants to perform effective, efficient and ethical accounting and tax research and the means of communicating those results.

Prerequisites: (ACCT 3120 FOR LEVEL GR WITH MIN. GRADE OF D- AND ACCT 4210 FOR LEVEL GR WITH MIN. GRADE OF D-)

ACCT6220 Corporate Taxation **Credit Hours: 3**

This course covers the taxation of corporations and their shareholders. Topics include the formation of a corporation, taxation of corporate income and the tax treatment of distributions.

Corequisites: ACCT6210

ACCT6310 Advanced Managerial Accounting **Credit Hours: 3**

Use of accounting information in planning and controlling an organization, including case studies in cost-volume-profit, budgeting, transfer pricing and performance evaluation.

Prerequisites: ACCT 4310 FOR LEVEL UG WITH MIN. GRADE OF D-

ACCT6320 Cost Analysis And Control **Credit Hours: 3**

Criteria and techniques for designing and using cost systems. Theory and techniques of analyzing organizations and processes in manufacturing and service organizations. Uses case studies to evaluate cost management systems.

Prerequisites: ACCT 4310 FOR LEVEL UG WITH MIN. GRADE OF D-

ACCT6330 Advanced Topics In Accounting Information Systems **Credit Hours: 3**

Additional analysis of processing and reporting accounting information. Major emphasis is placed on accounting information processing including accounting applications in an advanced technology environment.

Prerequisites: ACCT 3310 FOR LEVEL UG WITH MIN. GRADE OF D-

ACCT6410 Governmental And Not-For-profit Accounting **Credit Hours: 3**

Principles, procedures and ethics of financial reporting for not-for-profit organizations, including state and local government. Includes the use of funds, budgets, appropriations and encumbrances as a means of control.

Prerequisites: ACCT 3110 FOR LEVEL UG WITH MIN. GRADE OF C

ACCT6420 Auditing **Credit Hours: 3**

Auditing integrates financial and cost accounting, ethics, accounting theory, information systems and control structure concepts into a systematic process of obtaining, evaluating and reporting on economic events and activities.

Prerequisites: (ACCT 3110 FOR LEVEL UG WITH MIN. GRADE OF C AND ACCT 3310 FOR LEVEL UG WITH MIN. GRADE OF C)

ACCT6430 Business Valuation And Analysis **Credit Hours: 3**

Analyzes business analysis and valuation techniques with majpr emphasis placed on how a firm's financial reporting decisions affect fundamental analysis.

Prerequisites: ACCT 6130 FOR LEVEL GR WITH MIN. GRADE OF D-

ACCT6960 Independent Study In Accounting **Credit Hours: 1-3**

Independent research report on an accounting topic of interest to both the student and the faculty member. Research related to a topic not covered in the listed graduate accounting courses.

ACTG1040 Principles Of Financial Accounting **Credit Hours: 3**

The course covers basic financial accounting principles for a business enterprise. Topics include transaction analysis, measurement, summarization, preparation, interpretation and use of financial reports.

ACTG1050 Principles Of Management Accounting **Credit Hours: 3**

Management uses of accounting data for analysis, decision making, financial planning and control. Topics include understanding cost behavior, activity-based costing, cost-volume-profit analysis and budgeting.

Prerequisites: ACTG 1040 FOR LEVEL UG WITH MIN. GRADE OF D- OR BUAD 2040 FOR LEVEL UG WITH MIN. GRADE OF D-

ACTG1060 Technical Financial Accounting For Accounting Majors **Credit Hours: 2**

Extensive work on accounting cycle including preparation of financial statements, and development and use of account information in business application areas.

Prerequisites: ACTG 1040 FOR LEVEL UG WITH MIN. GRADE OF D- OR BUAD 2040 FOR LEVEL UG WITH MIN. GRADE OF D-

ACTG1200 Accounting Software **Credit Hours: 3**

Students will become familiar with a variety of accounting software such as QuickBooks, Peachtree, and Microsoft Office Accounting.

Prerequisites: ACTG 1040 FOR LEVEL UG WITH MIN. GRADE OF D- OR BUAD 2040 FOR LEVEL UG WITH MIN. GRADE OF D-

ACTG1220 Computerized Accounting with QuickBooks **Credit Hours: 3**

A course designed to familiarize the student with QuickBooks, a popular accounting software.

Prerequisites: ACTG 1040 FOR LEVEL UG WITH MIN. GRADE OF D- AND BUAD 2040 FOR LEVEL UG WITH MIN. GRADE OF D-

ACTG1250 Spreadsheet Applications In Accounting **Credit Hours: 2**

Spreadsheet programs will be used in budgeting, financial management, preparation of financial statements, creation of business documents and other financial applications.

Prerequisites: ACTG 1040 FOR LEVEL UG WITH MIN. GRADE OF D- OR BUAD 2040 FOR LEVEL UG WITH MIN. GRADE OF D-

ACTG2100 Intermediate Accounting I **Credit Hours: 3**

In-depth expansion of financial accounting principles and financial statement presentation. Emphasis on balance sheet accounts with particular attention applied to working capital (cash, receivables, inventory, current liabilities, also long-term assets).

Prerequisites: ACTG 1040 FOR LEVEL UG WITH MIN. GRADE OF D- OR BUAD 2040 FOR LEVEL UG WITH MIN. GRADE OF D-

ACTG2150 Intermediate Accounting II **Credit Hours: 3**

Continuation of advanced financial accounting topics including valuation of long-term liabilities and investments, stockholders' equity and accounting for income taxes, leases, pensions, accounting changes/errors, statement of cash flow.

Prerequisites: ACTG 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

ACTG2300 Cost Accounting **Credit Hours: 3**

Practice of cost accounting especially applied to manufacturing business. Includes accounting for materials, labor and overhead under job order and process cost systems and standard costing.

Prerequisites: ACTG 1040 FOR LEVEL UG WITH MIN. GRADE OF D- OR BUAD 2040 FOR LEVEL UG WITH MIN. GRADE OF D-

ACTG2310 Financial Management for Health Care **Credit Hours: 3**

Cost accounting has become an essential part of health care management. The spread of managed care has heightened this need. Traditional cost courses focus primarily on manufacturing. This course provides thorough coverage of the essentials of cost accounting from a health care perspective.

ACTG2350 Managerial Accounting **Credit Hours: 3**

Emphasis on the use of accounting information internally for decision-making by managers of business entities.

Prerequisites: ACTG 2300 FOR LEVEL UG WITH MIN. GRADE OF D-

ACTG2400 Fundamentals Of Taxation **Credit Hours: 3**

Consideration of the basic features of the federal income tax system. Emphasis is placed on the determination of taxable income of individuals and corporations. Also covered will be the preparation of the form 1040 both manually and using a commercial computer tax preparation package.

Prerequisites: ACTG 1040 FOR LEVEL UG WITH MIN. GRADE OF D- OR BUAD 2040 FOR LEVEL UG WITH MIN. GRADE OF D-

ACTG2450 Tax Accounting II **Credit Hours: 3**

A study of S corporations, C corporations, partnerships and estate and gift tax.

Prerequisites: ACTG 1040 FOR LEVEL UG WITH MIN. GRADE OF D- OR BUAD 2040 FOR LEVEL UG WITH MIN. GRADE OF D-

ACTG2500 Auditing And Internal Control **Credit Hours: 3**

A study of auditing standards, concepts and procedures. This course includes examination of the auditor's approach to study and evaluation of the internal control structure as well as substantive testing of the revenue cycle.

Prerequisites: ACTG 1060 FOR LEVEL UG WITH MIN. GRADE OF D-

ACTG2510 Forensic Accounting **Credit Hours: 3**

Topics will cover gathering and presenting financial information that will be accepted by a court of jurisprudence against perpetrators of economic crime.

ACTG2610 Public Administration And Non-Profit Accounting **Credit Hours: 3**

This course is designed for students in the accounting program and employees of non-profit organizations. The course deals with the principles and applications of fund accounting as it relates to government, health care, colleges and universities and other non-profit organizations. It also includes budgeting and reporting.

ACTG2630 Payroll Accounting **Credit Hours: 1**

This course will teach students the development and maintenance of appropriate reports, retention periods and tax filings.

ACTG2710 Certified Bookkeeper Exam Review **Credit Hours: 3**

Will prepare students for National Certified Bookkeeper Exam. Course covers all five required skill areas: merchandise inventory, payroll, depreciation, correcting and adjusting entries.

ACTG2940 Cooperative Education In Accounting **Credit Hours: 3**

Cooperative education in accounting is the integration of classroom theory with practical work experience in the related field. Work related jobs must be investigated and approved by the co-op instructor. Instructor permission required.

Prerequisites: ACTG 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

ACTG2980 Special Topics In Accounting **Credit Hours: 1-3**

Current developments in accounting research and theory and literature discussed in seminar manner. Topics selected from all areas of accounting.

Prerequisites: ACTG 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

ACTG2990 Independent Study- Accounting **Credit Hours: 1-4**

Students will study an appropriate subject mutually agreed upon between the student and instructor. The format may include lecture, computer lab and/or practical experience.

ADOT1010 Pc Keyboarding I **Credit Hours: 3**

Provides a basic understanding of the personal computer, word processing software and the development of keyboarding skills. Learn to format business letters, memos, reports and tables.

ADOT1080 Administrative Office Skills **Credit Hours: 3**

This course develops the competence of students in applying proofreading, editing, telephone, filing and vocabulary skills to office situations to enhance their effectiveness as administrative support personnel.

Prerequisites: ADOT 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

ADOT1110 Pc Keyboarding II **Credit Hours: 3**

Focuses on the improvement of typewriting production and speed building. Course coverage includes production work on professional reports, business correspondence, office forms and frequent special practice to develop maximum typing skills.

ADOT1200 Secretarial Office Procedures **Credit Hours: 3**

This course explores the information processing and administrative support responsibilities and services necessary for the secretary to perform effectively at the operational level in the business office.

Prerequisites: ADOT 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

ADOT2140 Machine Transcription **Credit Hours: 3**

This course provides intensive practice in transcribing business correspondence from machine sources. The course will emphasize efficient use of equipment, preparation of quality correspondence, command of language skills and achieving an employable transcription rate.

Prerequisites: ADOT 2180 FOR LEVEL UG WITH MIN. GRADE OF D-

ADOT2180 Word Processing **Credit Hours: 3**

This course emphasizes the mastery of basic and advanced word processing functions of WordPerfect for Windows to enable the student to function effectively and efficiently in a business environment.

Prerequisites: ADOT 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

ADOT2200 Office Management **Credit Hours: 3**

Students study various organizational forms, the functions of business departments and relate past office situations to current office conditions in a effort to ensure future effectiveness in office operations.

Prerequisites: ADOT 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

ADOT2270 Pc Keyboarding III **Credit Hours: 3**

Advanced instruction with emphasis on setting priorities, following directions, evaluating document formats and mailability, composing administrative business correspondence, demonstrating quality and efficiency in document production using industry standard word processing software.

Prerequisites: ADOT 1110 FOR LEVEL UG WITH MIN. GRADE OF D-

ADOT2940 Administrative Office Internship **Credit Hours: 3**

Students will work in an office environment in the local business community and demonstrate the technical and communication skills required for successful performance in an administrative support position.

Prerequisites: (ADOT 1080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ADOT 2180 FOR LEVEL UG WITH MIN. GRADE OF D- AND ADOT 1200 FOR LEVEL UG WITH MIN. GRADE OF D-)

ADOT2990 Independent Study **Credit Hours: 1-3**

Students will study an appropriate subject mutually agreed upon between the student and instructor. The format may include lecture, computer lab and/or practical experience.

AED2940 Field Placements In Special Settings **Credit Hours: 1-4**

Independent field work which will allow the undergraduate student to develop a course of study. Optional placement in a school system or in programs for children and youth at The Toledo Museum of Art.

AED3100 Art Education for the Pre-Primary and Primary Child **Credit Hours: 3**

Focuses on the supporting the young child's capacity to create, perceive and appreciate the visual arts. Orientation to materials and instructional techniques will be explored through studio and gallery instruction with a young child.

AED3130 Multi-Cultural Approaches For Art Appreciation **Credit Hours: 3**

An investigation of innovative methods for teaching multi-cultural understanding through art history and art appreciation. The Toledo Museum of Art's collection will be the focus for the course.

AED3300 Crafts In Art **Credit Hours: 3**

This course is designed to investigate the philosophy and variety of craft processes used to make art. Topics that may be covered include fibers, metal crafts, ceramics, paper making.

AED3500 Innovations In Art Education **Credit Hours: 3**

An introduction to new directions in secondary art education. Current views of philosophy and psychology are implemented as the rationale for contemporary curricula in art education. Field experience is to be arranged.

AED3940 Art Field Placements In The Elementary School **Credit Hours: 1-4**

Field placement in an elementary school setting allowing the undergraduate student, with art teacher approval, to develop a course of study that will satisfy the special needs of the student in art education.

AED4140 Art Education For The Special Child **Credit Hours: 3**

This course introduces and surveys a wide variety of art strategies and instructional adaptations for use with the child with physical, emotional or mental differences.

AED4150 Setting The Stage For Early Childhood Learning: Inspirations From Reggio Emilia **Credit Hours: 3**

This course will explore Reggio's philosophy of early childhood education and the numerous ways that children explore the "hundred languages." Reggio uses these languages (art, clay, wire, sculpture, light, shadow, etc.) as a way to help children represent their world and what they know about it.

AED4200 Computer Graphics In Art Education **Credit Hours: 3**

This course examines the tools, technology and instructional applications of computer graphics in art settings. This course is especially appropriate for art educators interested in integrating art concepts using the Macintosh environment.

AED4230 Integrating Aesthetic Experiences **Credit Hours: 3**

This course will provide students in education an overview of the role of art and music in curriculum development. (Students may enroll in either art or music education sections.)

AED4240 Adaptive Methods In Therapeutic Art For Children **Credit Hours: 3**

This course is designed to study art media and methods that will enhance the development of the child with disabilities as it relates to their physical, emotional, intellectual and social well being.

Prerequisites: AED 4560 FOR LEVEL UG WITH MIN. GRADE OF D-

AED4300 Media And Methods In Therapeutic Art **Credit Hours: 3**

An investigation into group and individual processes as they relate to art media and methods in therapeutic art will be presented. Experiences in art media will be explored.

Prerequisites: AED 4560 FOR LEVEL UG WITH MIN. GRADE OF D-

AED4450 Curriculum In Art Education **Credit Hours: 3**

An exploration of discipline-based art education (DBAE) philosophy in the schools. Field placement in the Toledo Museum of Art's Youth program and the area schools will be used to implement the theoretical base.

AED4560 Introduction To Therapeutic Art **Credit Hours: 3**

This course will introduce students to therapeutic art through investigation of theories in art education and art therapy. Students will explore art media and methods in therapeutic art programming.

AED4900 Seminar In Professional Development **Credit Hours: 2**

This seminar is designed to enhance the student teacher's final preparation for employment. Professional issues, ethical behavior, interview techniques and other processes and concerns involved in entry into the profession will be examined.

Corequisites: AED4930

AED4930 Student Teaching In Art **Credit Hours: 6-12**

Planned field experiences in public school classrooms under the direction of experienced art teachers. Gradual acceptance of full responsibility by student teacher. A scheduled time will be included to facilitating professional practices.

Prerequisites: UPDV FOR MIN. SCORE OF 1

AED4950 Innovations In Art Education **Credit Hours: 3**

Students are introduced to a variety of activities and materials based upon children's interests and needs, available materials, and time allotted to art activities in the self-contained classroom.

AED4990 Individual Study In Art Education For The Undergraduate Student **Credit Hours: 1-4**

Individual study is designed to provide the student the opportunity to work individually on professional problems under the direction of the art education staff without formal class meetings.

AED5000 Research In Art Education **Credit Hours: 4**

This course will provide an overview of empirical and historical research structures, application of research to classroom activities and development of research for publication.

AED5140 Art Education For The Special Child **Credit Hours: 3**

This course introduces and surveys a wide variety of art strategies and instructional adaptations for use with the child with physical, emotional or mental differences.

AED5150 Setting The Stage For Early Childhood Learning: Inspirations From Reggio Emilia **Credit Hours: 3**

This course will explore Reggio's philosophy of early childhood education and the numerous ways that children explore the "hundred languages." Reggio uses these languages (art, clay, wire, sculpture, light, shadow, etc.) as a way to help children represent their world and what they know about it.

AED5200 Computer Graphics In Art Education **Credit Hours: 3**

This course examines the tools, technology and instructional application of computer graphics education settings. The course is appropriate for art educators as well as others interested in using graphics and the microcomputer.

AED5220 Issues In Therapeutic Art **Credit Hours: 3**

The study of art processes that provide physical, emotional and intellectual development. Topics covered include art history, art appreciation, aesthetics, making art and art materials.

AED5240 Adaptive Methods In Art Education For Special Populations **Credit Hours: 3**

This course is designed to provide understanding of how art experiences relate to special populations. Students will research and develop strategies and instructional adaptations for use with special populations in a therapeutic or rehabilitative setting.

Prerequisites: AED 5200 FOR LEVEL GR WITH MIN. GRADE OF D-

AED5300 Media And Methods In Therapeutic Art **Credit Hours: 3**

An investigation into group and individual processes as they relate to art media and methods in therapeutic art will be presented. Experiences in art media will be explored.

Prerequisites: AED 5220 FOR LEVEL GR WITH MIN. GRADE OF D-

AED5320 The Art Museum And The Art/Humanities Educator **Credit Hours: 3**

This course will introduce the role of the museum for the art/humanities educator and will examine the installation and design of exhibitions and the implications for teaching. Life center issues, museum education, curriculum issues, interactive galleries and technology will be presented.

AED5930 Advanced Seminar In Philosophy Of Art Education **Credit Hours: 1-4**

Guest lecturers from other institutions of higher learning are invited to The Toledo Museum of Art or The University of Toledo Department of Art to present seminars relevant to their endeavors.

AED5950 Workshop In Art Education For The Self-Contained Classroom **Credit Hours: 3**

Students are introduced to a variety of art activities and materials based on children's interests and needs, available materials, and time allotted to art activities in the self-contained classroom.

AED5990 Individual Study Of Art For The Graduate Student **Credit Hours: 1-4**

Individual study is designed to provide a student with the opportunity to work independently on professional problems under the direction of the faculty in the Department of Art.

AED6920 Masters Research Project In Art Education **Credit Hours: 1-4**

This course is open to graduate students who elect the completion of a master's project in fulfilling the research requirement of the master's degree program.

AED6940 Internship **Credit Hours: 1-4**

This course will incorporate advanced recreational therapy program concepts in therapeutic art within an internship environment using expressive techniques.

Prerequisites: RCRT 4940 FOR LEVEL UG WITH MIN. GRADE OF D-

AED6960 Master's Research Thesis In Art Education **Credit Hours: 1-4**

This course is open to graduate students who elect the completion of a master's thesis in fulfilling the research requirement of the master's degree program.

AERO1110 Air Force Organization I **Credit Hours: 2**

Organization of the United States Air Force. Focus on missions involving airlift forces, strategic forces, tactical forces as well as overseas forces. Development and employment of weapon systems and logistic support functions. Leadership laboratory activities.

AERO1120 Air Force Organization II **Credit Hours: 2**

Organization of the United States Air Force. Focus on U.S. Defense policies, military balance between U.S. and eastern European forces as well as capabilities of Army, Navy and Reserve/Guard forces. Officership/Professionalism and introduction to flight.

AERO2110 Air Force History I **Credit Hours: 2**

Development of air power from the first lighter-than-air vehicles through the establishment of the Department of the Air Force as an independent military force. Various concepts of employment of air power and factors which have prompted research and technological change. Examples of impact of air power on strategic thought. Leadership laboratory activities.

AERO2120 Air Force History II **Credit Hours: 2**

Development of air power since the establishment of the independent Air Force to the present. Various concepts of employment of air power and factors which have prompted research and technological change. Examples of impact of air power on strategic thought. Leadership laboratory activities.

AERO3110 Air Force Management I **Credit Hours: 3**

Integrated management course emphasizing individual as a leader in the Air Force. Human behavior, individual and in groups, historical development of management thought, discussion of classical leadership theory; oral and written communication, writing and briefing formats. Leadership laboratory activities.

AERO3120 Air Force Management II **Credit Hours: 3**

Air Force leadership, planning, organizing, coordinating, directing and controlling functions of management with emphasis on Air Force application, concept of command and staff, junior as administrative leader, Air Force personnel system, management of environment. Leadership laboratory activities.

AERO4110 American And National Security **Credit Hours: 3**

Role of the President, the Congress and National Security Council in national security making policy; American defense strategy; alliance; regional security; arms control. Leadership laboratory activities.

AERO4120 Air Force Officership **Credit Hours: 3**

Air Force officer as part of national security force; military law; laws of armed conflict; the military profession; transition to military life; relations with civilian community. Leadership laboratory activities.

AERO4910 Air Force Issues **Credit Hours: 3**

On demand. In-depth study of selected topics. Offered to individuals in lecture, seminar or independent study depending on student needs and nature of material. May be repeated twice for up to 6 hours.

AFST1100 Introduction To Africana Studies **Credit Hours: 3**

Introductory survey of basic theoretical concepts to analyze the Black experience, with special focus on the general historical process common to the African Diaspora (Africa, Caribbean and the Americas - South, Central and North, especially the USA.)

AFST1110 African Civilization **Credit Hours: 3**

General cultural and historical survey of Africa south of the Sahara from earliest times to the 20th century. Includes topics on art, literature, philosophy, religion and society.

AFST1200 Introduction To The African Experience **Credit Hours: 3**

Introduction to the African experience through case studies of critical historical experiences: origin of humanity, origin of civilization, empire and traditional society.

AFST2100 Foundations Of Black Intellectual History **Credit Hours: 3**

An examination of slavery and colonialism in the intellectual history of the African Diaspora, especially in the work of W.E.B. Dubois, C.L.R. James and Kwame Nkrumah.

Prerequisites: AFST 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR AFST 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

AFST2200 Foundation Of Culture In The African Diaspora **Credit Hours: 3**

Examination of culture in the African Diaspora by focusing on continuities and discontinuities in music and dance, material culture, language and folklore and the cultural practices of everyday life.

Prerequisites: AFST 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR AFST 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

AFST2220 History Of Jazz **Credit Hours: 3**

A study of the development of jazz styles including listening skills and historical perspectives. Because the major innovations and stylistic interpretations of jazz are a result of African Americans, the course includes a study of how their culture influenced the development of jazz. Students may take P/NC.

AFST2300 Black Community Research Methods **Credit Hours: 3**

Survey of basic social research methods and studies focusing on the Black community. Class conducts research on Black community of Toledo. Offered as companion to AFST 2400. Topics change each year. Course can be taken twice.

Prerequisites: AFST 1100 FOR LEVEL UG WITH MIN. GRADE OF D-

AFST2400 Social Policy And The Black Community **Credit Hours: 3**

Examination of social policy and the Black community of Toledo with a special focus on one major topic. Offered as companion to AFST 2300. Topics change each year. The course can be taken twice.

Prerequisites: AFST 1100 FOR LEVEL UG WITH MIN. GRADE OF D-

AFST2660 Politics In Africa **Credit Hours: 3**

The character and development of African political institutions and processes with a special emphasis on patterns in the post-independence period and prospects for the future.

AFST3220 Geography Of Africa **Credit Hours: 3**

Course begins with a general overview of Africa's physical environment, its colonial history and its people and cultures. It then examines a variety of themes associated with development, population, urban and political geography.

AFST3250 African-American History To 1865 **Credit Hours: 3**

An examination of the historical experiences of African-Americans in the United States from 1619 to 1865.

AFST3260 African-American History From 1865 **Credit Hours: 3**

An examination of the historical experiences of African-Americans in the United States since 1865.

AFST3300 African Art **Credit Hours: 3**

African Art is the study of the diversity of African art. The format of the course will be developed with emphasis upon region and style with emphasis upon the collections of African Art found in the Toledo Museum of Art.

AFST4430 Slavery In America **Credit Hours: 3**

Stresses the African continuum among slaves within the context of variations in goals and policies of slaveowners, slave trade, slave economics, demographics, slave labor and formation of slave culture.

AFST4530 Civil Rights **Credit Hours: 3**

A study of judicial policy-making and administrative implementation of decisions affecting racial issues, freedom of expression, national security and criminal procedures.

Prerequisites: PSC 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

AFST4580 Africa Since 1800 **Credit Hours: 3**

Africa south of the Sahara from 1800 to the present. Subjects include 19th century, colonial and independent Africa. Specific topics: the rise of South Africa, imperialism, African resistance and nationalism and independent African political, cultural and economic systems.

AFST4650 African American Writers Before The 20th Century **Credit Hours: 3**

A survey of African-American prose, poetry, drama and fiction from 1760 to 1915. Recommended: ENGL 2700, 2800, or 3790.

AFST4660 African American Literature In The 20th Century **Credit Hours: 3**

Study of the literary achievement of major African-American writers beginning with DuBois and ending with Gwendolyn Brooks and Ed Bullins. Recommended: ENGL 2700, 2800, or 3790.

AFST4670 African Americans In The United States **Credit Hours: 3**

Sociological study of African Americans in the United States, focusing on issues of ethnic identity, educational and economic achievement, continuing sources of discrimination and current movements for change.

AFST4800 Development In Third World Nations **Credit Hours: 3**

The new emerging ideological, political, social and economic patterns which repeat themselves in and determine the Third World transition from a traditional to a new society.

AFST4900 Senior Seminar **Credit Hours: 3**

General theoretical synthesis of the field focusing on a close reading of a recent biographical work of intellectual history, a recent work of cultural criticism and a recent work of social analysis.

AFST4910 Directed Research **Credit Hours: 1-6**

Student selected research topic under the supervision of faculty member and the Director of Africana Studies. Permission to enroll is contingent on a written proposal by the student being accepted by the two sponsoring faculty.

AFST4920 Directed Readings **Credit Hours: 1-6**

For advanced students wishing to read a specialized literature in the field. Requires a written proposal approved by faculty and Director of the Program.

Prerequisites: AFST 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR AFST 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

AFST4980 Special Topics In Africana Studies **Credit Hours: 3**

Discussion of a substantial issue in scholarly research or public discourse relative to the African Diaspora. May be repeated for different issues. Maximum number of hours for AFST 4980 should not exceed 9 semester hours.

ALS1900 Intro Seminar: Adult Liberal Studies **Credit Hours: 2**

Introduction to liberal studies. Library use, writing of a documented paper and the development of critical thinking through classroom discussion. Students in Adult Liberal Studies only.

ALS2500 INTERDISCIPLINARY APPROACHES TO RESEARCH **Credit Hours: 2**

Students will focus on critical thinking and interdisciplinary research methods in preparation for upper-level seminars and research courses.

ALS3040 Topical Seminar: Social Sciences **Credit Hours: 4**

Focus on topics of general interest to liberal arts students with particular reference to tools, concepts and analytical methods of social scientists. Students in Adult Liberal Studies only except by program director's permission.

ALS3050 Topical Seminar: Humanities **Credit Hours: 4**

Topics of general interest in humanities: writing and communication; religious, philosophical and ideological traditions; traditional and performing arts. Adult Liberal Studies students only except by program director's permission.

ALS3060 Topical Seminar: Natural Sciences **Credit Hours: 4**

Topics of general interest that consider scientific problem solving in such areas as biology, chemistry, geology, astronomy, physics, mathematics and statistics. Adult Liberal Studies students only except by program director's permission.

ALS4910 Senior Thesis **Credit Hours: 4**

Under supervision of a selected instructor, student completes a capstone research thesis as part of the Liberal Studies program area of concentration. Open only to Liberal Studies seniors.

AMST3730 Folklore **Credit Hours: 3**

A survey of the field of folklore with an emphasis on folk narrative, folk music and material culture in America. Recommended: Permission of instructor and Composition II

AMST4960 Senior Thesis, Parts I & II **Credit Hours: 5**

Part I Research and initial organizational design of the senior thesis. Advanced American Studies majors work under an adviser's direction. Part II Completion of a preliminary and then final draft of the senior thesis. The American Studies Faculty Steering Committee administers an oral exam upon thesis completion.

ANTH1020 Introduction To Anthropology **Credit Hours: 3**

A survey of the varied aspects of anthropology, including cultural anthropology, prehistory, physical anthropology and linguistics. (not for major credit)

ANTH2000 Proseminar In Anthropology I **Credit Hours: 1**

Students are introduced to the academic and professional nature of Anthropology. Topics covered include professional socialization, honor theses, portfolio construction, preparation for graduate studies, and career development.

ANTH2020 Introduction To Archaeology **Credit Hours: 3**

An introduction to the history, methods and techniques of archaeology and how the discipline of archaeology is related to anthropology, ethnohistory, history and geology. (not for major credit)

ANTH2100 Human Society Through Film **Credit Hours: 3**

An introduction through the use of ethnographic film to various aspects of non-western culture and the development of the use of film in anthropology.

ANTH2700 Human Evolution **Credit Hours: 3**

A survey of the human species in time, place and culture and the investigation of the factors underlying human biological variation.

ANTH2750 World Prehistory **Credit Hours: 3**

A survey of the processes of cultural development from the lower Pleistocene to development of writing.

ANTH2800 Cultural Anthropology **Credit Hours: 3**

Introduction to culture patterns and processes and their relationship to human society and language.

ANTH2900 African American Culture **Credit Hours: 3**

A survey of the socio-historical and cultural factors of African Americans in the U.S.

ANTH2980 Topics in Anthropology **Credit Hours: 3**

Examination of Special Topics in Anthropology. May be rpeated on different topics.

ANTH3330 Food, Health, Society **Credit Hours: 3**

This course deals with multi-cultural dietary patterns through time and space, as well as cross-cultural influences on health and disease.

ANTH3500 Cultural Diversity in Business **Credit Hours: 3**

Drawing on ethnographic and case studies to compare and contrast cultural institutions and behavioral patterns of diverse cultures, this course explores the influence of culture on business operations across cultures.

ANTH3510 Field Methods In Archaeology **Credit Hours: 1-6**

Methods of excavation and recovery of archaeological data. Field school conducted during excavation of a prehistoric site in the Toledo area.

ANTH3520 QUALITATIVE APPROACHES IN SOCIAL SCIENCE RESEARCH **Credit Hours: 3**

This course examines qualitative methods used in social science research. Focusing on ethnographic and qualitative methods, the course provides students the skills necessary to design and conduct qualitative research studies.

ANTH3850 Peoples Of World: An Evolutionary Approach **Credit Hours: 3**

An introduction to the socioeconomic activities in societies of varying sociocultural complexity.

ANTH3920 Indians Of North America **Credit Hours: 3**

A survey of North America Indians from prehistoric times to the present.

Prerequisites: ANTH 2800 FOR LEVEL UG WITH MIN. GRADE OF D-

ANTH3940 Peoples Of Subsaharan Africa **Credit Hours: 3**

The cultures and societies of the Subsaharan peoples of Africa.

Prerequisites: ANTH 2800 FOR LEVEL UG WITH MIN. GRADE OF D-

ANTH4000 Proseminar In Anthropology II **Credit Hours: 2**

Discussion among faculty and students devoted to the study of Anthropology with a special focus on the development of a professional protfolio for graduate work or career.

Prerequisites: ANTH 2000 FOR LEVEL UG WITH MIN. GRADE OF D-

ANTH4200 History and Theory in Anthropology-WAC **Credit Hours: 3**

This course acquaints students with various schools of anthropological theory, stressing the influence of traditional approaches on contemporary thought and the impact of historical context on the development of theory.

Prerequisites: ANTH 2800 FOR LEVEL UG WITH MIN. GRADE OF D-

ANTH4450 Exploring the City **Credit Hours: 3**

This course takes an interdisciplinary approach to life in cities around the world, with emphasis on the ethnographic exploration of how power, cultural difference, and social inequality in cities are produced and experienced.

ANTH4520 Laboratory Methods In Archaeology **Credit Hours: 3**

Instruction in the methods and techniques employed by the archaeologist to analyze cultural material recovered in the field.

ANTH4560 Fieldwork In Ethnology **Credit Hours: 1-6**

Consists of field work involving the student in meaningful research problems at the community level. Introduces the student to the methods and problems of participant research.

ANTH4730 Biocultural Ecology **Credit Hours: 3**

A study of the functional interrelationships of humans and their biophysical environment in cross cultural perspective, with special emphasis on non-western cultures.

Prerequisites: ANTH 2800 FOR LEVEL UG WITH MIN. GRADE OF D-

ANTH4760 Medical Anthropology **Credit Hours: 3**

An examination of the biocultural nature of health and illness, with special emphasis on changing patterns of disease in non-western societies.

ANTH4820 Anthropology Of Religion **Credit Hours: 3**

A cross-cultural approach to the description and analyses of magical and religious beliefs and practices in Asia, Africa, Latin America and Indigenous North America.

Prerequisites: ANTH 2800 FOR LEVEL UG WITH MIN. GRADE OF D-

ANTH4860 The Irish-American Experience **Credit Hours: 3**

A survey of the sociohistorical and cultural factors related to the immigration and adaptation of the Irish in America.

ANTH4890 Peasant Society **Credit Hours: 3**

Consideration of the economic and cultural forms of peasant society on a worldwide basis and comparison of these forms to other contemporary communities.

Prerequisites: ANTH 2800 FOR LEVEL UG WITH MIN. GRADE OF D-

ANTH4910 Independent Research In Anthropology **Credit Hours: 1-3**

Supervised independent research in anthropology.

ANTH4920 Directed Readings In Anthropology **Credit Hours: 1-3**

Designed for those wishing to continue course work in greater depth or seeking contact with unlisted subject areas. Written proposal and consent required.

ANTH4950 Senior Research Project **Credit Hours: 3-6**

Supervised opportunity for senior majors to apply the anthropological approach to a theoretical or applied cultural historical/biocultural problem through individual research, an internship, professional participation or a public education experience.

ANTH4960 Honors Thesis **Credit Hours: 3-6**

The student completes a thesis under the direction and guidance of their faculty adviser.

ANTH4980 Problems In Anthropology **Credit Hours: 3**

Courses on varied anthropological specialties. May be repeated in different specialty areas such as religion, ethnohistory, ethnic conflict and area courses.

ANTH5200 History and Theory in Anthropology-WAC **Credit Hours: 3**

This course acquaints students with various schools of anthropological theory, stressing the influence of traditional approaches on contemporary thought and the impact of historical context on the development of theory.

ANTH5450 Exploring the City **Credit Hours: 3**

This course takes an interdisciplinary approach to life in cities around the world, with emphasis on the ethnographic exploration of how power, cultural difference, and social inequality in cities are produced and experienced.

ANTH5560 Fieldwork In Anthropology **Credit Hours: 1-6**

Consists of field work involving the student in meaningful research problems at the community level. Introduces the student to the methods and problems of participant research.

ANTH5730 Biocultural Ecology **Credit Hours: 3**

A study of the functional interrelationships of humans and their biophysical environment.

Prerequisites: ANTH 2800 FOR LEVEL UG WITH MIN. GRADE OF D-

ANTH5740 Nutritional Anthropo-Logy **Credit Hours: 3**

An examination of the historical, social, political and economic factors that influence the production, distribution and consumption of food and the effects on world health and development.

ANTH5760 Medical Anthropology **Credit Hours: 3**

An examination of the biocultural nature of health and illness.

ANTH5820 Anthropology Of Religion **Credit Hours: 3**

A cross-cultural approach to the description and analyses of magical and religious beliefs and practices.

ANTH5860 The Irish-American Experience **Credit Hours: 3**

A survey of the sociohistorical and cultural factors related to the immigration and adaptation of the Irish in America.

ANTH5920 Directed Readings In Anthropology **Credit Hours: 1-3**

Designed for those wishing to continue course work in greater depth or seeking contact with unlisted subject areas. Written proposal and consent required.

ANTH5980 Problems In Anthropology **Credit Hours: 3**

Courses on varied anthropological specialties. May be repeated in different specialty areas such as religion, ethnohistory, ethnic conflict and area courses.

ANTH6990 Independent Research In Anthropology **Credit Hours: 1-3**

Supervised independent research in anthropology.

ARBC1080 Culture and Commerce in the Arabic-Speaking World **Credit Hours: 3**

A study of the culture and society of the Arabic-speaking world with emphasis on business and economics. Taught in English.

ARBC1090 Culture of the Arabic-Speaking World **Credit Hours: 3**

An introduction to prinicipal social, artistic, and literary aspect of modern culture in the Arabic-speaking worls. Taught in English.

ARBC1110 Elementary Arabic I **Credit Hours: 4**

An introduction to Arabic Language and culture through listening, speaking, reading and writing. Laboratory practice required.

ARBC1120 Elementary Arabic II **Credit Hours: 4**

An introduction to Arabic language and culture through listening, speaking, reading and writing. Laboratory practice required.

Prerequisites: ARBC 1110 FOR LEVEL UG WITH MIN. GRADE OF D-

ARBC2140 Intermediate Arabic I **Credit Hours: 3**

Further practice of the four language skills with grammar building and readings of a literary-cultural nature.

Prerequisites: ARBC 1120 FOR LEVEL UG WITH MIN. GRADE OF D-

ARBC2150 Intermediate Arabic II **Credit Hours: 3**

Further practice of the four language skills with grammar building and readings of a literary-cultural nature.

Prerequisites: ARBC 2140 FOR LEVEL UG WITH MIN. GRADE OF D-

ARBC3010 Conversation and Composition I **Credit Hours: 3**

Work on advanced listening, speaking, reading, and writing skills through intensive work with authentic texts that deal contemporary issues relating to the Arabic-speaking world.

Prerequisites: ARBC 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

ARBC3020 Conversation and Composition II **Credit Hours: 3**

Work on advanced listening, speaking, reading, and writing skills through intensive work with authentic texts that deal comtemporary issues realting to the Arabic-speaking world.

ARCT1200 Architectural Cadd **Credit Hours: 4**

Computer Aided Design and Drafting (CADD) terminologies, concepts, strategies for three-dimensional drawings and presentations. Hands-on computer activities and experiences.

Prerequisites: CET 1100 FOR LEVEL UG WITH MIN. GRADE OF D-

ARCT1250 Building Codes **Credit Hours: 3**

An introduction to various codes regulating the construction of a building, code history, their purpose and how organized zoning and other codes are studied.

Prerequisites: (CET 1100 FOR LEVEL UG WITH MIN. GRADE OF D- AND CET 1150 FOR LEVEL UG WITH MIN. GRADE OF D-)

ARCT1260 Construction Estimating **Credit Hours: 3**

Fundamentals, concepts and strategies used in the process of construction cost estimating. Organization of materials, labor and construction methods are experienced; other information is collected, organized and utilized.

Prerequisites: (CET 1100 FOR LEVEL UG WITH MIN. GRADE OF D- AND CET 1150 FOR LEVEL UG WITH MIN. GRADE OF D-)

ARCT2100 Advanced Architectural Documents **Credit Hours: 4**

Strategies, planning, preparation of working drawings of a construction project. Research and organization required to produce complete contract documents. Code searching, preliminary construction specifications and cost estimating; drafting board methods and CADD techniques are available for graphic presentations.

Prerequisites: (CET 1100 FOR LEVEL UG WITH MIN. GRADE OF D- AND CET 1150 FOR LEVEL UG WITH MIN. GRADE OF D-)

ARCT2160 Contracts And Specifications **Credit Hours: 3**

Fundamentals of construction contract documents, relationship of drawings, specifications, critical path planning, scheduling and contracts. Composition of construction specifications.

Prerequisites: (CET 1100 FOR LEVEL UG WITH MIN. GRADE OF D- AND CET 1150 FOR LEVEL UG WITH MIN. GRADE OF D-)

ARCT2210 Advanced Cadd **Credit Hours: 4**

Fundamental computer concepts and operating systems, applications of computer generated graphics, Computer Aided Design and Drafting (CADD) systems, CADD terminologies, concepts, strategies for two-dimensional drawings, hands-on computer activities and experiences.

Prerequisites: ARCT 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

ARCT2220 Architectural Design Techniques **Credit Hours: 4**

The techniques employed in the development of the design and presentation phases of architectural projects, client involvement, including project programs, space requirements and relationships, drafting board and CADD techniques are available.

ARCT2250 Building Systems **Credit Hours: 3**

An introduction to building systems and equipment technologies and their capabilities. Fundamentals of designing and sizing the building systems.

Prerequisites: (CET 1100 FOR LEVEL UG WITH MIN. GRADE OF D- AND CET 1150 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1320 FOR LEVEL UG WITH MIN. GRADE OF D-)

ARCT2980 Special Topics **Credit Hours: 1-4**

Student performs work on a specialized project of an advanced nature under the supervision of an Architectural Technology faculty member.

ARS1000 Orientation **Credit Hours: 1**

Course will introduce new students to the University and college, provide information on requirements, regulations, campus resources and career exploration and help students develop academic skills.

ARS2980 Issues in Research and Scholarship **Credit Hours: 1**

Seminar series addressing various issues that can arise in research, scholarship, and creative activities, including: safe laboratory practices, regulatory compliance issues, and ethics issues.

ART1080 Foundations Drawing I **Credit Hours: 3**

Various approaches to drawing and disciplines intended to develop skills, perception, visual acuity and awareness. Introduction to a broad range of objective subject matter and a variety of graphic media.

ART1990 Special Topics in Art **Credit Hours: 3**

Group study in studio topics by various instructors.

ART1ELC Art Elective-Ceramics **Credit Hours: 0-5**

ART1ELD Art Elective-Drawing **Credit Hours: 0-5**

ART1ELM Art Elective-Metals **Credit Hours: 0-5**

ART1ELN **Art Elective-New Media** **Credit Hours: 0-5**

ART1ELP **Art Elective-Painting** **Credit Hours: 0-5**

ART1ELS **Art Elective-Sculpture** **Credit Hours: 0-5**

ART1ELT **Art Elective-Print Making** **Credit Hours: 0-5**

ART1ELX Art Elective-Other Studio **Credit Hours: 0-5**

ART2050 Foundations 2d Design **Credit Hours: 3**

This course develops the understanding of basic studio art principles, critiquing skills and media manipulation. Topics addressed include color theory and formal and conceptual elements of manipulating two dimensional space. May be taken concurrently with ART 2060.

ART2060 Foundations 3D Design **Credit Hours: 3**

This course develops the understanding of basic studio art principles, critiquing skills and media manipulation in the context of studying the formal and conceptual elements of manipulating three dimensional space. May be taken concurrently with ART 2050.

ART2080 Drawing II **Credit Hours: 3**

Dimensional, perspective and volumetric drawing applied to natural, man-made forms, environment and the figure. Emphasis on rendering techniques, skills and exploration of media integrated with design elements and formal compositional.

Prerequisites: ART 1080 FOR LEVEL UG WITH MIN. GRADE OF D-

ART2150 Digital Art I: Print Media **Credit Hours: 3**

This course covers basic computer operations in an art context, utilizing bitmap, vector and page layout programs.

Prerequisites: (ART 2050 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2060 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART2160 Art II: Interactive Media **Credit Hours: 3**

Survey of interactive computer operations in an art context utilizing web, 2D animation and sound applications.

Prerequisites: ART 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

ART2230 Aspects Of Printmaking **Credit Hours: 3**

Study of basic print materials and media, including relief, monoprint, Planographic and intaglio process and development of sound general print shop skills and safe practices. This course will impart an understanding of the language of the prints as a basis for further exploration.

Prerequisites: (ART 2050 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 1080 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART2330 Oil Painting **Credit Hours: 3**

Introduction to painting materials and their functions, emphasis oil color. The construction and design of paintings and investigations into the character and actions of paint upon a variety of surfaces.

Prerequisites: (ART 2050 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2060 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2080 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART2430 Foundations Of Sculpture **Credit Hours: 3**

An exploration of the application of traditional methods of sculpture making to additive, subtractive, Constructive and replicative processes with clay, plaster, wood, stone and metal. Formal and expressive content addressed.

Prerequisites: (ART 2050 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2060 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2080 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART2530 Ceramics I **Credit Hours: 3**

Basic ceramic techniques explored. Introduction to hand-building, simple mold techniques and the potter's wheel. Basic glaze and clay body formulation and firing procedures.

Prerequisites: (ART 2050 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2060 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART2730 Metalsmithing I **Credit Hours: 3**

Introduction to basic metalsmithing with emphasis on the technique of fabrication, soldering, casting and simple raising and the use of appropriate tools.

Prerequisites: (ART 2050 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2060 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART2810 Art Photography **Credit Hours: 3**

An introduction to photography as a fine art medium; includes camera operations, the use and handling of color films, film processing, printing, presentation techniques, historic and contemporary photographers.

Prerequisites: (ART 2050 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2060 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART2990 Special Topics in Art **Credit Hours: 3**

Group study in studio topics by various instructors. Prerequisite: Varies, permission of instructor.

ART2ELC Art Elective-Ceramics **Credit Hours: 0-5**

ART2ELD Art Elective-Drawing **Credit Hours: 0-5**

ART2ELM Art Elective-Metals **Credit Hours: 0-5**

ART2ELN **Art Elective-New Media** **Credit Hours: 0-5**

ART2ELP **Art Elective-Painting** **Credit Hours: 0-5**

ART2ELS **Art Elective-Sculpture** **Credit Hours: 0-5**

ART2ELT **Art Elective-Print Making** **Credit Hours: 0-5**

ART2ELX Art Elective-Other Studio **Credit Hours: 0-5**

ART3060 Installation: Art Of Place **Credit Hours: 3**

Study of altering a defined physical and psychological space as an art medium. Includes a study of the history of installations.

Prerequisites: (ART 1080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2050 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2060 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ARTH 2080 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART3070 Mixed Media **Credit Hours: 3**

Traditional mixed media approaches as well as experimental and environmental art forms, light and motion, happenings and events.

Prerequisites: (ART 1080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2050 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2060 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART3080 Drawing III: Life Drawing/Anatomy **Credit Hours: 4**

Intensive study of the undraped human figure with emphasis on internal anatomical structure, dynamics and design; form rendering in linear media interpretation of old master and contemporary figurative drawing.

Prerequisites: (ART 2050 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2060 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2080 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART3090 Drawing IV: Life Drawing **Credit Hours: 3**

Continued study of the structural human figure integrated into situational light and environment. Instrumentation of varied media; construction and articulation of form with emphasis on space, pictorial elements and design.

Prerequisites: ART 3080 FOR LEVEL UG WITH MIN. GRADE OF D-

ART3150 Digital Photography **Credit Hours: 3**

Exploration of digitally created and manipulated photographic imagery from conception to print.

Prerequisites: (ART 2150 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2810 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART3160 Digital Drawing **Credit Hours: 3**

Advanced studies in drawing and painting on the computer and the exploration of traditional and experimental out put methods.

Prerequisites: (ART 1080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2150 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART3170 Web-Based Art **Credit Hours: 3**

The creation of web pages as artworks. In addition to conceptual development and building a visual vocabulary, students learn technical skills, including HTML, JavaScript and the use of web authoring software.

Prerequisites: ART 2160 FOR LEVEL UG WITH MIN. GRADE OF D-

ART3260 Etching **Credit Hours: 3**

Approaches to an understanding of etching and intaglio processes. Study a wide range of materials and methods, including color printing. Critiques of content and technical skills will be essential.

Prerequisites: (ART 1080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2050 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2230 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART3270 Lithography **Credit Hours: 3**

Study of lithography and Planographic processes as they relate to fine art. Study of stone, plate and photo-lithography. Critiques of content and technical skills will be essential.

Prerequisites: (ART 1080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2050 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2230 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART3380 Acrylic Painting **Credit Hours: 3**

Introduction to painting materials and their functions, emphasis acrylic color. The construction and design of paintings and investigations into character and actions of paint in a variety of pictorial problems.

Prerequisites: (ART 2050 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2060 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2080 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART3460 Additive Sculpture **Credit Hours: 3**

The application of additive processes using clay, plaster, wax to manipulate form and space using human, natural and built form as reference. Formal and expressive content addressed in historical context.

Prerequisites: (ART 1080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2060 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2430 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART3470 Subtractive Sculpture **Credit Hours: 3**

The application of subtractive processes using natural and laminated wood and cast and natural stone to manipulate form and space. Formal and expressive content in historical context is addressed.

Prerequisites: (ART 1080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2060 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2430 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART3570 Ceramics II **Credit Hours: 3**

Discipline problems relating to the wheel and handbuilding techniques. Individual responsibility involving the whole ceramic process. Introduction to ceramic materials and how they function in glazes and clay. Suggested readings.

Prerequisites: (ART 1080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2530 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART3710 Visual Language **Credit Hours: 3**

WAC studio/lecture course utilizing The Toledo Museum of Art collection. Emphasizes aspects of visual language, writing origins, letterforms, artists' books, medieval manuscripts, collaborations, journals, sketchbooks, writing about visual art, concrete poetry.

ART3760 Metalsmithing II **Credit Hours: 3**

Continued exploration of basic techniques and new problems in forging. (ferrous and non-ferrous metals), fabrication and surface decoration to advance technical skills and creative problem solving.

Prerequisites: (ART 1080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2730 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART3770 Metalsmithing III **Credit Hours: 3**

Introduction to basic iron working, making tools, building forges and unit construction for larger pieces, techniques in enameling/continued study with alternative techniques and materials.

Prerequisites: ART 3760 FOR LEVEL UG WITH MIN. GRADE OF D-

ART3860 Intermediate Photography **Credit Hours: 3**

Black and white photography for fine art applications, intermediate camera and darkroom techniques, exposure and lighting for b&w, film processing and printing, historic and contemporary photographers.

Prerequisites: (ART 1080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2810 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART3870 Advanced Photography **Credit Hours: 3**

Use of large format cameras, studio lighting and advanced darkroom techniques for fine art applications.

Prerequisites: ART 3860 FOR LEVEL UG WITH MIN. GRADE OF D-

ART3990 Special Topics in Art **Credit Hours: 3**

Group study in studio topics by various instructors. Prerequisite: Varies, permission of instructor.

ART3ELC **Art Elective-Ceramics** **Credit Hours: 0-5**

ART3ELD **Art Elective-Drawing** **Credit Hours: 0-5**

ART3ELM **Art Elective-Metals** **Credit Hours: 0-5**

ART3ELN **Art Elective-New Media** **Credit Hours: 0-5**

ART3ELP **Art Elective-Painting** **Credit Hours: 0-5**

ART3ELS **Art Elective-Sculpture** **Credit Hours: 0-5**

ART3ELT **Art Elective-Print Making** **Credit Hours: 0-5**

ART3ELX **Art Elective-Other Studio** **Credit Hours: 0-5**

ART4080 Drawing V **Credit Hours: 3**

Interpretive and analytical drawing. Experimentation with a broad range of materials and techniques and in reconceptualizing form and composition. Assimilated form, abstraction, fantasy and memory drawing encouraged.

Prerequisites: ART 3080 FOR LEVEL UG WITH MIN. GRADE OF D-

ART4090 Drawing Vi **Credit Hours: 3**

Advanced drawing, emphasizing interpretive and conceptual approaches. Refinement of discoveries and transformation into more personal imagery. Further expansion of visual vocabulary, cumulative skills and control of media.

Prerequisites: ART 4080 FOR LEVEL UG WITH MIN. GRADE OF D-

ART4240 Screenprinting **Credit Hours: 3**

Study of screenprinting (serigraphy) as a fine arts process, including digital imaging. Critiques of content and technical skills will be essential.

Prerequisites: (ART 1080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2050 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2150 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART4310 3d Rendering And Modeling **Credit Hours: 3**

Creation and animation of 3D imagery on the computer.

Prerequisites: (ART 1080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2150 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2160 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART4320 Interactive Multi-Media **Credit Hours: 3**

Study of combining still imagery, animation, video and sound in an interactive computer format.

Prerequisites: (ART 2160 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 3150 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART4330 Intermediate Painting **Credit Hours: 3**

Continued focus on the development of technical skills and the solution of pictorial problems, with attention to individual creative solutions.

Prerequisites: (ART 2330 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 3380 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART4340 Time-Based Digital Media **Credit Hours: 3**

Creating digital motion components, utilizing digital video, still imagery and time-based compositing for integration in interactive multimedia and web-based artworks. Labor intensive, designed for highly motivated, self-disciplined students.

Prerequisites: (ART 2160 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 3150 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART4350 Mixed Media **Credit Hours: 3**

Contemporary painting approaches, emphasis on guided experimentation with a wide range of mixed materials. Advancing from technical proficiency toward the development of individual conceptual goals relative to painting.

Prerequisites: (ART 2330 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 3380 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART4410 Advanced Topics In Digital Art **Credit Hours: 3**

Special topics in Cyber art. May be repeated when topic varies.

ART4430 Sculpture Casting & Fabrication **Credit Hours: 3**

An exploration of the application of metal casting and welding producing traditional and non-traditional sculpture. Formal and expressive content in sculpture is addressed.

Prerequisites: (ART 2050 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2060 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 1080 FOR LEVEL UG WITH MIN. GRADE OF D- AND ART 2430 FOR LEVEL UG WITH MIN. GRADE OF D-)

ART4540 Ceramics III **Credit Hours: 3**

Larger wheel forms explored from the cylinder. Special hand building projects explored. Special firing techniques explored. Active student involvement in all phases of studio function and operation.

Prerequisites: ART 3570 FOR LEVEL UG WITH MIN. GRADE OF D-

ART4550 Ceramics IV **Credit Hours: 3**

Student concentration into special studio problems. Development of style and direction. The bottle form explored on the potter's wheel. Slip casting techniques explored. Active student involvement in all phases of studio function and operation.

Prerequisites: ART 4540 FOR LEVEL UG WITH MIN. GRADE OF D-

ART4730 Metalsmithing IV **Credit Hours: 3**

Problems with advanced hollowware, Masonite die process and T Stake raising. Fabrication of hollowware surface treatment, i.e., sandblasting, reticulation, coloring.

Prerequisites: ART 3770 FOR LEVEL UG WITH MIN. GRADE OF D-

ART4810 Photo Topics **Credit Hours: 3**

Varying studio topics in fine art photography including documentary photography, alternative processes, advanced projects, the body and the lens, studio lighting. May be repeated under differing course titles. Advanced Projects may be repeated.

Prerequisites: ART 3860 FOR LEVEL UG WITH MIN. GRADE OF D-

ART4850 Professional Practices **Credit Hours: 3**

Professional skills course for advanced art. Topics include portfolios, resumes, taxes, contracts shipping, documenting artwork, artists' statements, exhibitions/competitions, galleries, artists' talks and more.

ART4910 Independent Study **Credit Hours: 1-6**

Individual study into special studio problems. Weekly critiques. Every semester. Time arranged.

ART4920 Independent Study II **Credit Hours: 1-6**

Individual study into special studio problems. Weekly critiques. Every semester. Time arranged.

ART4930 Independent Study III **Credit Hours: 1-6**

Individual study into special studio problems. Weekly critiques. Every semester. Time arranged.

ART4940 Internship **Credit Hours: 1-4**

Student works in professional venue related to a diversity of art fields or endeavors. May be repeated for a maximum of 8 credit hours.

ART4990 Special Studies **Credit Hours: 1-6**

Group study in studio topics by various instructors. May be repeated when the topic varies.

ART4ELC **Art Elective-Ceramics** **Credit Hours: 0-5**

ART4ELD **Art Elective-Drawing** **Credit Hours: 0-5**

ART4ELM **Art Elective-Metals** **Credit Hours: 0-5**

ART4ELN **Art Elective-New Media** **Credit Hours: 0-5**

ART4ELP **Art Elective-Painting** **Credit Hours: 0-5**

ART4ELS **Art Elective-Sculpture** **Credit Hours: 0-5**

ART4ELT **Art Elective-Print Making** **Credit Hours: 0-5**

ART4ELX **Art Elective-Other Studio** **Credit Hours: 0-5**

ARTH1500 Art In History **Credit Hours: 3**

Introduction to the aesthetic, cultural and social interpretation of works of art and architecture, and to the historical relationships of artists, patrons and audiences in art's production and purposes. (Not for major credit in Art History, Studio Art or Art Education).

ARTH1510 Issues In Art History **Credit Hours: 1**

Optional discussion section with limited and voluntary enrollment; focus on the Museum collections.

Corequisites: ARTH1500

ARTH2000 Aspects Of Ancient Art **Credit Hours: 3**

Study of art and architecture from prehistoric Europe through the Roman Empire; emphasis on the interpretation of representative works from Egypt, Greece and Rome.

ARTH2001 History of Western Art I **Credit Hours: 3**

Introduces students to major styles of western art from prehistoric to early Renaissance. Students will learn to analyze art in terms of formal, cultural, historical, and iconographic contexts.

ARTH2003 History of Western Art II **Credit Hours: 3**

Introduces students to major styles of western art from the Renaissance through the modern era. Students will learn to analyze art in terms of formal, cultural, historical, and iconographic contexts.

ARTH2020 Aspects Of Medieval Art **Credit Hours: 3**

Study of art and architecture from the late Roman Empire through the age of the Gothic Cathedral; emphasis on representative examples of Late Antique, Early Medieval, Romanesque and Gothic art.

ARTH2030 Issues In Medieval Art **Credit Hours: 1**

Optional discussion section with limited and voluntary enrollment; focus on the Museum collections in medieval art.

Corequisites: ARTH2020

ARTH2040 History Of Renaissance And Baroque Art **Credit Hours: 3**

An introductory survey emphasizing European painting and sculpture from circa 1300 to 1700.

ARTH2080 History Of Modern Art **Credit Hours: 3**

European and American art 1700-1940, from the Rococo through Romanticism, Impressionism, Expressionism, Cubism, Dada, and Surrealism.

ARTH2090 Issues In Modern Art **Credit Hours: 1**

Optional discussion section with limited voluntary enrollment focusing on the collections of The Toledo Museum of Art. Must be taken simultaneously with ARTH 2080, History of Modern Art.

Corequisites: ARTH2080

ARTH2100 Asian Art **Credit Hours: 3**

An introduction to the architecture, painting and sculpture of India, China and Japan and their relationship to the major religions and philosophies of each culture.

ARTH2200 Ethnographic Art **Credit Hours: 3**

Contextual exploration of traditional art forms in the principle cultures of the Americas, Africa and Oceania.

ARTH2300 Introduction To Architecture **Credit Hours: 3**

Study of architectural design (function, materials, structure, aesthetics and symbolism), with focus on significant historical examples from antiquity through the late 20th century.

ARTH2500 Art Since 1940 **Credit Hours: 3**

An introductory survey of art from 1940 till the present, that relates recent art makers and movements to critical, cultural, and social issues.

ARTH2700 Women Artists In History **Credit Hours: 3**

An introductory survey of women artists from the Middle Ages to the present with consideration of their position in the formation of history's canon.

ARTH2980 Special Topics **Credit Hours: 1-3**

Topics in art history selected by instructor; may be repeated when topic varies.

ARTH3110 Topics In Ancient Art **Credit Hours: 3**

Special topics in the history of the art or architecture of the ancient world; may be repeated when topic varies.

ARTH3130 Topics In Medieval Art **Credit Hours: 3**

Special topics in the history of western art or architecture from 200 to 1500 A.D.; may be repeated when topic varies.

ARTH3150 Topics In Renaissance Art **Credit Hours: 3**

Special topics in the history of Renaissance art or architecture; may be repeated when topic varies.

ARTH3190 Topics In 19th-Century Art **Credit Hours: 3**

Special topics in the history of 19th-Century art. May be repeated when topic varies.

ARTH3210 Topics In 20th-Century Art **Credit Hours: 3**

Special topics in the history of 20th-Century art. May be repeated when topic varies.

ARTH3230 Topics In American Art **Credit Hours: 3**

Special topics in the history of American art and architecture. May be repeated when topic varies.

ARTH3250 Topics In Asian Art **Credit Hours: 3**

Special topics in the history of Asian art or architecture; may be repeated when topic varies.

ARTH3270 Topics In Ethnographic Art **Credit Hours: 3**

Special topics in the history of ethnographic art of Africa, Oceania or the Americas; may be repeated when topic varies.

ARTH3290 Topics In Architecture **Credit Hours: 3**

Special topics in the history of architecture; may be repeated when topic varies.

ARTH3300 African Art **Credit Hours: 3**

Study of the diversity of African art. The course will emphasize region and style with focus upon the collections of African Art in the Toledo Museum of Art.

ARTH3350 Ancient Art Of The Americas **Credit Hours: 3**

Ancient Art of the Americas is a course which will focus on the artifacts produced by the indigenous populations of the Americas before the arrival of Columbus in the New World.

ARTH3500 History Of Photography **Credit Hours: 3**

An in-depth study of the history of photography.

ARTH3600 History Of New Media **Credit Hours: 3**

This course explores the development of technology as an art medium with a focus on significant historical examples from the 19th through the 21st centuries.

Prerequisites: ARTH 2000 FOR LEVEL UG WITH MIN. GRADE OF D- OR ARTH 2020 FOR LEVEL UG WITH MIN. GRADE OF D- OR ARTH 2040 FOR LEVEL UG WITH MIN. GRADE OF D-

ARTH3750 Art and Disease - WAC **Credit Hours: 3**

We will consider how objects of material culture (film, photography, painting, sculpture, etc.) have intersected with disease while we engage a series of disease-related texts and histories of contagions (e.g., AIDS).

ARTH3820 Visual Construction Of Gender **Credit Hours: 3**

WAC course. This course focuses on how images reflect and shape our understanding of gender. Students learn to analyze visual material to identify and articulate their cultural significance in relation to gender.

Prerequisites: ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1170 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1180 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1190 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1210 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D-

ARTH3980 Special Studies **Credit Hours: 3-5**

Topics in Art History selected by the instructor. May be repeated when topic varies. (Check course schedules for specific subjects.)

ARTH4500 Contemporary Art And Theory **Credit Hours: 3**

A WAC course offering study of twentieth-century critical theory in relation to contemporary art makers and social issues, with a consideration of modernist versus postmodernist eras.

ARTH4910 Senior Thesis I **Credit Hours: 2**

Directed research in the history of art for the Senior Thesis. May only be taken with consent of instructor; see department for application form. Must be taken consecutively with ARTH 4920, Senior Thesis II.

ARTH4920 Senior Thesis II **Credit Hours: 2**

Writing the Senior Thesis. May only be taken after successful completion of ARTH 4910, Senior Thesis I and with instructor's consent. See Department for application form.

Prerequisites: ARTH 4910 FOR LEVEL UG WITH MIN. GRADE OF D-

ARTH4940 Internship **Credit Hours: 1-4**

Student works in professional venue related to a diversity of art fields or endeavors. May be repeated for a maximum of 8 credit hours.

ARTH4980 Special Topics **Credit Hours: 1-5**

Topics in Art History selected by instructor; may be repeated when topic varies.

ARTH4990 Independent Study In Art History **Credit Hours: 1-4**

Independent Study in special problems of art history. May be repeated when topic varies.

ASTR1010 Survey Of Astronomy **Credit Hours: 3**

Not for major credit; not open to science majors; no credit after 2010, 2020. General astronomy, including appearance of the sky and nature and evolution of the Earth, Moon, solar system, stars, galaxies and the Universe.

ASTR2010 Solar System Astronomy **Credit Hours: 3**

A quantitative introduction to the contents, origin and evolution of the solar system, as revealed by recent advances in space exploration. High school mathematics at the level of graphs, algebra and elementary logarithms is required.

ASTR2020 Stars, Galaxies, And The Universe **Credit Hours: 3**

A quantitative introduction to the nature and evolution of stars, galaxies and the universe, as revealed by observation and physical theory. High school mathematics at the level of graphs, algebra and elementary logarithms is required.

ASTR2050 Elementary Astronomy Laboratory **Credit Hours: 1**

Laboratory exercises and observational measurements in elementary astronomy. Two hours laboratory per week. (not for major credit)

ASTR2310 Mars **Credit Hours: 3**

The history of observations of Mars, information gathered during the space program, potential for human exploration and colonization and related contemporary science fiction. High school algebra and graphs will be used.

Prerequisites: ASTR 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR ASTR 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

ASTR2320 Life In The Universe **Credit Hours: 3**

The astronomical factors involved in the emergence of life in the universe, the search for extraterrestrial intelligence and the likelihood of advanced civilizations in the Galaxy. May be offered as writing intensive.

Prerequisites: ASTR 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR (ASTR 2010 FOR LEVEL UG WITH MIN. GRADE OF D- AND ASTR 2020 FOR LEVEL UG WITH MIN. GRADE OF D-)

ASTR2330 Black Holes, General Relativity And The Big Bang Theory **Credit Hours: 3**

Descriptive discussion of the theory of general relativity, the final states of stellar evolution, black holes and history of the universe from the big bang through the formation of the solar system. May be offered as writing intensive.

Prerequisites: ASTR 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR ASTR 2020 FOR LEVEL UG WITH MIN. GRADE OF D-

ASTR2340 New Frontiers In Astronomy **Credit Hours: 3**

Descriptive treatment of recent developments in astronomy from spacecraft, such as the Hubble Space Telescope, or from the newest, very large ground based telescopes. May be offered as a writing intensive.

Prerequisites: ASTR 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR ASTR 2010 FOR LEVEL UG WITH MIN. GRADE OF D- OR ASTR 2020 FOR LEVEL UG WITH MIN. GRADE OF D-

ASTR4800 Astronomy In The Planetarium **Credit Hours: 3**

Theory and practice of astronomical outreach programming. Sky and calendar, mythology, constellations, astrophysics, buying and using small telescopes, operating and maintaining planetarium projectors, sky simulation software, projects and program production.

Prerequisites: ASTR 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR ASTR 2010 FOR LEVEL UG WITH MIN. GRADE OF D- OR ASTR 2020 FOR LEVEL UG WITH MIN. GRADE OF D-

ASTR4810 Astronomy For Science Majors I **Credit Hours: 3**

Spherical coordinate systems, astronomical time, celestial mechanics, the solar system and planetary physics, photometry, radiative transfer, stellar spectra and classification, binary stars and stellar masses.

Prerequisites: PHYS 3070 FOR LEVEL UG WITH MIN. GRADE OF D- OR PHYS 3320 FOR LEVEL UG WITH MIN. GRADE OF D-

ASTR4820 Astronomy For Science Majors II **Credit Hours: 3**

Stellar structure and evolution, close binaries, origin of the elements, the sun, variable stars, star clusters, the interstellar medium, the Milky Way Galaxy, stellar statistics, galaxy structure and evolution, cosmology.

Prerequisites: ASTR 4810 FOR LEVEL UG WITH MIN. GRADE OF D-

ASTR4880 Astrophysical Measurements **Credit Hours: 3**

Astronomical, optical and electronic principles of operation of a modern astronomical observatory. Observing with the 1 meter telescope of Ritter Observatory, introduction to reduction, analysis and interpretation of astrophysical data. Six hours laboratory per week. May be offered as writing intensive.

Prerequisites: (ASTR 2010 FOR LEVEL UG WITH MIN. GRADE OF D- AND ASTR 2020 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2080 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (ASTR 2010 FOR LEVEL UG WITH MIN. GRADE OF D- AND ASTR 2020 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D-)

BANS3060 Managerial Economics **Credit Hours: 3**

Applications of economic concepts and analytical techniques to business decisions and operations, including pricing and product management, market segmentation, technological development and the regulatory environment.

Prerequisites: (ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- AND ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D-) OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

BANS3070 Business Fluctuations And Outlooks **Credit Hours: 3**

Course focuses on the dynamics of business cycles and economic processes, and how they relate to business. Economic outlooks are examined through key indicators, cases, statistical analyses, and computer applications.

Prerequisites: (ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- AND ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D-) OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

BANS5210 Economics For Business Decisions **Credit Hours: 3**

An examination of the basic economic concepts and techniques used in business decision-making. The course covers micro- and macro-economic theories, history and evolution of economic institutions, ethical questions, and economic applications to business decisions in a global environment.

BANS6050 Health Care Economics **Credit Hours: 3**

Health care national policy, third party payment systems, capital formation, delivery systems, health care budgeting and macro economic health issues are examined.

Prerequisites: ACCT 5000 FOR LEVEL GR WITH MIN. GRADE OF D- OR BANS 5210 FOR LEVEL GR WITH MIN. GRADE OF D-

BANS6310 Business Forecasting **Credit Hours: 3**

Study and use of forecasting models, managing and monitoring the forecasting function and communicating forecasts to management.

Prerequisites: (BANS 5210 FOR LEVEL GR WITH MIN. GRADE OF D- AND OPMT 5510 FOR LEVEL GR WITH MIN. GRADE OF D-)

BANS6520 Managerial Economics **Credit Hours: 3**

Economic concepts and technique applied to company-level decision making. Focus on demand analysis, applied regression analysis and the interface between economies and human resource management, production, marketing and finance.

Prerequisites: (BANS 5210 FOR LEVEL GR WITH MIN. GRADE OF D- AND OPMT 5510 FOR LEVEL GR WITH MIN. GRADE OF D-)

BANS6740 Business Conditions Analysis **Credit Hours: 3**

Course develops a framework for measuring, tracking and forecasting national, regional and international business conditions. Focus is on how external economic conditions in the world economy influence business decisions.

Prerequisites: (BANS 5210 FOR LEVEL GR WITH MIN. GRADE OF D- AND OPMT 5510 FOR LEVEL GR WITH MIN. GRADE OF D-)

BANS7210 Economics For Business Decisions **Credit Hours: 3**

An examination of the basic economic concepts and techniques used in business decision-making. The course covers micro- and macro-economic theories, history and evolution of economic institutions, ethical questions and economic applications to business decisions in a global environment.

BGSU1000 BGSU Concurrent - Undergrad **Credit Hours: 1-19**

BGSU5000 BGSU Concurrent - Grad **Credit Hours: 1-19**

Course Descriptions 2009-2010

BIOE1000 Orientation And Introduction To Bioengineering **Credit Hours: 3**

Orientation to the University of Toledo, the College of Engineering and the Department of Bioengineering. This course also provides a one-semester overview of the biomechanical and bioelectrical aspects of Bioengineering. The course is broken down into unit modules that illustrate key engineering principles and concepts. A major project based on the computational modeling of the cardiovascular system integrates the course units.

BIOE1010 Professional Development **Credit Hours: 1**

Preparation for co-op and full-time employment in industry. Topics include resume writing, interviewing skills, compensation and benefits, social protocol and corporate ethics, biomedical ethics, design and quality control processes and governmental regulation.

BIOE1200 Computer Applications For Bioengineering **Credit Hours: 3**

Introduction to the use of graphical design and numerical analysis software required for the solution of bioengineering problems.

BIOE2100 Bioengineering Thermodynamics **Credit Hours: 3**

Principles of thermodynamics and conservation of mass applied to living systems, biomedical devices and bioprocesses.

Prerequisites: (PHYS 2130 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 2850 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (PHYS 2130 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 2950 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOE2200 Biomaterials **Credit Hours: 3**

Physical and chemical properties of materials commonly used in medicine. Inflammatory, immunogenic, carcinogenic and toxicologic responses within host tissues. Testing and evaluation strategies for effective use of materials in medicine and biology.

Prerequisites: PHYS 2130 FOR LEVEL UG WITH MIN. GRADE OF D- AND (MATH 1860 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1930 FOR LEVEL UG WITH MIN. GRADE OF D-) AND CHEM 1240 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE3110 Introduction To Biomechanics **Credit Hours: 3**

Mechanics of the human musculoskeletal system and its joints. Basic concepts for deformable body mechanics, including stress and strain analysis, viscoelasticity, and applications to common problems in orthopedic biomechanics.

Prerequisites: (CIVE 1150 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOL 2170 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOE3300 Biomedical Electronics **Credit Hours: 4**

Measurement circuits, signal analysis, and computer design in biological systems and medicine. Electronic devices, digital devices, amplifier design and instrumentation safety. Laboratory applies lecture topics to acquisition of biological signals.

Prerequisites: (EECS 2300 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOE 1200 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOE3400 Biotransport Phenomena **Credit Hours: 3**

The quantitative description of momentum transport (viscous flow) and mass transport (convection and diffusion) in living systems. Application of engineering methods to model and quantify aspects of bioengineering systems.

Prerequisites: (BIOE 2100 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (BIOE 2100 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3820 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOE3500 Bioprocessing Laboratory **Credit Hours: 3**

Introduction to processing techniques used in biotechnology industries. The entire process of product development will be covered, including the creation and culture of recombinant organisms to synthesize a protein product, and the extraction, purification, immobilization and assay of the final product.

Prerequisites: (BIOL 3030 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1240 FOR LEVEL UG WITH MIN. GRADE OF D-) AND (MATH 1860 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1930 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOE3940 Co-Op Experience **Credit Hours: 1**

Approved co-op experience. Course may be repeated.

Prerequisites: BIOE 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE3950 Co-Op Experience **Credit Hours: 1**

Approved co-op work experience beyond third required co-op experience. Course may be repeated.

Prerequisites: BIOE 3940 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE4100 Physiology For Bioengineers **Credit Hours: 3**

Review of general physiological principles followed by a comprehensive study of the human nervous, muscle, circulatory, respiratory, excretory and digestive systems from an engineering perspective.

Prerequisites: BIOL 3030 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1240 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 2300 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE4110 Advanced Biomechanics **Credit Hours: 3**

Three-dimensional analysis and measurements of human body motions. Applications include gait analysis, physical therapies, and impact analysis. Joint Replacement and Fixation Devices, total hip and total knee replacements, elbow, shoulder, wrist and finger arthroplasty; bone plates, hip fracture fixation devices and external fixators.

Prerequisites: (BIOE 3110 FOR LEVEL UG WITH MIN. GRADE OF D- AND MIME 2300 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOE4120 Biosignal Processing **Credit Hours: 3**

Design and application of analog and digital signal processors to biomedical signals. Covered topics include the Laplace transform, analog filter design, continuous and discrete Fourier transform, and FIR/IIR digital filter design.

Prerequisites: (BIOE 3300 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (BIOE 3300 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3820 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOE4200 Biosystems And Control **Credit Hours: 3**

Formulating, implementing and simulating mathematical models of biological and bioengineering systems. Linear feedback control systems are emphasized; other models are introduced.

Prerequisites: BIOE 4100 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOE 4120 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE4300 Analysis Of Bioengineering Systems **Credit Hours: 3**

Application of modern computing methods to the numerical and statistical analysis of bioengineering systems.

Prerequisites: (MATH 2850 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 2950 FOR LEVEL UG WITH MIN. GRADE OF D-) AND BIOE 3940 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE4350 Biomedical Optics **Credit Hours: 3**

This course introduces the theory and design of optical biomedical instrumentation. Topics covered will include geometrical optics, electromagnetic theory, instrumentation and optical principles applied to biomedical optics.

Prerequisites: BIOE 3300 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE4410 Bioengineering Design Project I **Credit Hours: 3**

This course integrates the engineering and life science backgrounds of senior bioengineering students through the presentation of design principles for problems in biomechanical, bioelectrical, biochemical and biological systems. Oral and written communication, ethics, engineering economics and business plans are reviewed.

Prerequisites: (BIOE 3110 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOE 3300 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOE 3500 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOE4420 Bioengineering Design Project II **Credit Hours: 3**

A continuation of BIOE 4410. Teams of senior bioengineering students solve problems in biomechanical, bioelectrical, biochemical and biological systems through a design project. Testing and evaluation of designs, progress reports, oral presentations and a written final report are required.

Prerequisites: BIOE 4410 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE4610 Artificial Organs **Credit Hours: 3**

The application of engineering principles to the design and analysis of artificial organs and their clinical application.

Prerequisites: BIOE 3400 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE4620 Biochemical Engineering **Credit Hours: 3**

The application of engineering principles to the design and analysis of biological processes that employ living organisms or biochemicals.

Prerequisites: BIOE 3500 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE4630 Bioseparations **Credit Hours: 3**

Practical and theoretical aspects of processes required to separate and purify cells, proteins and other biological compounds.

Prerequisites: BIOE 3500 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE4640 Medical Imaging **Credit Hours: 3**

An introduction to the physical principles, design and function of medical diagnostic imaging systems.

Prerequisites: BIOE 3300 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE4650 Intelligent Medical Decision Making **Credit Hours: 3**

Introduction to expert systems and their characteristics, knowledge representation, inference techniques, dealing with uncertain information in knowledge-based systems and machine learning techniques for rule extraction.

BIOE4660 Object-Oriented Models In Bioe **Credit Hours: 3**

Object-oriented modeling is an important tool in computational life science. This course utilizes the C++ programming language and the Unified Modeling Language (UML) to develop mechanistic biological models.

Prerequisites: (BIOE 1200 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOE4670 Ultrasound Principles And Medical Applications **Credit Hours: 3**

The basic principles and physics of ultrasound will be covered. Students will learn various medical applications of ultrasound and will be exposed to the latest developments in ultrasound technology.

Prerequisites: (MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (MATH 3820 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOE4710 Biomechanics Of Soft And Hard Tissues **Credit Hours: 3**

Composite and hierarchical models bones; models of bone remodeling. Soft tissues models: linear and nonlinear viscoelasticity, Fung's quasilinear viscoelastic theory. Biphasic and triphasic models and mechano-ionic interactions.

Prerequisites: BIOE 3110 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE4720 Cellular Electrophysiology **Credit Hours: 3**

The physiology of electrically excitable tissues, including nerve, muscle and secretory tissues. Action potential generation, neurotransmission and modulatory mechanisms. Methods for constructing and using computational models of excitable membranes.

Prerequisites: (EECS 2300 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOE 4100 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOE4730 Computational Orthopedic Biomechanics **Credit Hours: 3**

Introduction to and utilization of computational packages in orthopedic biomechanics. Computer aided design of implants, shape-optimization, finite element analysis of implants performance and failure of musculoskeletal organs, tissues and cells.

Prerequisites: (BIOE 3110 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOE 1200 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOE4740 Tissue Engineering **Credit Hours: 3**

Application of principles from engineering and the life sciences toward the development of biological substitutes that restore, maintain or improve tissue function.

Prerequisites: (BIOE 2200 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOE 4100 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOE4750 Experimental Methods In Orthopedic Biomechanics **Credit Hours: 3**

The theory and implementation of techniques used for the measurement of forces and motion within the musculoskeletal system at the system, organ and tissue levels.

Prerequisites: BIOE 3110 FOR LEVEL UG WITH MIN. GRADE OF D- OR CIVE 1160 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE4810 Introduction To Nanotechnology **Credit Hours: 3**

Introduction treatment of the theory and operation of physical electronic devices emphasizing electrical transport in metals, semiconductors and various models of BJT's, FET's and MOSFET's and application to bioinstruments.

Prerequisites: EECS 2300 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE4820 Nanotechnology And Microfabrication **Credit Hours: 3**

A comprehensive treatment of the theory and techniques associated with Semiconductor nanotechnology and microfabrication of biomedical devices, sensors, MENS and microsystems.

Prerequisites: BIOE 3300 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE4910 Bioengineering Honors Thesis **Credit Hours: 1-3**

Thesis research. The student completes and defends a written thesis under the direction and guidance of their faculty research adviser.

BIOE4980 Bioengineering Special Topics **Credit Hours: 1-3**

Selected subjects in the field of bioengineering with intensive investigation of the recent literature in a few areas of special interest to the class and the professor.

BIOE4990 Bioengineering Independent Study **Credit Hours: 1-3**

The student, under the guidance of their research adviser, explores in-depth specific areas or topics related to their research.

BIOE5110 Bioengineering Principles **Credit Hours: 3**

This course provides new bioengineering graduate students with the knowledge base needed to apply engineering concepts to the field of bioengineering. This course will also provide the necessary background needed for additional study in the life sciences and bioengineering.

BIOE5120 Bioengineering Laboratory **Credit Hours: 1**

A laboratory course providing the bioengineering graduate student the opportunity to explore and experience fundamental concepts and to use laboratory research tools and equipment.

Corequisites: BIOE5110

BIOE5200 Physiology And Anatomy For Bioengineers **Credit Hours: 3**

Review and study of general physiological principles and bioengineering perspectives of the human circulatory, respiratory, digestive, immune, nervous, muscular and excretory systems.

BIOE5260 Medical Imaging Systems I **Credit Hours: 3**

An introduction to the physical principles, design and function of x-ray based diagnostic imaging systems, including radiographic, fluoroscopic and computer tomography (CT) systems.

Prerequisites: EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE5300 Analysis Of Bioengineering Systems **Credit Hours: 3**

Application of modern computing methods to the numerical and statistical analysis of bioengineering systems.

BIOE5310 Research Methods In Bioengineering **Credit Hours: 3**

The purpose of this course is to introduce new bioengineering graduate students to research. Topics covered include hypothesis testing, biological data collection and analysis, and effective oral and written communication.

BIOE5610 Nonlinear Dynamics In Physiology And Biology **Credit Hours: 3**

Properties and applications of systems of nonlinear differential equations. Fixed points, stability analysis, bifurcations, phase plane analysis, limit cycles, attractors and chaos. Applications to physiological and other biological systems are discussed.

BIOE5620 Cellular Electrophysiology **Credit Hours: 3**

The generation of electrical impulses by ion channels in excitable tissues. Models of ion channel gating include the Hodgkin-Huxley equations and Markov models. Principles of electrodiffusion applied to ionic flow through open channels.

BIOE5630 Single Neuron Models **Credit Hours: 3**

Mathematic modeling of neurons. Cable theory applied to passive neurons. Compartmental modeling and computer simulations to incorporate ion channels. Obtaining experimental data to for creating realistic models of neurons.

BIOE5640 Artificial Organs **Credit Hours: 3**

The application of engineering principles to the design and analysis of artificial organs and their clinical application.

BIOE5650 Bioseparations **Credit Hours: 3**

Practical and theoretical aspects of processes required to separate and purify cells, proteins and other biological compounds. This course will focus on new and nontraditional methods.

Prerequisites: BIOE 3500 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE5670 Ultrasound Principles And Medical Applications **Credit Hours: 3**

The basic principles and physics of ultrasound will be covered, Students will learn various medical applications of ultrasound and will be exposed to the latest developments in ultrasound technology.

Prerequisites: (MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOE5710 Biomechanics of Soft and Hard Materials **Credit Hours: 3**

Composite and hierarchical models of bone remodeling models presented. Soft tissue models include linear and nonlinear viscoelasticity, Fung's quasilinear viscoelastic theory. Biphasic and triphasic models and mechano-ionic interactions.

BIOE5720 Introduction To Biomaterials **Credit Hours: 3**

This course will address chemical, mechanical and immunological properties of biomaterials and strategies for their effective use in the fields of medicine and dentistry as well as in cell culturing and processing operations. Biomaterials applications in artificial organs, bone/joint replacement, plastic surgery, immunoisolation and controlled drug delivery will be addressed. The continued development and fabrication of biocompatible materials is critical for these areas.

BIOE5730 Computer Applications In Orthopedic Biomechanics **Credit Hours: 3**

Introduction to and utilization of computation packages in orthopedic biomechanics. Computer aided design of implants, shape-optimization, finite element analysis of implant performance and failure of musculoskeletal organs, tissues and cells.

Prerequisites: BIOE 3110 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE5740 Tissue Engineering **Credit Hours: 3**

Application of principles from engineering and the life sciences toward the development of biological substitutes that restore, maintain, or improve tissue function.

BIOE5750 Experimental Methods In Orthopedic Biomechanics **Credit Hours: 3**

The theory and implementation of techniques used for the measurement of forces and motion within the musculoskeletal system at the system, organ and tissue levels.

Prerequisites: BIOE 3110 FOR LEVEL UG WITH MIN. GRADE OF D- OR CIVE 1160 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE5780 Advanced Biomechanics **Credit Hours: 3**

Three-diminsional analysis and measurement of human body motions. Applications to gait analysis, physical therapies, and impact analysis. Includes total hip and knee replacement: elbow, shoulder, wrist and finger arthrophasty: bone plates, hip fracture fixation devices, and external fixators.

BIOE5930 Bioengineering Seminar **Credit Hours: 0**

Presentations of ongoing research in the field of bioengineering. Includes presentations by guest speakers, faculty and graduate students.

BIOE5950 Bioengineering Seminar **Credit Hours: 1**

Presentation of ongoing research in the field of bioengineering. Includes presentations by guest speakers, faculty and graduate students.

Prerequisites: BIOE 5930 FOR LEVEL GR WITH MIN. GRADE OF D-

BIOE5980 Special Topics In Bioengineering **Credit Hours: 1-5**

Selected subjects in the field of bioengineering with intensive investigation of the recent literature in a few areas of special interest to the class and the professor.

BIOE5990 Independent Study In Bioengineering **Credit Hours: 1-6**

The student, under the guidance of their research adviser, explores in-depth specific areas or topics related to their thesis or dissertation research.

Corequisites: BIOE5110

BIOE6100 Computational Physiology **Credit Hours: 3**

Application of mathematical and computational techniques to physiological systems. Models include conductive cables and compartmental models of nerve fibers, nonlinear differential equation models of electrophysiology, and stochastic models of biomolecular interactions.

Prerequisites: MIME 6000 FOR LEVEL GR WITH MIN. GRADE OF D- AND BIOE 4100 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE6200 Biophotonics **Credit Hours: 3**

This course provides a one-semester overview on the interactions of light and biological materials. Practical applications of biophotonics principles to physiological imaging will be emphasized.

BIOE6210 Optical Instrumentation For Bioengineering **Credit Hours: 3**

Introduction to the theory and design of topical instruments for bioengineers. Instruments using geometrical, physical and quantum optical principles will be discussed.

BIOE6220 Semiconductor Biosensors **Credit Hours: 3**

Introduction to the theory and design of semiconductor sensors for measuring biological parameters. All major aspects of fabrication and characterization will be discussed.

BIOE6230 Bioelectrical Instrumentation **Credit Hours: 3**

This course is intended to give students in bioengineering a basic understanding of bioelectrical instrumentation and physiological measurements.

BIOE6240 Bioelectrical Instrumentation Laboratory **Credit Hours: 1**

Laboratory introduction to measurement of bioelectrical potentials and use of instruments.

BIOE6250 Advanced Bioelectrical Instrumentation **Credit Hours: 3**

Advanced discussion of the theory and design of bioelectrical instrumentation. Computer analysis of data, data conversion and complex sensor systems will be considered.

BIOE6270 Medical Imaging Systems II **Credit Hours: 3**

An introduction to the physical principles, design and function of ultrasonic, nuclear medicine and magnetic resonance imaging (MRI) diagnostic imaging systems.

Prerequisites: EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE6280 Advanced Imaging Techniques **Credit Hours: 3**

Contemporary techniques for producing and processing images and image data, including remote sensing, industrial inspection and medical diagnosis. Modeling and analysis of spatially invariant image sequences. Image reconstruction from projections.

BIOE6290 Biosignal Processing **Credit Hours: 3**

Analog and discrete-data bioelectrical and bioengineering signals and their characteristics, bioengineering signal classification, signal processing and analysis techniques and decision making.

BIOE6310 Biochemical Engineering Principles **Credit Hours: 3**

The application of engineering principles to the design and analysis of biological processes that employ living organisms or biochemicals.

BIOE6340 Bioseparations **Credit Hours: 3**

Practical and theoretical aspects of various processes required to separate and purify cells, proteins and other biological compounds. Topics covered include various types of chromatography, liquid/liquid separations, solid/liquid separations, membrane processing, flow cytometry and field-enhanced separations. This course will focus on new and non-traditional methods.

Prerequisites: BIOE 6310 FOR LEVEL GR WITH MIN. GRADE OF D-

BIOE6410 Biological And Artificial Neural Networks **Credit Hours: 3**

Introduction to biological neural networks and cognitive science. Discriminant functions, training methods, TLUs, perceptrons and adalines. Backpropagation and statistical methods. Kohonen networks. Hopfield network. Associative memories, Radial Basis Functions. Ontogenic neural networks. Neuro-fuzzy networks.

BIOE6420 Medical Data Mining **Credit Hours: 3**

Fuzzy sets, the extension principle, fuzzy relations, fuzzy logic. Approximate operations on sets, lower and upper approximation, dependency and reduction of attributes. Populations of objects, fitness function, mutation, crossover.

BIOE6430 Intelligent Medical Diagnostic Systems **Credit Hours: 3**

Knowledge representation, dealing with uncertainty in knowledge-based systems. Machine learning techniques for rule extraction.

Prerequisites: BIOE 5420 FOR LEVEL GR WITH MIN. GRADE OF D-

BIOE6440 Wavelets & Their Applications **Credit Hours: 3**

Fundamentals of series expansion using wavelets, continuous wavelets and frames, and signal compression. Applications of wavelets in signal processing, signal reconstruction, compression and analysis for biomedical applications. Background in signal processing is desired.

BIOE6510 Occupational Biomechanics **Credit Hours: 3**

Occupational biomechanics deals with the mechanical behavior of musculoskeletal tissues during performance of physical work. It combines knowledge of mechanics and physiology together with industrial work specifications and practice and provides an understanding of the physics of manual industrial activities.

BIOE6520 Orthopaedic Biomechanics **Credit Hours: 3**

The course of orthopaedic biomechanics has been designed to fuse the biological and physiological problems with the science and technology of engineering. It focuses on a brief review of the physiology and biology of the human body, introduces the physics of manual industrial activities.

Prerequisites: BIOE 4110 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOE 5780 FOR LEVEL GR WITH MIN. GRADE OF D-

BIOE6700 Artificial Organs **Credit Hours: 3**

This course is concerned with the application of engineering principles to the design and analysis of artificial organs and their clinical application.

BIOE6710 Tissue Engineering **Credit Hours: 3**

Tissue engineering combines engineering, materials science and cellular biology knowledge to solve the critical problems of tissue loss and organ failure. This course aims to not only teach aspects of engineering and cellular biology in the same course, but also to present them in such a way that the student learns the cellular phenomena involved in tissue development and growth and gains an appreciation of the role of biochemical and mechanical environment in regenerating tissues.

BIOE6730 Biological Transport Phenomena **Credit Hours: 3**

Application of transport phenomena and reaction engineering in the understanding of signaling, growth processes and the flow of biological fluids in mammalian vessels in living systems.

BIOE6810 Solid State Electronics With Bioengineering Applications **Credit Hours: 3**

A comprehensive treatment of the theory and operation of physical electronic devices emphasizing electrical transport in metals and semiconductors, various models of BJT's and FET's and applications to biochemical and biomechanical sensing will be considered.

BIOE6820 Microelectronic And Micromechanical Fabrication **Credit Hours: 3**

A comprehensive treatment of the theory, principles and techniques associated with microfabrication of electronic circuits and biosensors.

BIOE6830 Computational Methods Of Neural Functions **Credit Hours: 3**

The course focuses on the development and analysis of mathematical models of biological processes. Students will use advanced mathematics and computers to implement models from the literature.

BIOE6920 Bioengineering Project **Credit Hours: 1-4**

The student performs a special project of an advanced nature in bioengineering. A written report is required.

BIOE6960 Bioengineering Research And Thesis - Master's **Credit Hours: 1-12**

Graduate thesis research. The student completes and defends a written thesis under the direction and guidance of their faculty research adviser.

BIOE7120 Bioengineering Laboratory **Credit Hours: 1**

A laboratory course providing the bioengineering graduate student the opportunity to explore and experience fundamental concepts and to use laboratory research tools and equipment.

Corequisites: BIOE5110

BIOE7260 Medical Imaging Systems I **Credit Hours: 3**

An introduction to the physical principles, design and function of x-ray based diagnostic imaging systems, including radiographic, fluoroscopic and computer tomography (CT) systems.

Prerequisites: EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE7310 Research Methods In Bioengineering **Credit Hours: 3**

The purpose of this course is to introduce new bioengineering graduate students to research. Topics covered include hypothesis testing, biological data collection and analysis, and effective oral and written communication.

BIOE7610 Nonlinear Dynamics In Physiology And Biology **Credit Hours: 3**

Properties and applications of systems of nonlinear differential equations. Fixed points, stability analysis, bifurcations, phase plane analysis, limit cycles, attractors and chaos. Applications to physiological and other biological systems are discussed.

BIOE7620 Ionic Channels In Excitable Membranes **Credit Hours: 3**

The generation of electrical impulses by ion channels in excitable tissues. Models of ion channel gating include the Hodgkin-Huxley equations and Markov models. Principles of electrodiffusion applied to ionic flow through open channels.

BIOE7630 Single Neuron Models **Credit Hours: 3**

Mathematic modeling of neurons. Cable theory applied to passive neurons. Compartmental modeling and computer simulations to incorporate ion channels. Obtaining experimental data to for creating realistic models of neurons.

BIOE7720 Introduction To Biomaterials **Credit Hours: 3**

This course will address chemical, mechanical and immunological properties of biomaterials and strategies for their effective use in the fields of medicine and dentistry as well as in cell culturing and processing operations. Biomaterials applications in artificial organs, bone/joint replacement, plastic surgery, immunoisolation and controlled drug delivery will be addressed. The continued development and fabrication of biocompatible materials is critical for these areas.

BIOE7930 Bioengineering Seminar **Credit Hours: 0**

Presentations of ongoing research in the field of bioengineering. Includes presentations by guest speakers, faculty and graduate students.

BIOE7950 Bioengineering Seminar **Credit Hours: 1**

Presentation of ongoing research in the field of bioengineering. Includes presentations by guest speakers, faculty and graduate students.

Prerequisites: BIOE 7930 FOR LEVEL GR WITH MIN. GRADE OF D-

BIOE7980 Special Topics In Bioengineering **Credit Hours: 1-5**

Selected subjects in the field of bioengineering with intensive investigation of the recent literature in a few areas of special interest to the class and the professor.

BIOE7990 Independent Study In Bioengineering **Credit Hours: 1-6**

The student, under the guidance of their research adviser, explores in-depth specific areas or topics related to their thesis or dissertation research.

BIOE8100 Computational Physiology **Credit Hours: 3**

Application of mathematical and computational techniques to physiological systems. Models include conductive cables and compartmental models of nerve fibers, nonlinear differential equation models of electrophysiology, and stochastic models of biomolecular interactions.

Prerequisites: MIME 6000 FOR LEVEL GR WITH MIN. GRADE OF D- AND BIOE 4100 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE8200 Biophotonics **Credit Hours: 3**

This course provides a one-semester overview on the interactions of light and biological materials. Practical applications of biophotonics principles to physiological imaging will be emphasized.

BIOE8210 Optical Instrumentation For Bioengineering **Credit Hours: 3**

Introduction to the theory and design of topical instruments for bioengineers. Instruments using geometrical, physical and quantum optical principles will be discussed.

BIOE8220 Semiconductor Biosensors **Credit Hours: 3**

Introduction to the theory and design of semiconductor sensors for measuring biological parameters. All major aspects of fabrication and characterization will be discussed.

BIOE8230 Bioelectrical Instrumentation **Credit Hours: 3**

This course is intended to give students in bioengineering a basic understanding of bioelectrical instrumentation and physiological measurements.

BIOE8240 Bioelectrical Instrumentation Laboratory **Credit Hours: 1**

Laboratory introduction to measurement of bioelectrical potentials and use of instruments.

BIOE8250 Advanced Bioelectrical Instrumentation **Credit Hours: 3**

Advanced discussion of the theory and design of bioelectrical instrumentation. Computer analysis of data, data conversion and complex sensor systems will be considered.

BIOE8270 Medical Imaging Systems II **Credit Hours: 3**

An introduction to the physical principles, design and function of ultrasonic, nuclear medicine and magnetic resonance imaging (MRI) diagnostic imaging systems.

Prerequisites: EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOE8280 Advanced Imaging Techniques **Credit Hours: 3**

Contemporary techniques for producing and processing images and image data, including remote sensing, industrial inspection and medical diagnosis. Modeling and analysis of spatially invariant image sequences. Image reconstruction from projections.

BIOE8290 Biosignal Processing **Credit Hours: 3**

Analog and discrete-data bioelectrical and bioengineering signals and their characteristics, bioengineering signal classification, signal processing and analysis techniques and decision making.

BIOE8310 Biochemical Engineering Principles **Credit Hours: 3**

The application of engineering principles to the design and analysis of biological processes that employ living organisms or biochemicals.

BIOE8340 Bioseparations **Credit Hours: 3**

Practical and theoretical aspects of various processes required to separate and purify cells, proteins and other biological compounds. Topics covered include various types of chromatography, liquid/liquid separations, solid/liquid separations, membrane processing, flow cytometry and field-enhanced separations. This course will focus on new and non-traditional methods.

Prerequisites: BIOE 6310 FOR LEVEL GR WITH MIN. GRADE OF D-

BIOE8410 Biological And Artificial Neural Networks **Credit Hours: 3**

Introduction to biological neural networks and cognitive science. Discriminant functions, training methods, TLUs, perceptrons and adalines. Backpropagation and statistical methods. Kohonen networks. Hopfield network. Associative memories, Radial Basis Functions. Ontogenic neural networks. Neuro-fuzzy networks.

BIOE8420 Medical Data Mining **Credit Hours: 3**

Fuzzy sets, the extension principle, fuzzy relations, fuzzy logic. Approximate operations on sets, lower and upper approximation, dependency and reduction of attributes. Populations of objects, fitness function, mutation, crossover.

BIOE8430 Intelligent Medical Diagnostic Systems **Credit Hours: 3**

Knowledge representation, dealing with uncertainty in knowledge-based systems. Machine learning techniques for rule extraction.

Prerequisites: BIOE 5420 FOR LEVEL GR WITH MIN. GRADE OF D-

BIOE8440 Wavelets & Their Applications **Credit Hours: 3**

Fundamentals of series expansion using wavelets, continuous wavelets and frames and signal compression. Applications of wavelets in signal processing, signal reconstruction, compression and analysis for biomedical applications. Background in signal processing is desired.

BIOE8510 Occupational Biomechanics **Credit Hours: 3**

Occupational biomechanics deals with the mechanical behavior of musculoskeletal tissues during performance of physical work. It combines knowledge of mechanics and physiology together with industrial work specifications and practice and provides an understanding of the physics of manual industrial activities.

BIOE8520 Orthopaedic Biomechanics **Credit Hours: 3**

The course of orthopaedic biomechanics has been designed to fuse the biological and physiological problems with the science and technology of engineering. It focuses on a brief review of the physiology and biology of the human body, introduces the physics of manual industrial activities.

Prerequisites: BIOE 4110 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOE 5780 FOR LEVEL GR WITH MIN. GRADE OF D-

BIOE8700 Artificial Organs **Credit Hours: 3**

This course is concerned with the application of engineering principles to the design and analysis of artificial organs and their clinical application.

BIOE8710 Tissue Engineering **Credit Hours: 3**

Tissue engineering combines engineering, materials science and cellular biology knowledge to solve the critical problems of tissue loss and organ failure. This course aims to not only teach aspects of engineering and cellular biology in the same course, but also to present them in such a way that the student learns the cellular phenomena involved in tissue development and growth and gains an appreciation of the role of biochemical and mechanical environment in regenerating tissues.

BIOE8730 Biological Transport Phenomena **Credit Hours: 3**

Application of transport phenomena and reaction engineering in the understanding of signaling, growth processes and the flow of biological fluids in mammalian vessels in living systems.

BIOE8960 Bioengineering Dissertation **Credit Hours: 1-16**

Original investigations of significant bioengineering problems at the graduate level under the guidance of a member of the faculty.

BIOL1120 Survey Of Biology **Credit Hours: 3**

A survey of major biological principles and phenomena in various plants and animals with emphasis on man. (not for major credit) .

Prerequisites: ENGL 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOL1140 Biological Aspects Of Human Consciousness **Credit Hours: 3**

Lectures integrating developmental, genetic, neurophysiological, psychological, sociological and philosophical aspects of human consciousness in terms a lay person can understand. (not for major credit)

BIOL1220 Survey Of Biology Laboratory **Credit Hours: 1**

(Not for major credit) A series of laboratory exercises that supplement the material discussed in BIOL 1120.

Corequisites: BIOL1120

BIOL1340 The Nature Of Science **Credit Hours: 3**

An interdisciplinary course that discusses major scientific discoveries, the role of hypothesis testing in science, the use of mathematics in science, data presentation and moral and ethical issues that stem from science.

BIOL2020 Mammalian Form And Function **Credit Hours: 4**

Structure and operation of organ systems. Lecture and laboratory emphasizing how shapes and properties within tissues and organs enable the whole organism to maintain a living balance. (not for major credit)

Prerequisites: ENGL 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOL2100 Basic Microbiology **Credit Hours: 4**

Emphasizes the principles of microbiology that are important to the environmental, life science, nursing and health-related fields. (not for major credit)

BIOL2150 Fundamentals Of Life Science I: Diversity Of Life, Evolution And Adaptation **Credit Hours: 4**

An introduction to the diversity of multicellular life on earth, evolution and physiological adaptations.

BIOL2160 Fundamentals Of Life Science Laboratory I **Credit Hours: 1**

A series of laboratory exercises which supplement the material discussed in BIOL 2150.

Corequisites: BIOL2150

BIOL2170 Fundamentals of Life Science II: Cells, Inheritance and Development **Credit Hours: 4**

A general introduction to cell structure and function, energy processing in plants and animals, basic genetics, molecular biology and development.

Prerequisites: CHEM 1090 FOR LEVEL UG WITH MIN. GRADE OF D- OR CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D- OR BIOL 2150 FOR LEVEL UG WITH MIN. GRADE OF D- OR CHPL FOR MIN. SCORE OF 20

BIOL2180 Fundamentals Of Life Science Laboratory II **Credit Hours: 1**

A series of laboratory exercises which supplement the material discussed in BIOL 2170.

Corequisites: BIOL2170

BIOL2910 Biological Research **Credit Hours: 1**

A discussion/demonstration of opportunities for undergraduate research in Biology at the University of Toledo and elsewhere.

BIOL2980 Topics In The Life Sciences **Credit Hours: 3-4**

Selected topics in Biology for the non-major.

Prerequisites: ENGL 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOL3010 Molecular Genetics **Credit Hours: 3**

The principles of heredity at the molecular level, covering gene and chromosome structure, replication and repair, recombination, control of gene expression, control of cell division.

Prerequisites: (BIOL 2170 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1220 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (BIOL 2170 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1240 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOL3020 Molecular Genetics Laboratory **Credit Hours: 2**

A laboratory course in experimental molecular biology involving gene cloning, analysis of cloned product and other techniques of modern molecular genetics.

Corequisites: BIOL3010

BIOL3030 Cell Biology **Credit Hours: 3**

A study of the internal organization of the eukaryotic cell, organelle and membrane function, cell-cell signaling, cell movement, cell adhesion, the extracellular matrix.

Prerequisites: (BIOL 2170 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1240 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOL3040 Cell Biology Laboratory **Credit Hours: 2**

Laboratory exercises involving cell culturing, protein analysis, protein localization and other techniques of modern cell biology.

Corequisites: BIOL3030

BIOL3070 Human Physiology **Credit Hours: 3**

Detailed structural and functional analysis of the human endocrine, nervous, reproductive, circulatory, respiratory, digestive and excretory systems. An emphasis will be placed on system-system interactions and homeostatic mechanisms.

Prerequisites: BIOL 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOL3090 Developmental Biology **Credit Hours: 3**

Lectures on molecular and cellular interactions in animal and plant embryogenesis and development.

Prerequisites: BIOL 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOL3100 Developmental Biology Laboratory **Credit Hours: 1**

An analysis of development by biochemical and biological methods using live materials.

BIOL3210 Human Nutrition **Credit Hours: 3**

Lectures covering nutrition and transport in humans, role of nutrition in growth and development, nutritional diseases.

Prerequisites: BIOL 3070 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOL3410 Plant Physiology **Credit Hours: 3**

Lectures on the basic concepts of plant physiology. Included will be a review of plant organization, transport systems and biochemistry.

Prerequisites: BIOL 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOL3510 Comparative Vertebrate Anatomy **Credit Hours: 4**

A comparative treatment of the evolutionary and developmental history of the major vertebrate organ systems.

Prerequisites: (BIOL 2150 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOL 2160 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOL 2170 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOL 2180 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOL3LAB Biology Lab 3000 Level **Credit Hours: 0-6**

BIOL4010 Molecular Biology **Credit Hours: 3**

Analysis of the regulatory mechanisms for nucleic acid and protein synthesis; genome structure; recombination; genetic damage and repair.

Prerequisites: BIOL 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOL4030 Microbiology **Credit Hours: 3**

Lectures on the principles of modern microbiology and virology, including metabolism, growth, cellular morphology, genetics and host parasite relationships. Bacterial and viral diseases will be illustrated.

Prerequisites: (BIOL 3030 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 2420 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOL4040 Microbiology Laboratory **Credit Hours: 1**

Laboratories utilizing basic microbiological techniques and illustrating principles of growth, identification and genetics of microbes.

Corequisites: BIOL4030

BIOL4050 Immunology **Credit Hours: 3**

Lectures on the chemical, genetic and cellular basis of the immune response.

Prerequisites: BIOL 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOL4060 Immunology Laboratory **Credit Hours: 1**

Laboratory studies of the immune response.

Corequisites: BIOL4050

BIOL4090 Cancer Biology **Credit Hours: 3**

Introduction to carcinogenesis and the cellular and molecular features of malignancy. Methods to diagnose and treat malignancies will also be presented.

Prerequisites: (BIOL 3030 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOL 3010 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOL4110 Human Genetics **Credit Hours: 3**

A systematic survey of genetic variation in man with emphasis on modern research methodology.

Prerequisites: BIOL 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOL4170 Developmental Genetics **Credit Hours: 3**

Survey of animal and plant developmental genetics. Basic principles and methods of genetic analysis, model systems, genetic basis of tissue patterning, evolutionary implications and applications in tissue and plant engineering.

Prerequisites: BIOL 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOL4210 Molecular Basis of Disease **Credit Hours: 3**

Examines the genetic, molecular, and biochemical defects associated with human disease and includes a review of current research related to human disease.

Prerequisites: BIOL 3010 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOL 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOL4230 Comparative Animal Physiology **Credit Hours: 3**

Lectures on the comparative and environmental physiology of vertebrates and invertebrates including metabolism, temperature regulation, respiration, circulation, excretion and osmotic regulation.

Prerequisites: (BIOL 3030 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOL 3070 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOL4250 Introduction to Neurobiology **Credit Hours: 3**

An introduction to the molecular, genetic and cellular aspects of neurobiology in humans and model organisms. Topics include neuronal physiology and signaling, neural development, sensation, muscle control, learning and memory.

Prerequisites: BIOL 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOL4310 Invertebrate Zoology **Credit Hours: 3**

Survey of the invertebrates from unicellular protista to protostomes and deuterostomes. Emphasis on adaptations to aquatic, terrestrial, or parasitic habitats.

Prerequisites: BIOL 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

BIOL4320 Invertebrate Zoology Laboratory **Credit Hours: 1**

Laboratory exercises and field trips involving observation, collection and dissection of representative invertebrates.

Corequisites: BIOL4310

BIOL4330 Parasitology **Credit Hours: 3**

A study of the host-parasite interaction including aspects of parasite morphology, taxonomy, development and ecology.

Prerequisites: (BIOL 2150 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOL 2170 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOL4700 Biological Literature And Communication **Credit Hours: 3**

A writing intensive course that focuses on reading original literature in biology in a variety of formats. Required of all biology majors.

Prerequisites: (BIOL 3030 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOL 3070 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (BIOL 3030 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOL 3410 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOL4790 Biology Field Trip **Credit Hours: 2-4**

Faculty directed course that incorporates extensive field experience and individual projects.

BIOL4910 Undergraduate Research **Credit Hours: 1-3**

Faculty directed research. Both oral and written reports of results required.

BIOL4940 Extramural Research **Credit Hours: 1-4**

Prior consent of both the department and the proposed supervisor. Scientist-supervised study of research done in an extramural research institute or scientific laboratory. Written and oral reports to the department required. Maximum of 6 hours may count toward BIOL electives.

Prerequisites: (BIOL 2150 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOL 2170 FOR LEVEL UG WITH MIN. GRADE OF D-)

BIOL4950 Internship In Biology **Credit Hours: 1-12**

Supervised practical experience in the field of biology. Maximum of 6 hours may be used as biology elective credit for BS degree.

BIOL4980 Advanced Topics In Biology **Credit Hours: 1-3**

An advanced course for Biology majors in an important area of biology May be repeated for credit under different specialty numbers (topics).

BIOL4990 Independent Study In Biology **Credit Hours: 1-3**

Faculty directed readings or projects in a specific area of biology.

BIOL4LAB Biology Lab 4000 level **Credit Hours: 0-6**

BIOL5030 Advanced Microbiology **Credit Hours: 3**

Lectures on the principles of modern microbiology and virology, including metabolism, growth, cellular morphology, genetics and host parasite relationships. Bacterial and viral diseases will be illustrated.

BIOL5040 Advanced Microbiology Laboratory **Credit Hours: 1**

Laboratories utilizing basic microbiological techniques and illustrating principles of growth, identification and genetics of microbes.

Corequisites: BIOL5030

BIOL5050 Advanced Immunology **Credit Hours: 3**

The development, genetics and physiology of the immune response.

BIOL5060 Advanced Immunology Laboratory **Credit Hours: 1**

Laboratory studies of the immune response.

Corequisites: BIOL5050

BIOL5980 Advanced Topics In The Biological Sciences For Science Educators **Credit Hours: 1-3**

Lecture, seminar or distance learning course on current topics or problems in the biological sciences that are relevant for science educators.

BIOL6000 Introduction To Scientific Thought And Expression **Credit Hours: 3**

A writing intensive course for new graduate students that focuses on scientific hypothesis testing and reading the original literature in biology.

BIOL6010 Advanced Molecular Biology **Credit Hours: 4**

Analysis of recent developments in prokaryotic and eukaryotic molecular biology through evaluation and discussion of current literature.

BIOL6090 Advanced Cell Biology **Credit Hours: 4**

An advanced course that stresses the experimental basis for current concepts of cell structure and function.

BIOL6100 Research Methodology: Cell And Molecular Biology **Credit Hours: 3**

An in-depth discussion of techniques used in the study of cell and molecular biology. Examples include chromatography and fractionation, electrophoresis cell and molecular cloning.

BIOL6200 Advanced Signal Transduction **Credit Hours: 3**

This course will provide an in-depth discussion of signal transduction topics important for cell/molecular biology research, emphasizing the interplay between intracellular signaling molecules needed to regulate physiological responses.

Prerequisites: BIOL 6010 FOR LEVEL GR WITH MIN. GRADE OF D- AND BIOL 6090 FOR LEVEL GR WITH MIN. GRADE OF D- AND CHEM 6500 FOR LEVEL GR WITH MIN. GRADE OF D-

BIOL6260 Topics in Cancer Biology **Credit Hours: 3**

The course will cover our current understanding of carcinogenesis and provide in-depth discussion of the important topics and latest advances in cancer research.

Prerequisites: BIOL 6010 FOR LEVEL GR WITH MIN. GRADE OF D- AND BIOL 6090 FOR LEVEL GR WITH MIN. GRADE OF D- AND CHEM 6500 FOR LEVEL GR WITH MIN. GRADE OF D-

BIOL6920 Special Projects In Biology **Credit Hours: 2-4**

Introduction to research on a selected problem under the direction of an individual faculty member.

BIOL6930 Seminar In Biology **Credit Hours: 1**

Presentation on research or current literature by graduate students, faculty, or guest speakers.

BIOL6960 Masters Thesis Research **Credit Hours: 1-15**

Research that normally contributes to the fulfillment of the M.S. thesis requirement.

BIOL6980 Advanced Topics In Biology **Credit Hours: 2-4**

Seminar/discussion of significant current topics or problems in biology.

BIOL6990 Advanced Readings In Biology **Credit Hours: 2-4**

Faculty directed readings or projects in a specific area of Biology.

BIOL7030 Advanced Microbiology **Credit Hours: 3**

Lectures on the principles of modern microbiology and virology, including metabolism, growth, cellular morphology, genetics and host parasite relationships. Bacterial and viral diseases will be illustrated.

BIOL7040 Advanced Microbiology Laboratory **Credit Hours: 1**

Laboratories utilizing basic microbiological techniques and illustrating principles of growth, identification and genetics of microbes.

Corequisites: BIOL7030

BIOL7050 Advanced Immunology **Credit Hours: 3**

The development, genetics and physiology of the immune response.

BIOL7060 Advanced Immunology Laboratory **Credit Hours: 1**

Laboratory studies of the immune response.

Corequisites: BIOL7050

BIOL8000 Introduction To Scientific Thought And Expression **Credit Hours: 3**

A writing intensive course for new graduate students that focuses on scientific hypothesis testing and reading the original literature in biology.

BIOL8010 Advanced Molecular Biology **Credit Hours: 4**

Analysis of recent developments in prokaryotic and eukaryotic molecular biology through evaluation and discussion of current literature.

BIOL8090 Advanced Cell Biology **Credit Hours: 4**

An advanced course that stresses the experimental basis for current concepts of cell structure and function.

BIOL8100 Research Methodology: Cell And Molecular Biology **Credit Hours: 3**

An in-depth discussion of techniques used in the study of cell and molecular biology. Examples include chromatography and fractionation, electrophoresis cell and molecular cloning.

BIOL8200 Advanced Signal Transduction **Credit Hours: 3**

This course will provide an in-depth discussion of signal transduction topics important for cell/molecular biology research, emphasizing the interplay between intracellular signaling molecules needed to regulate physiological responses.

Prerequisites: BIOL 8010 FOR LEVEL GR WITH MIN. GRADE OF D- AND BIOL 8090 FOR LEVEL GR WITH MIN. GRADE OF D- AND CHEM 8500 FOR LEVEL GR WITH MIN. GRADE OF D-

BIOL8260 Topics in Cancer Biology **Credit Hours: 3**

The course will cover our current understanding of carcinogenesis and provide in-depth discussion of the important topics and latest advances in cancer research.

Prerequisites: BIOL 8010 FOR LEVEL GR WITH MIN. GRADE OF D- AND BIOL 8090 FOR LEVEL GR WITH MIN. GRADE OF D- AND CHEM 8500 FOR LEVEL GR WITH MIN. GRADE OF D-

BIOL8920 Special Projects In Biology **Credit Hours: 2-4**

Introduction to research on a selected problem under the direction of an individual faculty member.

BIOL8930 Seminar In Biology **Credit Hours: 1**

Presentation on research or current literature by graduate students, faculty, or guest speakers.

BIOL8960 Doctoral Dissertation Research **Credit Hours: 1-15**

Research normally leading to the fulfillment of the Ph.D. dissertation requirement.

BIOL8980 Advanced Topics In Biology **Credit Hours: 2-4**

Seminar/discussion of significant current topics or problems in biology.

BIOL8990 Advanced Readings In Biology **Credit Hours: 2-4**

Faculty directed readings or projects in a specific area of Biology.

BLAW3550 Legal And Safety Compliance Issues In Human Resource Management **Credit Hours: 3**

Introduction of the issues and challenges facing human resource specialists, generalists and managers in organizations. Legal, social and political aspects of human resource management, as well as compliance requirements for OSHA and other safety laws, are discussed.

Prerequisites: BUAD 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

BLAW3570 The Laws Of Structuring And Operating A Business **Credit Hours: 3**

The role of law in structuring and operating business choices of sole proprietorship, agency, partnership, limited partnership, close private corporation, large public corporation, limited liability corporation and negotiable instruments law.

BLAW3670 International Business Law **Credit Hours: 3**

The role of laws and organizations governing business done in the global arena. Study of the legal environment of international business; international sales, credits and the commercial transaction; international trade law and the regulation of the international marketplace.

Prerequisites: BUAD 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

BLAW4570 Legal And Ethical Aspects Of Managing Innovation And Technology **Credit Hours: 3**

This course examines intellectual property systems and presents management options for the protection of intellectual property. Technology's legal and ethical aspects are covered, including case studies on specific technological innovations and products.

Prerequisites: (BUAD 3030 FOR LEVEL UG WITH MIN. GRADE OF D- AND BUAD 3470 FOR LEVEL UG WITH MIN. GRADE OF D-)

BLAW4580 Detection And Prevention Of Deceptive Business Practices **Credit Hours: 3**

The course prepares the student to prevent deceptive and fraudulent practices in business, including kinds and definitions of deception and fraud, history, legal aspects, legislation, detection and prevention.

Prerequisites: (BUAD 3470 FOR LEVEL UG WITH MIN. GRADE OF D- AND BLAW 3570 FOR LEVEL UG WITH MIN. GRADE OF D-)

BLAW5150 Dynamics Of Legal Environment Of Business **Credit Hours: 3**

Emphasis will be placed on the law in those areas which would assist the student to have a better understanding of those ethical and social problems in our increasingly more complicated legal environment.

BLAW6040 Health Law **Credit Hours: 3**

Provides an analytical framework for the understanding of the legal climate within which the health care institution operates. Emphasis on the legal concepts which bear upon current health care problems and operation and planning decisions.

BLAW6100 Business, Government And Society **Credit Hours: 3**

Discussion of social criticisms of business and of responses which may improve its social performance. Topics include consumerism, ecology, market power, market organization, social responsibility and ethics regulation and public policy, social performance measurement.

BLAW7150 Dynamics Of Legal Environment Of Business **Credit Hours: 3**

Emphasis will be placed on the law in those areas that would assist the student to have a better understanding of those ethical and social problems in our increasingly more complicated legal environment.

BME8900 Independent Research **Credit Hours: 1-16**

[1-16 hours] Selected topics from current BME research with investigation into recent literature and/or via a laboratory experience in an area of mutual interest to the student and the instructor. Students are to use the section number of their instructor. Prerequisite: Instructor¿s consent.

BME8930 Graduate Seminar **Credit Hours: 0**

0 hour] Biomedical engineering research presentations by external speakers from industry, universities and other organizations.

BME8960 Dissertation **Credit Hours: 1-16**

[1-16 hours] Doctoral dissertation research credit hours for students in the biomedical engineering program. Students are to use the section number of their dissertation adviser.

BME8980 Special Topics **Credit Hours: 1-8**

[1-8 hours] A special topic at the graduate level in biomedical engineering to be offered as a lecture course during a term by a BME faculty member. Prerequisite: Consent of the BME faculty member.

BMGT1000 Business Technologies/College Orientation **Credit Hours: 1**

Acquaints the new student with the services, policies, procedures and layout of the university, college and department. Establishes relationships among new students, full-time professors and peer mentors during this time of adjustment.

BMGT1010 Business Principles **Credit Hours: 3**

An introduction to the world of business focusing on an overview of business operations with special emphasis on management, marketing, computers, accounting and finance.

BMGT1500 Workplace Communication And Presentations **Credit Hours: 3**

Covers all aspects of communicating in the workplace including oral, written and group communications. Specific subjects covered include composing agendas, conducting interviews and organizing meetings. Students will learn a computer graphics program and prepare a presentation.

BMGT1540 Organizational Behavior **Credit Hours: 3**

This course will address the impact of individual and group behavior on organizations. Topics covered include downsizing, stakeholder management, network organizations, participative management approaches and the quality movement.

BMGT1800 Principles Of Operations Management **Credit Hours: 3**

The study of planning and controlling the operations that an organization uses to produce goods and provide services and the decision making tradeoffs that occur.

BMGT1850 Principles Of Total Quality Management **Credit Hours: 3**

An introduction to the basic philosophies, concepts and tools of Quality Management. Continuous improvement, customer focus and appropriate measurement of quality are covered.

Prerequisites: BMGT 1800 FOR LEVEL UG WITH MIN. GRADE OF D-

BMGT2010 Workplace Management **Credit Hours: 3**

Covers issues dealing with managing a company in a predominantly service-oriented marketplace. Topics include training employees to deal with customers/clients, creating a customer-friendly business environment, problem-solving and strategic planning.

BMGT2020 Human Resource Development **Credit Hours: 3**

Explores the functions of Human Resource Management including acquiring and developing human resources with special emphasis on improving the quality of work life.

BMGT2030 Supervision **Credit Hours: 3**

Explores the role of first-line managers in organizations with special emphasis on the responsibilities of supervisors. These responsibilities include delegation, communication, problem-solving, training and leading.

BMGT2050 Small Business Management **Credit Hours: 3**

Examines entrepreneurship with a special emphasis on formulating, developing and operating a small business.

BMGT2060 Customer Service and Computer End-User Support **Credit Hours: 3**

Overview of knowledge and skills necessary to provide customer service and support to clients and computer users with an emphasis on problem-solving and communication skills in a technical setting.

BMGT2110 Managing In A Global Economy **Credit Hours: 3**

Students will examine one particular industry and learn the various economic factors associated with operating a business in an international setting.

BMGT2120 Consumer Finance **Credit Hours: 3**

Course is designed to assist students in understanding personal and consumer finance issues as well as sound financial planning measures.

BMGT2310 Legal Environment Of Business **Credit Hours: 3**

Carefully documents treatment of the legal framework of business. Emphasis on the international aspect of business law. Topics covered include contracts, bailments, agency relationships, legal forms of ownership and negotiable instruments.

BMGT2700 Managing Diversity In The Workplace **Credit Hours: 3**

This course offers a conceptual framework for understanding diversity and its effects on organizational behavior. It will also provide action tools for effective management of diversity in organizations.

BMGT2720 Diversity Training And Bias-Free Work Practices **Credit Hours: 3**

Students discover how to be a diversity trainer and explore bias-free practices that create more inclusive diverse work environments free from discrimination, contributing to enhanced organizational effectiveness.

BMGT2750 Cultural Communications In The Workplace **Credit Hours: 3**

Strategies taught to increase communication effectiveness among employees from differing cultural backgrounds. Students will also learn market-specific tips and taboos and develop strategies for negotiating across cultures.

BMGT2800 Documentation And Inmplementation Of Iso/Os 9000 Quality Assurance Standards **Credit Hours: 3**

Gain an understanding of the ISO 9000 and QS 9000 quality standards requirements and the actions and decisions necessary to successfully gain ISO/OS 9000 registration.

Prerequisites: BMGT 1850 FOR LEVEL UG WITH MIN. GRADE OF D-

BMGT2990 Independent Study **Credit Hours: 1-3**

Students will study a management-related subject mutually agreed upon between the student and instructor. The format may include lecture, computer lab and/or practical experience.

BUAD1000 Orientation For Business Students **Credit Hours: 1**

Introduction to the University community. Strategies for successful college transition are explored.

BUAD1010 Introduction To Business **Credit Hours: 3**

Introduction to the various functional areas of business, the critical role business plays in the economy, the impact of globalization and the performance of business functions.

BUAD1020 Micro-Computer Applications In Business **Credit Hours: 3**

Course provides an overview of the role of micro-computers and information systems in business applications. It provides good training in word processing and spreadsheets for problem solving.

BUAD2000 Career Development I **Credit Hours: 1**

This course will assist students with self-assessment, exploring career options and developing a resume. Skills in communicating, listening, organizing and supervising are some of the areas required for long-term career success that are covered.

Prerequisites: BUAD 1000 FOR LEVEL UG WITH MIN. GRADE OF D-

BUAD2030 Leadership And Organizational Survival Skills **Credit Hours: 3**

Skills-based course equips the student to effectively lead and work in teams. Continuous improvement, problem solving, decision making, synergy and teamwork are explored in hands-on learning experience.

BUAD2040 Financial Accounting Information **Credit Hours: 3**

This course is an introduction to financial accounting from the perspective of a financial statement user. Where appropriate, it provides a small and mid-sized company's perspective.

BUAD2050 Accounting For Business Decision-Making **Credit Hours: 3**

This course is an introduction to management accounting, including the use and limitations of cost-volume-profit analysis for fundamental decisions concerning products, services and activities.

Prerequisites: BUAD 2040 FOR LEVEL UG WITH MIN. GRADE OF D-

BUAD2060 Data Analysis For Business **Credit Hours: 3**

Business data analysis using interactive tools such as spreadsheets. Course will cover the application of statistical concepts, forecasting, the collection and analysis of data for business decision-making using cases where appropriate.

Prerequisites: (MATH 1260 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1270 FOR LEVEL UG WITH MIN. GRADE OF D-) OR MATH 1850 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1920 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1760 FOR LEVEL UG WITH MIN. GRADE OF D-

BUAD2070 Application Of Statistics In Business Decision Making **Credit Hours: 3**

A study of application of statistics in business using cases and spreadsheets. Course will cover hypothesis testing, regression analysis and correlation analysis, process control, time series and index numbers.

Prerequisites: BUAD 2060 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 2600 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 2630 FOR LEVEL UG WITH MIN. GRADE OF D-

BUAD2080 Global Environment Of Business **Credit Hours: 3**

This course covers the global competitive challenges impacting businesses. Topics include globalization forces, country differences in political economy and culture, cross-border trade and investment, regional economic integration, and monetary systems.

BUAD3000 Career Development II **Credit Hours: 1**

This course will assist students in developing job search skills necessary to obtain an internship and full-time position. Skills covered include resume enhancement, cover letter design, networking, informational interviewing, interview preparation and professional dress.

Prerequisites: (BUAD 1000 FOR LEVEL UG WITH MIN. GRADE OF D- AND BUAD 2000 FOR LEVEL UG WITH MIN. GRADE OF D-)

BUAD3010 Principles Of Marketing **Credit Hours: 3**

A practical approach to the planning and utilization of the marketing function. Topics include product development, pricing, promotion and distribution within a domestic and international framework.

Prerequisites: (ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- AND ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D-) OR MIME 2600 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

BUAD3020 Principles Of Manufacturing And Service Systems **Credit Hours: 3**

This course provides an overview of the functions, problems, solution techniques and decision making processes within the manufacturing and service environment. Topics include production planning, JIT, TQM and materials management.

Prerequisites: BUAD 2070 FOR LEVEL UG WITH MIN. GRADE OF D-

BUAD3030 Managerial And Behavioral Processes In Organizations **Credit Hours: 3**

Introduction to managerial and organizational concepts designed to develop knowledge, attitudes, techniques and skills in creating and managing innovative, adaptive organizations. Interactive exercises, videos, cases, discussions and lectures will be used.

BUAD3040 Principles Of Financial Management **Credit Hours: 3**

Course emphasizes integrated financial decision making tools, techniques and theory. Content stresses acquisition and management of short and long-term capital, short and long-term investments, corporate securities and, financial markets.

Prerequisites: BUAD 2040 FOR LEVEL UG WITH MIN. GRADE OF D- OR ACTG 1040 FOR LEVEL UG WITH MIN. GRADE OF D- AND BUAD 2060 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

BUAD3050 Information Technology Management **Credit Hours: 3**

The role of computers and information systems in business decision-making will be carefully examined. The student is expected to develop computer-based applications for business decision making and problem solving through the use of state of the art software, including advanced spreadsheets, database and web design tools.

Prerequisites: BUAD 1020 FOR LEVEL UG WITH MIN. GRADE OF D- OR CMPT 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR BUSC FOR MIN. SCORE OF 39

BUAD3470 The Legal And Ethical Environment Of Business **Credit Hours: 3**

The nature of the law and the formation and application of Legal Principles; the Legal and Ethical Environment in which business operates; regulation of commerce and competition through Contracts, Torts and the Uniform Commercial Code.

BUAD4010 Integrative Capstone Experience **Credit Hours: 3**

Course is designed to be integrative and to provide a top-down focus in order to enhance overall understanding of key business concepts and processes. Students select from five options: The Dynamics of Family Business; Staying in Business: Value Based Management; Developing Global Business Plan for Small and Mid-Sized Firms; Integrative Management Game; and Honors Integrative Research Project.

BUAD4020 Senior Business Policy Forum **Credit Hours: 3**

This course integrates functional business knowledge learned in the core and stresses their interconnectedness and interrelationships. Students will develop and implement strategies in response to changes in the external environment.

Prerequisites: (BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY) AND BUAD 3020 FOR LEVEL UG WITH MIN. GRADE OF D- AND BUAD 3030 FOR LEVEL UG WITH MIN. GRADE OF D- AND BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D-)

BUAD6010 Assessing Emerging Business Opportunities **Credit Hours: 3**

A contemporary view of entrepreneurship strategies in organizations is presented. This course deals with opportunity driven analysis and strategy. It will expose students to the role of the entrepreneurs in an organization and the skills and attitudes required to succeed in planning and managing entrepreneurial organizations. This integrated course covers a substantial body of knowledge, concepts and tools that entrepreneurs/intrapreneurs need prior to and while starting their new ventures.

BUAD6030 Designing Products And Operations **Credit Hours: 3**

Involves customer and market-driven issues and how they affect product/service/operations development. This integrated course examines marketing, operating and engineering in product development.

BUAD6100 Accounting For Decision Making **Credit Hours: 3**

This course develops an appreciation for financial statements and their usefulness in making decisions. The nature of costs, opportunity costs, responsibility accounting, budgeting, cost allocations, absorption cost systems, activity based costing and standard costs are included.

Prerequisites: (BUAD 2050 FOR LEVEL UG WITH MIN. GRADE OF D- AND BUAD 2040 FOR LEVEL UG WITH MIN. GRADE OF D-) OR ACCT 5000 FOR LEVEL GR WITH MIN. GRADE OF D-

BUAD6200 Finance & Business Economics **Credit Hours: 3**

This class uses cases and projects to develop skills necessary to integrate financial and nonfinancial considerations into the managerial process. Topics: (1) Assessing entrepreneurial opportunities; (2) Forecasting for strategic financial decision making; (3) Capital acquisition; and (4) Acquiring an existing business.

Prerequisites: BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D- OR FINA 5310 FOR LEVEL GR WITH MIN. GRADE OF D-

BUAD6300 Strategic Marketing And Analysis **Credit Hours: 3**

This course covers the application of marketing concepts, models, technology and techniques to marketing problems, emphasizing strategic thinking and analysis in a global environment. Also covered are market research and information usage, and data-driven, ethical strategic marketing decision making.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D- OR BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

BUAD6400 Results-Based Management **Credit Hours: 3**

An integrated approach to management. The focal point is organizational strategies, group and individual adaptation to environmental forces.

Prerequisites: BUAD 3030 FOR LEVEL UG WITH MIN. GRADE OF D- OR MGMT 5110 FOR LEVEL GR WITH MIN. GRADE OF D-

BUAD6500 International Business **Credit Hours: 3**

This course presents an understanding of the underlying theories and strategic challenges that must be encountered when firms "go global" or operate in the global context.

BUAD6600 Supply Chain Management **Credit Hours: 3**

This course presents an integrated approach to value chain management and analyzes key challenges, practices and trends concerning primary business functions and processes. The course also examines the strategic ramifications for the supply chain in an emerging digital economy.

Prerequisites: BUAD 3020 FOR LEVEL UG WITH MIN. GRADE OF D- OR OPMT 5520 FOR LEVEL GR WITH MIN. GRADE OF D-

BUAD6800 Information Technology And E-Business **Credit Hours: 3**

This course covers the strategic role of information technology resources, e-commerce initiatives and e-business transformation for competitive advantage, managerial decision support, business process streamlining and inter-firm collaboration. Also covered are analysis of business models, exposure to data analysis tools, evaluation of information system architecture and resource requirements.

BUAD6900 Strategic Management Capstone **Credit Hours: 3**

This capstone course integrates business functions toward the strategic management of organizations or subunits thereof. Course pedagogy includes lectures, guest speakers, cases, experiential exercises field projects and simulations.

Prerequisites: (BUAD 6200 FOR LEVEL GR WITH MIN. GRADE OF D- AND BUAD 6300 FOR LEVEL GR WITH MIN. GRADE OF D-)

BUAD6920 Specialization Internship Opportunity **Credit Hours: 1-4**

Receive practical business experience working in an organization, while meeting with other students and learning about their experiences.

BUAD6940 Business Project Workshop **Credit Hours: 1-4**

Allow students to particapte in real world problem in a consulting type of situation. Pre-requisite: 15 hours of MBA level work.

BUAD6980 Special Topics In Business Administration **Credit Hours: 1-4**

Independent study to be arranged with the Director, M.B.A. program.

BUAD6990 Project-Based Independent Study **Credit Hours: 1-4**

Designed for students in a full-time employment situation who have the opportunity to do a supplemental project with their own employer. Must relate to specialization and be above normal responsiblity.

CABP627 Advanced Cancer Biology **Credit Hours: 3**

A comprehensive examination of the cellular and molecular foundation of cancer. Topics to be covered include: neoplasia; epidemiology and etiology; the role of causative agents such as chemicals, radiation, and viruses; cell proliferation, injury, and death; oncogenes; tumor suppressor genes; and an overview of cancer therapy.

CABP656 Readings in Cancer Biology **Credit Hours: 1**

A readings and discussion course that will examine classic and current research publications from within the broad realm of cancer biology.

CABP689 Ind Study in Cancer Biology **Credit Hours: 1-15**

Intensive study in the field of cancer biology including theoretical and experimental work. May be repeated for credit.

CABP827 Advanced Cancer Biology **Credit Hours: 3**

A comprehensive examination of the cellular and molecular foundation of cancer. Topics to be covered include: neoplasia; epidemiology and etiology; the role of causative agents such as chemicals, radiation, and viruses; cell proliferation, injury, and death; oncogenes; tumor suppressor genes; and an overview of cancer therapy.

CABP856 Readings in Cancer Biology **Credit Hours: 1**

A readings and discussion course that will examine classic and current research publications from within the broad realm of cancer biology.

CABP889 Ind Study in Cancer Biology **Credit Hours: 1-15**

Intensive study in the field of cancer biology including theoretical and experimental work. May be repeated for credit.

CARD1180 Cardiac Dysrhythmias **Credit Hours: 4**

Study of cardiac electrophysiology and the process of rhythm analysis, along with heart sounds and ambulatory monitoring techniques.

Corequisites: CARD1190

CARD1190 Cardiac Dysrhythmias Laboratory **Credit Hours: 1**

Twelve-lead EKG analysis and troubleshooting. Patient preparation and instruction for ambulatory monitoring.

Corequisites: CARD1180

CARD1280 12-Lead Ekg Interpretation **Credit Hours: 4**

Twelve-lead EKG analysis which includes bundle branch blocks, hypertrophics, infarction patterns, pediatric EKG interpretation and stress test procedures.

Prerequisites: (CARD 1180 FOR LEVEL UG WITH MIN. GRADE OF D- AND CARD 1190 FOR LEVEL UG WITH MIN. GRADE OF D-)

CARD1290 12-Lead Ekg Interpretation Laboratory **Credit Hours: 1**

Analysis of abnormal twelve-lead EKGs and procedures for stress testing.

Prerequisites: (CARD 1180 FOR LEVEL UG WITH MIN. GRADE OF D- AND CARD 1190 FOR LEVEL UG WITH MIN. GRADE OF D-)

CARD1390 12-Lead Ekg Interpretation Clinical **Credit Hours: 4**

Clinical experiences are provided in acute care and outpatient settings for EKG, ambulatory monitoring and stress testing.

Prerequisites: (CARD 1280 FOR LEVEL UG WITH MIN. GRADE OF D- AND CARD 1290 FOR LEVEL UG WITH MIN. GRADE OF D-)

CARD2080 Echocardiography **Credit Hours: 4**

Study of the procedures and principles in M-mode, 2-D and Doppler echocardiography. Emphasis on views and pathology.

Prerequisites: CARD 1390 FOR LEVEL UG WITH MIN. GRADE OF D-

CARD2090 Echocardiography Lab/Clinical I **Credit Hours: 4**

Introduction to echocardiography views utilized for M-mode, 2-D and Doppler measurements. Laboratory and clinical experience are provided to support the didactic curriculum.

Prerequisites: CARD 1390 FOR LEVEL UG WITH MIN. GRADE OF D-

CARD2180 Advanced Echocardiography **Credit Hours: 2**

Advanced pathophysiology, including stress echo, transesophageal and congenital anomalies.

Prerequisites: (CARD 2080 FOR LEVEL UG WITH MIN. GRADE OF D- AND CARD 2090 FOR LEVEL UG WITH MIN. GRADE OF D-)

CARD2190 Echocardiography Laboratory/Clinical II **Credit Hours: 4**

Advanced echocardiography studies, with Doppler interpretation. Clinical practice will be held off campus.

Prerequisites: (CARD 2080 FOR LEVEL UG WITH MIN. GRADE OF D- AND CARD 2090 FOR LEVEL UG WITH MIN. GRADE OF D-)

CARD2370 Ultrasound Instrument Mechanics And Wave Physics **Credit Hours: 1**

A study of ultrasound instrumentation mechanics and ultrasound wave physics. Introduction to knobology of the imaging system in noninvasive cardiology studies.

Prerequisites: MATH 1320 FOR LEVEL UG WITH MIN. GRADE OF C

CARD2380 Ultrasound Physics And Instrumentation **Credit Hours: 4**

The physical principles of ultrasound image generation and the image interpretation skills will be discussed. Assessment of cardiac and peripheral vascular diseases will be covered.

Prerequisites: MATH 1320 FOR LEVEL UG WITH MIN. GRADE OF D-

CARD2400 Peripheral Vascular - Venous Disorders **Credit Hours: 4**

Study of the procedures and principles involved in recording and performing an analysis of non-invasive PV data. The use of quantitative and qualitative methods of detecting venous diseases are covered.

Prerequisites: CARD 1390 FOR LEVEL UG WITH MIN. GRADE OF D-

CARD2410 Peripheral Vascular Laboratory/Clinical I **Credit Hours: 4**

Performance of non-invasive peripheral vascular procedures related to venous diseases. Laboratory and clinical experience are provided to support the didactic curriculum. Clinical rotations are held off campus.

Prerequisites: CARD 1390 FOR LEVEL UG WITH MIN. GRADE OF D-

CARD2420 Peripheral Vascular - Arterial Disorders **Credit Hours: 2**

A study of the procedures and principles involved in recording and performing analysis of non-invasive peripheral vascular data. The use of quantitative and qualitative methods of assessing arterial diseases are provided.

Prerequisites: (CARD 2400 FOR LEVEL UG WITH MIN. GRADE OF D- AND CARD 2410 FOR LEVEL UG WITH MIN. GRADE OF D-)

CARD2430 Peripheral Vascular Laboratory/Clinical II **Credit Hours: 4**

Performance of non-invasive peripheral vascular procedures related to arterial diseases. Laboratory and clinical experience are provided to support the didactic curriculum. Clinicals are held off campus.

Prerequisites: (CARD 2400 FOR LEVEL UG WITH MIN. GRADE OF D- AND CARD 2410 FOR LEVEL UG WITH MIN. GRADE OF D-)

CARD2500 Cardiovascular Clinical **Credit Hours: 3**

Clinical rotation which allows the student to perform non-invasive echocardiography or peripheral vascular exams under the direct supervision of a qualified technologist.

Prerequisites: (CARD 2420 FOR LEVEL UG WITH MIN. GRADE OF D- AND CARD 2430 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (CARD 2180 FOR LEVEL UG WITH MIN. GRADE OF D- AND CARD 2190 FOR LEVEL UG WITH MIN. GRADE OF D-)

CARD2990 Independent Study **Credit Hours: 1-3**

A course designed to provide educational opportunities in a specialized academic area under the direct supervision of a faculty member.

CET1000 Introduction To Construction Engineering Technology **Credit Hours: 1**

An introduction to Construction Engineering by introducing career sectors, current topics, teamwork, safety and the curriculum in order to provide the freshman CET student with building blocks for success within the program.

CET1100 Architectural Drafting **Credit Hours: 3**

Fundamentals of construction drafting techniques (hand and computer-aided) will be covered in this course. Drafting of plan sheets for foundations, wall cross-sections, floor plans and architectural detail will be covered in the laboratory portion of this course.

CET1150 Construction Materials And Codes **Credit Hours: 3**

Terminologies and properties of construction materials and construction techniques. Sources and organization of manufacturer's material information will be discussed. An introduction to the various building codes and these organizations will be examined as related to new and existing buildings.

CET1200 Engineering Mechanics **Credit Hours: 4**

Analysis of the laws of statics and strength of materials. Application to the properties of common construction materials including stress, strain, compression, shear, moments and deflection with respect to columns and beams. The design of wood beams, columns, joints and other structural elements will also be examined.

Prerequisites: (PHYS 2010 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1330 FOR LEVEL UG WITH MIN. GRADE OF D-)

CET1210 Surveying **Credit Hours: 3**

Study of construction and land surveying techniques, including the use of a steel tape, level, transit and total station. Laboratory will stress surveying measurement and layout techniques. Laboratory exercises will also introduce "AUTOCAD" and associated third party software applications to surveying.

Prerequisites: (ENGT 1050 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1330 FOR LEVEL UG WITH MIN. GRADE OF D-)

CET2030 Construction Graphics **Credit Hours: 3**

Computer drafting as related to construction engineering projects such as highways, streets, sanitary and storm sewers, and building sites. The computer drafting portion will use Microstation and associated third party support (e.g. Geopak).

Prerequisites: (ENGT 1050 FOR LEVEL UG WITH MIN. GRADE OF D- AND CET 1100 FOR LEVEL UG WITH MIN. GRADE OF D- AND CET 1210 FOR LEVEL UG WITH MIN. GRADE OF D-)

CET2110 Materials Testing **Credit Hours: 3**

Design of portland and asphalt cement concrete mixes and associated quality control tests of mortar, aggregates, asphalt cements, portland and asphaltic concrete.

Prerequisites: ENGT 1050 FOR LEVEL UG WITH MIN. GRADE OF D-

CET2220 Soil Mechanics **Credit Hours: 3**

Theory and application of soil properties as related to foundation design, including pressure distribution, bearing capacity, compressibility, consolidation, shear and stress analysis. Laboratory will cover quality control tests.

Prerequisites: (ENGT 1050 FOR LEVEL UG WITH MIN. GRADE OF D- AND CET 1200 FOR LEVEL UG WITH MIN. GRADE OF D-)

CET2250 Structural Design **Credit Hours: 4**

Principles of statics and strength of materials as applied to structural design of steel, reinforced concrete and wood, using applicable codes.

Prerequisites: (ENGT 1050 FOR LEVEL UG WITH MIN. GRADE OF D- AND CET 1200 FOR LEVEL UG WITH MIN. GRADE OF D-)

CET2980 Special Topics **Credit Hours: 1-4**

Student performs work on a specialized project of an advanced nature under the supervision of a Construction Engineering Technology faculty member.

CET3120 Advanced Construction Materials **Credit Hours: 3**

Engineering design and problems of soils, aggregates, asphaltic and portland cement concretes, brick and block masonry construction. Emphasis will be upon earth-based quality construction.

Prerequisites: (CET 2220 FOR LEVEL UG WITH MIN. GRADE OF D- AND CET 2110 FOR LEVEL UG WITH MIN. GRADE OF D-)

CET3210 Surveying Applications **Credit Hours: 3**

Study of land surveying concepts as related to land subdivision - construction, boundary and engineering surveys. Laboratory exercises will be field surveying problems and computer laboratory problems using "AUTOCAD" and associated computer surveying software packages.

Prerequisites: CET 1210 FOR LEVEL UG WITH MIN. GRADE OF D-

CET3220 Hydrology And Hydraulics **Credit Hours: 3**

Surface and ground-water hydrology/hydraulic concepts as related to rainfall/runoff and surface and ground-water drainage. Open and closed channel hydraulics will be studied.

Prerequisites: (ENGT 1050 FOR LEVEL UG WITH MIN. GRADE OF D- AND CET 2030 FOR LEVEL UG WITH MIN. GRADE OF D-)

CET4250 Advanced Structural Design **Credit Hours: 4**

Advanced studies of steel, wood, concrete and masonry structural design, examination of temporary construction structures and problems, demolition of structures.

Prerequisites: CET 2250 FOR LEVEL UG WITH MIN. GRADE OF D-

CET4350 Soils, Foundations And Earth Structures **Credit Hours: 4**

Temporary and permanent earth structures (foundations and retaining walls), tunneling, trenching, cofferdams and dewatering.

Prerequisites: (CET 2250 FOR LEVEL UG WITH MIN. GRADE OF D- AND CET 2220 FOR LEVEL UG WITH MIN. GRADE OF D-)

CET4460 Construction Management And Scheduling **Credit Hours: 3**

Topics include job startup, scheduling (pre-construction operations), CPM and PERT, disputes, work stoppages, job closeout, liens and client, contract, architect-engineer relationship. Supervision and inspection of various building elements (concrete, asphalt, steel, anchor bolts) will be discussed as related to OSHA and general ethics.

Prerequisites: (ARCT 1260 FOR LEVEL UG WITH MIN. GRADE OF D- AND ARCT 2160 FOR LEVEL UG WITH MIN. GRADE OF D-)

CHEE1000 Orientation And Computing For Chemical Engineers **Credit Hours: 3**

An introduction to the UT campus, campus resources, the College of Engineering and the Department of Chemical and Environmental Engineering. Primary emphasis is on engineering computing, data analysis and basic chemical engineering calculations.

CHEE1010 Professional Development **Credit Hours: 1**

Social protocol and ethics in industry. Resume writing and interview skills are presented in preparation for the Co-op experience. Review of resource materials for technical and non-technical individual learning. Oral and written presentation techniques are emphasized.

CHEE2010 Mass And Energy Balances **Credit Hours: 3**

Introduction to the principles and techniques used in chemical engineering. Basic concepts of mathematics, physics and chemistry are applied to solving problems involving stoichiometry, material balances and energy balances.

Prerequisites: CHEE 1000 FOR LEVEL UG WITH MIN. GRADE OF D- AND (MATH 1850 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY) AND CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY))

CHEE2110 Process Fluid Mechanics **Credit Hours: 3**

A comprehensive introduction to process fluid mechanics. Topics include: hydrostatics, characteristics of laminar and turbulent flow, mechanical energy balance, flow through packed beds and fluidization of solids, design of pumping systems and piping networks and metering of fluids.

Prerequisites: CHEE 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEE2230 Chemical Engineering Thermodynamics I **Credit Hours: 3**

The principles of thermodynamics and their application to chemical engineering. Topics include states and properties of matter, the first and second law of thermodynamics and thermo-chemical effects.

Prerequisites: CHEE 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEE2330 Chemical Engineering Thermodynamics II **Credit Hours: 3**

Topics include properties of fluid mixtures, phase equilibria, chemical equilibria, power generation and refrigeration processes.

Prerequisites: CHEE 2230 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEE2980 Special Topics In Chemical Engineering **Credit Hours: 1-4**

Special topics of interest to chemical engineers - lower division.

CHEE2990 Independent Studies In Chemical Engineering **Credit Hours: 1-4**

Independent studies in chemical engineering - lower division. Selected subjects in chemical engineering of special interest to the professor and the student.

CHEE3030 Separation Processes **Credit Hours: 3**

An introduction to equilibrium-based separation processes. Topics include distillation, extraction, leaching, drying and membrane separations. Preliminary equipment design calculations.

Prerequisites: CHEE 2330 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEE3110 Process Heat Transfer **Credit Hours: 2**

Fundamental equations of heat transfer. Fourier's law. Steady and unsteady thermal conduction. Heat transfer coefficients. Heat exchangers. Condensation and boiling. Forced and natural convection. Radiation, Kirchoff's law and view factors.

Prerequisites: CHEE 2110 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY) AND CHEE 2230 FOR LEVEL UG WITH MIN. GRADE OF D-

Corequisites: CHEE2110

CHEE3120 Mass Transfer **Credit Hours: 3**

Mass transfer and its application in chemical engineering separations. Diffusivity, mass transfer coefficients and Fick's Law. Applications in continuous and stagewise processes, including absorption, extraction and distillation.

Prerequisites: (CHEE 2110 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEE 3030 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY))

CHEE3300 Reactor Engineering And Design **Credit Hours: 3**

Fundamentals of chemical reaction engineering. Rate laws, kinetics and mechanisms of homogeneous and heterogeneous reactions. Analysis of reaction rate data. Design of industrial reactors.

Prerequisites: CHEE 2230 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEE3400 Process Dynamics And Control **Credit Hours: 3**

An introduction to designing control systems for chemical engineering processes. Process stability and controller design and selection. Application of LaPlace transforms, frequency response techniques and simulation software for open-loop and closed-loop analysis.

Prerequisites: (CHEE 3300 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-) AND CHEE 2110 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEE3940 Co-Op Work Experience **Credit Hours: 1**

Approved co-op work experience. Course may be repeated.

Prerequisites: CHEE 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEE3950 Co-Op Experience **Credit Hours: 1**

Approved co-op work experience beyond third required co-op experience. Course may be repeated.

Prerequisites: CHEE 3940 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEE4100 Environmental Chemo-Dynamics **Credit Hours: 3**

A study of the transport and fate of chemicals in the environment. This course makes use of the principles of thermodynamics, material balances and transport concepts to concentrate on the mechanisms and rates of movement of chemicals in natural environments.

Prerequisites: (CHEE 3110 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEE 3120 FOR LEVEL UG WITH MIN. GRADE OF D-)

CHEE4110 Pollution Prevention **Credit Hours: 3**

Legal aspects of pollution prevention. Process integration. Pinch analysis. Intelligent process design and control. Mass exchange networks. Environmentally conscious selection of raw materials.

CHEE4150 Environmental Reaction Engineering **Credit Hours: 3**

The study of chemical reaction engineering as applied to environmental systems. Engineering reactor design considerations for environmental applications are covered.

CHEE4160 Industrial Waste Treatment **Credit Hours: 3**

Discussion of and solution to the environmental problems of the chemical industry. Equal periods of time will be devoted to water, air and solid and hazardous waste control.

CHEE4180 Hazardous Material Spills **Credit Hours: 3**

All aspects of oil and hazardous material spills. Causes of spills, safe responses to them, mitigation of spills, impact, cleanup, prevention, disposal of residues, transportation of chemicals. Air pollution problems from volatile chemicals. Safety laws.

Prerequisites: (CHEE 3110 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEE 3120 FOR LEVEL UG WITH MIN. GRADE OF D-)

CHEE4270 Estimation Of Physical Properties **Credit Hours: 3**

Estimation of Physical Properties, especially thermodynamic properties of gases and liquids.

Prerequisites: CHEE 2330 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEE4410 New Separations **Credit Hours: 3**

Introduction to and analysis of new separation techniques relevant to downstream processing of bioreactor products. Topics include new extraction and adsorption methods, chromatography techniques, ultrafiltration and electrokinetic methods such as electrophoresis and isoelectric focusing.

Prerequisites: (CHEE 3110 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEE 3120 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEE 3030 FOR LEVEL UG WITH MIN. GRADE OF D-)

CHEE4480 Membrane Science And Engineering **Credit Hours: 3**

An introduction to formulating and solving engineering problems involving the use of both dense and porous membranes for gas separation, pervaporation, dialysis, filtration and reverse osmosis applications.

CHEE4500 Chemical Engineering Laboratory I **Credit Hours: 2**

An experimental study of the design and performance of selected chemical engineering processes and equipment. Analysis of data, design of experiments and laboratory reports are emphasized.

Prerequisites: (CHEE 2110 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEE 3030 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEE 3110 FOR LEVEL UG WITH MIN. GRADE OF D-)

CHEE4510 Transport Phenomena **Credit Hours: 3**

An introductory analysis of the equations of change governing the phenomena of momentum, heat and mass transfer in single and multicomponent systems from a continuum viewpoint. The analogies between the three phenomena will be stressed. The ability to obtain a realistic mathematical model of chemical engineering processes will be developed.

Prerequisites: (CHEE 3110 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEE 3120 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-)

CHEE4520 Chemical Process Economics And Design **Credit Hours: 3**

Chemical equipment and process design. Introduction to simulation and flow-sheeting techniques and software. Topics include plant safety and pollution prevention, market analysis, cost estimating, decision making and cash flow analysis.

Prerequisites: (CHEE 2110 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEE 2330 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEE 3030 FOR LEVEL UG WITH MIN. GRADE OF D-) AND CHEE 3110 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEE4540 Chemical Process Simulation And Design **Credit Hours: 3**

Application of chemical engineering fundamentals and the use of process simulators in the synthesis of chemical processes. Use of cost factors and environmental considerations in process decisions. The solution of a comprehensive case study and the preparation of a formal report are required.

Prerequisites: CHEE 3120 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEE 4520 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEE 3300 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEE4550 Chemical Engineering Laboratory II **Credit Hours: 2**

An experimental study of the design and performance of selected chemical engineering process equipment, focusing on heat and mass transfer and process control. Design of experiments, analysis of data and presentation techniques are emphasized.

Prerequisites: (CHEE 3300 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY) AND CHEE 3120 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY) AND CHEE 3400 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY) AND CHEE 4500 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY))

CHEE4600 Fractals In Engineering **Credit Hours: 3**

The course will help students develop a working knowledge of the mathematical tools developed to describe seemingly random or chaotic behavior and the ability to apply these tools to problems of interest to engineers.

CHEE4800 Polymer Science And Engineering **Credit Hours: 3**

Polymerization processes, characterization, structure and properties of polymers, processing and engineering applications of the major polymer types.

CHEE4820 Colloid And Surface Phenomena **Credit Hours: 3**

Introduction to the physico-chemical principles and engineering of dispersions, emulsions and colloids relevant to chemical/biochemical, pharmaceutical and environmental areas. Topics include surface tension, adsorption, charge effects at interfaces, colloid stability and emulsions.

Prerequisites: MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 3820 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEE4850 Properties Of Polymer Systems **Credit Hours: 3**

A quantitative treatment of the mechanical behavior of polymer systems emphasizing rubber elasticity, linear viscoelasticity, yield and failure, non-Newtonian flow of polymer melts, and viscometry. Application of stress-strain relationships to processing and design are considered.

Prerequisites: (CHEE 2330 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEE 2110 FOR LEVEL UG WITH MIN. GRADE OF D-)

CHEE4960 Senior Honors Thesis **Credit Hours: 3**

Independent research under the guidance of a faculty member, requiring an oral report and a written thesis upon completion of work.

CHEE4980 Special Topics In Chemical Engineering **Credit Hours: 1-4**

Special topics of interest to chemical engineers - upper division.

CHEE4990 Independent Studies In Chemical Engineering **Credit Hours: 1-4**

Independent studies in chemical engineering - upper division.

CHEE5100 Environmental Chemo-Dynamics **Credit Hours: 3**

A study of the transport and fate of chemicals in the environment. This course makes use of the principles of thermodynamics, material balances and transport concepts to concentrate on the mechanisms and rates of movement of chemicals in natural environments.

CHEE5150 Environmental Reaction Engineering **Credit Hours: 3**

The study of chemical reaction engineering as applied to environmental systems. Engineering reactor design considerations for environmental applications are covered.

CHEE5160 Industrial Waste Treatment **Credit Hours: 3**

Discussion of and solution to the environmental problems of the chemical industry. Equal periods of time will be devoted to water, air and solid and hazardous waste control.

CHEE5180 Hazardous Material Spills **Credit Hours: 3**

All aspects of oil and hazardous material spills. Causes of spills, safe responses to them, mitigation of spills, impact, cleanup, prevention, disposal of residues, transportation of chemicals. Air pollution problems from volatile chemicals. Safety laws.

CHEE5270 Estimation Of Physical Properties **Credit Hours: 3**

Estimation of Physical Properties, especially thermodynamic and transport properties of gases and liquids.

CHEE5410 New Separations **Credit Hours: 3**

Introduction to and analysis of new separation techniques relevant to downstream processing of bioreactor products. Topics include new extraction and adsorption methods, chromatography techniques, ultrafiltration and electrokinetic methods such as electrophoresis and isoelectric focusing.

CHEE5480 Membrane Science And Engineering **Credit Hours: 3**

Students learn how to formulate and solve engineering problems involving the use of both dense and porous membranes for gas separation, pervaporation, dialysis, filtration and reverse osmosis applications.

CHEE5600 Fractals In Engineering **Credit Hours: 3**

The course will help students develop a working knowledge of the mathematical tools developed to describe seemingly random or chaotic behavior and the ability to apply these tools to problems of interest to engineers.

CHEE5800 Polymer Science And Engineering **Credit Hours: 3**

Polymerization processes, characterization, structure and properties of polymers, processing and engineering applications of the major polymer types.

CHEE5820 Colloid And Surface Phenomena **Credit Hours: 3**

Introduction to the physico-chemical principles and engineering of dispersions, emulsions and colloids relevant to chemical/biochemical, pharmaceutical and environmental areas. Topics include surface tension, adsorption, charge effects at interfaces, colloid stability and emulsions.

CHEE5850 Properties Of Polymer Systems **Credit Hours: 3**

A quantitative treatment of the mechanical behavior of polymer systems emphasizing rubber elasticity, linear viscoelasticity, yield and failure, non-Newtonian flow of polymer melts, and viscometry. Application of stress-strain relationships to processing and design are considered.

CHEE5930 Seminars In Chemical Engineering **Credit Hours: 1**

Research topics of current interest to chemical engineers will be presented by internal and external speakers in a research seminar format.

CHEE6100 Engineering Materials Science And Applications **Credit Hours: 3**

Study of engineering materials science and applications relevant for industry and manufacturing. Course content emphasizes the relation of structure and processing to design and applications of metallic, semiconductor, ceramic polymeric and composite materials.

CHEE6500 Advanced Chemical Reaction Engineering **Credit Hours: 3**

Analysis of kinetic, diffusive and flow factors on chemical reactor performance. Topics include batch, plug flow and CSTR reactors, empirical rate expressions, residence time distributions, catalytic reactors, stability and optimization.

CHEE6510 Advanced Chemical Engineering Thermodynamics **Credit Hours: 3**

Advanced treatment of fundamental principles of thermodynamics, especially as related to calculation of phase equilibria. Topics include intermolecular potentials, excess functions, theories of solutions, high-pressure equilibria and introductory statistical mechanics.

CHEE6550 Transport Phenomena I **Credit Hours: 3**

Students learn how to formulate and solve engineering problems involving momentum transfer from the microscopic view. Topics include vector/tensor analysis, approximation methods, computational solutions and non-Newtonian fluid phenomena.

CHEE6560 Transport Phenomena II **Credit Hours: 3**

Students learn how to formulate and solve engineering problems involving simultaneous momentum, heat and mass transfer from the microscopic view. Topics include conduction, radiation, diffusion, forced convection and free convection.

Prerequisites: CHEE 6550 FOR LEVEL GR WITH MIN. GRADE OF D-

CHEE6600 Applied Tensor Analysis **Credit Hours: 3**

The study of tensor algebra and calculus. Use of covariant, contravariant and mixed tensor algebra and calculus. Tests for tensor character. Christoffel symbols and derivative operations in curvilinear coordinates.

CHEE6700 Management Of Projects And Technological Innovation **Credit Hours: 3**

Theory and practice of management technology applied to project management, engineering project development and major technological innovation to address new business needs and opportunities. Topics covered include schedule, budgets, performance, technology assessment and management of time and costs.

CHEE6790 Information Accelerated Radical Innovation **Credit Hours: 3**

Study of new Accelerated Radical Innovation discipline targeting 2X-10X improvement in innovation effectiveness, measured by reduced risk, time and cost. Assessment and modeling to speed development, transfer and profitable commercialization.

CHEE6810 Physical Chemistry Of Polymers **Credit Hours: 3**

The physical and chemical principles of polymer systems. Topics covered include: configuration and conformation, thermodynamics and statistical mechanics of polymer solutions, hydrodynamics, scattering, rubber elasticity, birefringence, glass phenomena, crystallization thermodynamics and kinetics.

Prerequisites: CHEE 5800 FOR LEVEL GR WITH MIN. GRADE OF D-

CHEE6830 Transport In Plastics **Credit Hours: 3**

A study of the transport properties of polymers including permeation of gases, vapors and liquids and movement of electrical charge. Topics include mathematics of diffusion, polymer-per meant interactions, effects of polymer structure, packaging and dielectric properties and electrical conduction of polymers.

CHEE6840 Polymer Processing **Credit Hours: 3**

A study of the concepts and principles of basic thermoplastic processing methods with the emphasis of their application to selected topics of current interest in the industry.

CHEE6860 Polymer Laboratory Methods **Credit Hours: 3**

Characterization of polymers by physical testing (tensile, creep and rheological), physicochemical methods (viscosity, gel permeation chromatography), thermal analysis, spectroscopy, light microscopy, permeation, density, light scattering and processing.

CHEE6870 Advanced Engineering Materials **Credit Hours: 3**

An advanced course on the structure and bonding, theory, properties and materials processing of metallic, semiconductor, ceramic, macromolecular, composite and biological materials, emphasizing the relations between composition and structure, crystal growth and processing kinetics and properties and applications.

CHEE6880 Thermodynamics Of Semiconductor And Biological Materials **Credit Hours: 3**

Application of chemical thermodynamics and phase equilibria in materials science. Basic principles of chemical thermodynamics will be introduced and then applied to metal alloy and semiconductor systems and to biological systems.

Prerequisites: CHEE 6870 FOR LEVEL GR WITH MIN. GRADE OF D-

CHEE6890 Advanced Characterization Of Engineering Materials **Credit Hours: 3**

An advanced course for students interested in multidisciplinary engineering materials science research, of the concepts, theory and techniques for advanced characterization of crystalline, amorphous and macromolecular materials at various length scales by optical, magnetic, electrical, X-ray microscopy, chemical, physical and probe techniques.

Prerequisites: CHEE 6870 FOR LEVEL GR WITH MIN. GRADE OF D-

CHEE6960 Master's Graduate Research And Thesis **Credit Hours: 1-15**

Graduate research towards the completion of a Master's Degree.

CHEE6980 Special Topics In Chemical Engineering **Credit Hours: 1-6**

Selected topics from current chemical engineering research with intensive investigation into the recent literature in an area of mutual interest to the student and the instructor.

CHEE7100 Environmental Chemodynamics **Credit Hours: 3**

CHEE7150 Environmental Reaction Engr **Credit Hours: 3**

CHEE7160 Industrial Waste Treatment **Credit Hours: 3**

CHEE7180 Hazardous Material Spills **Credit Hours: 3**

CHEE7270 Estimation-Physical Properties **Credit Hours: 3**

CHEE7410 New Separations **Credit Hours: 3**

CHEE7480 Membrane Science and Engnrng **Credit Hours: 3**

CHEE7600 Fractals in Engineering **Credit Hours: 3**

CHEE7800 Polymer Science and Engnrng **Credit Hours: 3**

CHEE7820 Colloid and Surface Phenomena **Credit Hours: 3**

CHEE7850 Properties of Polymer Systems **Credit Hours: 3**

CHEE7930 Seminar in Chemical Engineering **Credit Hours: 1**

CHEE8500 Advanced Chemical Reaction Engineering **Credit Hours: 3**

Analysis of kinetic, diffusive and flow factors on chemical reactor performance. Topics include batch, plug flow and CSTR reactors, empirical rate expressions, residence time distributions, catalytic reactors, stability and optimization.

CHEE8510 Advanced Chemical Engineering Thermodynamics **Credit Hours: 3**

Advanced treatment of fundamental principles of thermodynamics, especially as related to calculation of phase equilibria. Topics include intermolecular potentials, excess functions, theories of solutions, high-pressure equilibria and introductory statistical mechanics.

CHEE8550 Transport Phenomena I **Credit Hours: 3**

Students learn how to formulate and solve engineering problems involving momentum transfer from the microscopic view. Topics include vector/tensor analysis, approximation methods, computational solutions and non-Newtonian fluid phenomena.

CHEE8560 Transport Phenomena II **Credit Hours: 3**

Students learn how to formulate and solve engineering problems involving simultaneous momentum, heat and mass transfer from the microscopic view. Topics include conduction, radiation, diffusion, forced convection and free convection.

Prerequisites: CHEE 8550 FOR LEVEL GR WITH MIN. GRADE OF D-

CHEE8600 Applied Tensor Analysis **Credit Hours: 3**

The study of tensor algebra and calculus. Use of covariant, contravariant and mixed tensor algebra and calculus. Tests for tensor character. Christoffel symbols and derivative operations in curvilinear coordinates.

CHEE8810 Physical Chemistry Of Polymers **Credit Hours: 3**

The physical and chemical principles of polymer systems. Topics covered include: configuration and conformation, thermodynamics and statistical mechanics of polymer solutions, hydrodynamics, scattering, rubber elasticity, birefringence, glass phenomena, crystallization thermodynamics and kinetics.

Prerequisites: CHEE 7800 FOR LEVEL GR WITH MIN. GRADE OF D-

CHEE8830 Transport In Plastics **Credit Hours: 3**

A study of the transport properties of polymers including permeation of gases, vapors and liquids and movement of electrical charge. Topics include mathematics of diffusion, polymer-per meant interactions, effects of polymer structure, packaging and dielectric properties and electrical conduction of polymers.

CHEE8840 Polymer Processing **Credit Hours: 3**

A study of the concepts and principles of basic thermoplastic processing methods with the emphasis of their application to selected topics of current interest in the industry.

CHEE8860 Polymer Laboratory Methods **Credit Hours: 3**

Characterization of polymers by physical testing (tensile, creep and rheological), physicochemical methods (viscosity, gel permeation chromatography), thermal analysis, spectroscopy, light microscopy, permeation, density, light scattering and processing.

CHEE8960 Doctoral Graduate Research And Dissertation **Credit Hours: 1-15**

Graduate research towards the completion of a Doctoral Degree.

CHEE8980 Special Topics In Chemical Engineering **Credit Hours: 1-6**

Selected topics from current chemical engineering research with intensive investigation into the recent literature in an area of mutual interest to the student and the instructor.

CHEM1090 Elementary Chemistry **Credit Hours: 3**

For students who major in science, engineering or other fields which require chemistry as a prerequisite subject who have not had a previous course in chemistry and whose preparation is not sufficient to begin General Chemistry (CHEM 1230) or Chemistry for Health Sciences (CHEM 1120).

Prerequisites: MATH 1320 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1340 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1750 FOR LEVEL UG WITH MIN. GRADE OF D- OR A02 FOR MIN. SCORE OF 19 OR S02 FOR MIN. SCORE OF 460 OR MTCA FOR MIN. SCORE OF 08 OR MTEA FOR MIN. SCORE OF 10

CHEM1100 Chemistry And Society **Credit Hours: 3**

An introduction to basic chemistry and a survey of the impact that chemistry has on society. Topics include: power, energy, and fuels; water and pollution; soaps and detergents; nutrition; poisons and toxins; plastics and polymers; drugs.

CHEM1120 Chemistry For Health Sciences **Credit Hours: 4**

The study of chemistry for students majoring in nursing and other health-related fields. This course includes general, organic and biochemical topics in condensed form. The impact of chemistry in health fields will be emphasized.

Prerequisites: CHEM 1090 FOR LEVEL UG WITH MIN. GRADE OF D- OR CHPL FOR MIN. SCORE OF 19

CHEM1150 Chemistry And Society Laboratory **Credit Hours: 1**

Laboratory introduction to the concepts of chemistry to accompany Chemistry 1100. Demonstrations by laboratory experiments of lessons developed in the accompanying lecture course.

CHEM1200 Problem Solving In General Chemistry **Credit Hours: 1**

Problem solving and skill development for students enrolled in CHEM 1230 who obtained a satisfactory score on the chemistry placement test but need additional assistance in selected topics. May be taken only as P/NC.

Prerequisites: CHEM 1090 FOR LEVEL UG WITH MIN. GRADE OF D- OR CHPL FOR MIN. SCORE OF 18

CHEM1210 Chemistry For The Life Sciences I **Credit Hours: 3**

A series of elementary courses oriented toward the life processes in plants and animals. Recommended for students in the allied health professions.

CHEM1220 Chemistry For The Life Sciences II **Credit Hours: 3**

A series of elementary courses oriented toward the life processes in plants and animals. Recommended for students in the allied health professions.

Prerequisites: CHEM 1210 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM1230 General Chemistry I **Credit Hours: 4**

An introduction to atomic structure, chemical bonding, kinetic-molecular theory, energy relationships and structural concepts. This sequence is for students who major in science, engineering or other fields which require chemistry as a prerequisite subject. Three hours lecture and one hour discussion per week.

Prerequisites: CHEM 1090 FOR LEVEL UG WITH MIN. GRADE OF D- OR CHPL FOR MIN. SCORE OF 17

CHEM1240 General Chemistry II **Credit Hours: 4**

An introduction to solutions, equilibrium, acid-base theory, energy relationships and structural concepts. This sequence is for students who major in science, engineering or other fields which require chemistry as a prerequisite subject. Three hours lecture and one hour discussion per week.

Prerequisites: CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM1260 Chemistry For The Health Sciences Laboratory **Credit Hours: 1**

Beginning laboratories directed toward a chemical study of the life processes in plants and animals. Approved chemistry safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

CHEM1280 General Chemistry Lab I **Credit Hours: 1**

Experiments over topics covered in CHEM 1230 lectures. Approved chemistry safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

Prerequisites: CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

CHEM1290 General Chemistry Lab II **Credit Hours: 1**

Experiments over topics covered in CHEM 1240 lectures. Approved chemistry safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

Prerequisites: CHEM 1280 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM1910 Survey Of Research **Credit Hours: 1**

Survey of current research areas at the frontiers of chemistry, including topics that cross the boundaries with other disciplines. May be taken only as P/NC.

CHEM2410 Organic Chemistry I **Credit Hours: 3**

Study of structure and reactions of organic compounds. Three hours lecture per week.

Prerequisites: CHEM 1240 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM2420 Organic Chemistry II **Credit Hours: 3**

Study of structure and reactions of organic compounds. Three hours lecture per week.

Prerequisites: CHEM 2410 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM2430 Recitation For Organic Chemistry I **Credit Hours: 1**

Optional recitation sections that discuss concepts and solve practice questions in CHEM2410.

Prerequisites: CHEM 1240 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM2440 Recitation For Organic Chemistry II **Credit Hours: 1**

Optional recitation sections that discuss concepts and solve practice questions in CHEM2420.

Prerequisites: CHEM 2410 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM2460 Organic Chemistry Laboratory I **Credit Hours: 1**

Practice of organic laboratory techniques. Four hours of laboratory per week. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

Prerequisites: (CHEM 1240 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1290 FOR LEVEL UG WITH MIN. GRADE OF D-)

CHEM2470 Organic Chemistry Laboratory II **Credit Hours: 1**

Practice of organic laboratory techniques. Four hours of laboratory per week. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

Prerequisites: CHEM 2460 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM2480 Organic Separations And Elementary Synthesis **Credit Hours: 2**

Introduction to theory and laboratory practice in modern methods of physical separation techniques, synthesis and microscale manipulations. Approved chemistry safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

Prerequisites: CHEM 1290 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM2490 Synthesis And Identification Of Organic Compounds — Credit Hours: 2

Application of synthetic methods to elementary organic synthesis with special emphasis on instrumental approaches to problem solving in organic chemistry. Approved chemistry safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

Prerequisites: (CHEM 2410 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 2480 FOR LEVEL UG WITH MIN. GRADE OF D-)

CHEM2500 Instrumental Methods For Organic Chemistry — Credit Hours: 2

A bridge course for students wishing to major in chemistry at the B.S. level after taking CHEM 2460 or CHEM 2460 and 2470. The application of instrumental methods to organic synthesis. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

Prerequisites: (CHEM 2410 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 2460 FOR LEVEL UG WITH MIN. GRADE OF D-)

CHEM2910 Undergraduate Research I — Credit Hours: 1-3

An introduction to research under the guidance of a faculty member. May be repeated. A maximum accumulated credit of 4 hours in 2910 and total of 10 hours in 2910, 3910, 4910 may be applied toward a degree. May be taken only as P/NC.

CHEM2920 Readings In Chemistry — Credit Hours: 1-2

Readings from the literature of chemistry. May be taken only as P/NC.

CHEM3310 Analytical Chemistry **Credit Hours: 2**

Theory and applications of chemical equilibria to gravimetric, volumetric and separation techniques. Emphasis on the quantitative aspects of analytical chemistry. Two hours lecture per week.

Prerequisites: CHEM 1240 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM3360 Analytical Chemistry Laboratory **Credit Hours: 2**

Practice of quantitative analytical methods of analysis. Six hours laboratory per week. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

Prerequisites: (CHEM 3310 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1290 FOR LEVEL UG WITH MIN. GRADE OF D-)

CHEM3510 Biochemistry I **Credit Hours: 3**

Chemical structure and molecular transformation in biological systems.

Prerequisites: CHEM 2420 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM3520 Biochemistry II **Credit Hours: 3**

Chemical structure and molecular transformation in biological systems.

Prerequisites: CHEM 3510 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM3560 Biochemistry Laboratory **Credit Hours: 2**

Practice of biochemistry laboratory techniques. Four hours of laboratory per week.

Prerequisites: CHEM 3510 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM3610 Inorganic Chemistry I **Credit Hours: 3**

The application of modern theories to the elements and their inorganic compounds. Physical chemical principles are used throughout. Prerequisite: CHEM 2420 or CHEE 2230 and 2330

Prerequisites: CHEM 2420 FOR LEVEL UG WITH MIN. GRADE OF D- OR CHEE 2230 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEE 2330 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM3710 Physical Chemistry For The Biosciences I **Credit Hours: 3**

Physical and mathematical laws applied to chemistry with examples from biologically important processes. No credit given if Chemistry 3730-3740 are taken.

Prerequisites: (MATH 1860 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2070 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2080 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (MATH 1860 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2130 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (MATH 1860 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D-)

CHEM3712 Recitation for Chem 3710 **Credit Hours: 1**

Optional recitation section that discusses concepts and solves practice questions for CHEM 3710. Must be taken simultaneously with CHEM 3710. Not for major/minor credit.

Prerequisites: CHEM 2420 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 3710 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

CHEM3720 Physical Chemistry For The Biosciences II **Credit Hours: 3**

Physical and mathematical laws applied to chemistry with examples from biologically important processes. No credit given if Chemistry 3730-3740 are taken.

Prerequisites: CHEM 3710 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM3722 Recitation For Chem 3720 **Credit Hours: 1**

Optional recitation section that discusses concepts and solves practice questions for CHEM 3720. Must be taken simultaneously with CHEM 3720. Not for major/minor credit.

Prerequisites: CHEM 3710 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 3720 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

CHEM3730 Physical Chemistry I **Credit Hours: 3**

Fundamental theories and basic laws of chemistry with emphasis on their mathematical development. Thermodynamics, equilibrium, electrochemistry, classical chemical kinetics.

CHEM3732 Recitation for Chem 3730 **Credit Hours: 1**

Optional recitation section that discusses concepts and solves practice questions for CHEM 3730. Must be taken simultaneously with CHEM 3730, Physical Chemistry 1. Not for major/minor credit.

Prerequisites: CHEM 2420 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 3730 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

CHEM3740 Physical Chemistry II **Credit Hours: 3**

Fundamental theories and basic laws of chemistry with emphasis on their mathematical development. Structure of matter, statistical and quantum mechanics, reaction dynamics, spectroscopy.

Prerequisites: CHEM 3730 FOR LEVEL UG WITH MIN. GRADE OF D- OR CHEE 2230 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEE 2330 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM3742 Recitation For Chem 3740 **Credit Hours: 1**

Optional recitation section that discusses concepts and solves practice questions for CHEM 3740. Must be taken simultaneously with CHEM 3740, Physical Chemistry 2. Not for major/minor credit.

Prerequisites: CHEM 3730 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 3740 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

CHEM3810 CHEMISTRY OF SUSTAINABLE ENERGY RESOURCES **Credit Hours: 3**

Application of the principles of chemistry to understand the issues related to implementing and optimizing a sustainable supply of energy.

Prerequisites: CHEM 1240 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1290 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 3400 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM3860 Advanced Laboratory I **Credit Hours: 2**

Laboratory experiments and techniques relating to subjects developed in CHEM 3710, 3730, or 4570. Three-hour laboratory and one-hour discussion per week, see your advisor for proper section number. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting. Prerequisite: CHEM 2420 and 2470 or 2490; Corequisite: CHEM 3710 or 3730 or 4570

Prerequisites: (CHEM 2420 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 2470 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (CHEM 2490 FOR LEVEL UG WITH MIN. GRADE OF D- OR CHEM 3710 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)) OR CHEM 3730 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY) OR CHEM 4570 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

CHEM3870 Advanced Laboratory II **Credit Hours: 2**

Laboratory experiments and techniques relating to subjects developed in 3710/3720, 3730/3740. Three hours laboratory and one hour discussion per week. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting.

Prerequisites: CHEM 3860 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM3910 Undergraduate Research II **Credit Hours: 1-3**

Research under the guidance of a faculty member. May be repeated. A maximum accumulated credit of 10 hours in CHEM 2910, 3910 and 4910 may be applied toward a degree. A written report is required. May be taken only as P/NC. Prerequisite: GPA (overall and in chemistry courses) above 2.5 and permission of department Corequisite: CHEM 2420

Prerequisites: CHEM 2420 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

CHEM3920 Readings In Chemistry II **Credit Hours: 1-2**

Readings from the literature of chemistry. May be taken only as P/NC.

CHEM4300 Instrumental Analysis **Credit Hours: 2**

An introduction to modern chemical instrumentation and applications to chemical analysis. Topics include electrical, magnetic, nuclear and spectroscopic instrumentation. Prerequisite: CHEM 3310 and 3360; Corequisite: CHEM 3710 or 3730 or 4570

Prerequisites: (CHEM 3310 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 3360 FOR LEVEL UG WITH MIN. GRADE OF D-) AND CHEM 3710 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY) OR CHEM 3730 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY) OR CHEM 4570 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

CHEM4500 Advanced Biological Chemistry **Credit Hours: 4**

The chemistry of cellular and molecular transformation in biochemical systems.

Prerequisites: CHEM 3520 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM4510 Protein Chemistry **Credit Hours: 4**

A detailed analysis of the structure and function of proteins.

Prerequisites: CHEM 3510 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM4520 Enzymology **Credit Hours: 4**

The principles of chemical catalysis applied to molecular enzymology.

Prerequisites: CHEM 3510 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM4530 Nucleic Acid Chemistry **Credit Hours: 4**

The structure and function of RNA and DNA.

Prerequisites: CHEM 3510 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM4570 Biophysical Chemistry **Credit Hours: 4**

Principles and applications of physical chemistry as applied to biological macromolecules (i.e., proteins and nucleic acids in solution), including thermodynamics, kinetics and spectroscopy of macromolecular interactions.

Prerequisites: PHYS 2080 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 3520 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM4580 Bioinorganic Chemistry **Credit Hours: 4**

This course surveys biologically important metals and metal-ligand complexes, and examines the role of metal ions in proteins, metal ion transport and regulation, and metals in medicine.

Prerequisites: CHEM 3520 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM4620 Inorganic Chemistry II **Credit Hours: 3**

The application of modern theories to the elements and their inorganic compounds-advanced topics. Physical chemical principles are used throughout.

Prerequisites: CHEM 3610 FOR LEVEL UG WITH MIN. GRADE OF D-

CHEM4880 Advanced Laboratory III **Credit Hours: 2**

Laboratory experiments and techniques relating to subjects developed in CHEM 4300. Six hours of laboratory per week. Approved chemical safety goggles meeting the American National Standard Z87.1-1968 must be worn by every student during every laboratory class meeting. Prerequisite: CHEM 3860; Corequisite: CHEM 4300

Prerequisites: CHEM 3860 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 4300 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

CHEM4910 Undergraduate Research III **Credit Hours: 1-3**

Thesis level research under the guidance of a faculty member. May be repeated. A minimum of three hours and an acceptable thesis required for credit toward the B.S. major. A maximum accumulated credit of 10 hours in CHEM 2910, 3910 and 4910 may be applied toward a degree. A written report is required. May be taken only as P/NC. Prerequisite: GPA (overall and in chemistry courses) above 2.5 and permission of department Corequisite: CHEM 3740 or 4570

Prerequisites: CHEM 3740 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY) OR CHEM 4570 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

CHEM4920 Readings In Chemistry III **Credit Hours: 1-2**

Readings from the literature of chemistry. May be taken only as P/NC.

CHEM4980 Special Topics In Chemistry **Credit Hours: 2-4**

An advanced course for chemistry majors in an important area of chemistry. Consult the undergraduate adviser for details. Course may be repeated for credit under different specialty numbers (topics).

Prerequisites: (CHEM 2420 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 3740 FOR LEVEL UG WITH MIN. GRADE OF D-)

CHEM5300 Principles Of Analytical Chemistry **Credit Hours: 1-4**

Tutorial in selected topics in analytical chemistry.

CHEM5400 Principles Of Organic Chemistry **Credit Hours: 1-4**

Tutorial in selected topics in organic chemistry. S/U grading only.

CHEM5500 Principles Of Biological Chemistry **Credit Hours: 1-4**

Tutorial in selected topics in biological chemistry.

CHEM5600 Principles Of Inorganic And Organometallic Chemistry **Credit Hours: 1-4**

Tutorial in selected topics in inorganic and organometallic chemistry. S/U grading only.

CHEM5700 Principles Of Physical Chemistry **Credit Hours: 1-4**

Tutorial in selected topics in physical chemistry. S/U grading only.

CHEM5800 Principles Of Materials Chemistry **Credit Hours: 1-4**

Tutorial in selected topics in materials chemistry.

CHEM6300 Advanced Analytical Chemistry **Credit Hours: 4**

An overview of new techniques in analytical chemistry. Topics include sample preparation and sampling, spectroscopic, separation, electrochemical, surface characterization and thermal methods. Prerequisite: Permission of department.

CHEM6310 Separation Methods **Credit Hours: 3**

[3 hours] The theory, design and application methods. Topics include extraction techniques, gas, liquid, and supercritical fluid chromatography, affinity and chiral separation, and capillary electrophoresis.

CHEM6320 Electrochemistry **Credit Hours: 4**

A fundamental study of electrochemical concepts, methods, instrumentation and applications. Prerequisite: Permission of department.

CHEM6330 Spectroscopic Methods And Analysis Of Spectra **Credit Hours: 4**

A comprehensive study of theory and instrumentation. Applications of spectroscopic methods including spectral interpretation. Topics include a study of absorption, emission, Raman, NMR, ESR, mass spectrometry, and related subjects. Important methodology and strategy in organic synthesis including disconnection and retrosynthetic analysis.

CHEM6350 Separation Methods Laboratory **Credit Hours: 1**

Experiments covering topics discussed in CHEM 6310 lectures. Five hours of laboratory per week. Approved chemical safety goggles meeting the American National Standard 287.1-1968 must be worn by every student during every laboratory class meeting.

Corequisites: CHEM6310

CHEM6400 Advanced Organic Chemistry **Credit Hours: 4**

Section 1 (2 hrs): Basic heterocyclic synthesis and methodology. Section 2 (2 hrs): Reducing reagents and new carbon-carbon bond forming processes. Section 3 (4 hrs): Material covered in Sections 1 and 2.

CHEM6410 Organic Synthesis **Credit Hours: 4**

Important methodology and strategy in organic synthesis including disconnection and retrosynthetic analysis.

CHEM6420 Topics in Modern Organic Chemistry **Credit Hours: 4**

Section 1 (2 hrs): Physical basis of organic chemistry. Section 2 (2 hrs): Molecular orbital theory, mechanistic chemistry and reactive intermediates. Section 3 (4 hrs): Material covered in Sections 1 and 2.

CHEM6430 Medicinal Chemistry **Credit Hours: 4**

Qualitative and quantitative aspects of the design of new therapeutic agents are discussed. Approaches to the design of drugs and new therapeutic modalities directed at enzymes, receptors, membrane transport proteins and nucleic acids will be examined.

CHEM6500 Advanced Biological Chemistry **Credit Hours: 4**

The chemistry of cellular and molecular transformations in biochemical systems. Molecular structure of proteins, nucleic acids and membranes. Metabolism and biosynthesis of carbohydrates, amino acids and lipids; gene regulation and replication.

CHEM6510 Protein Chemistry **Credit Hours: 4**

A detailed analysis of the structure and function of proteins. Current methodology for the analysis of structure, the basis for molecular associations and relationships between structure and biological function.

Prerequisites: CHEM 6500 FOR LEVEL GR WITH MIN. GRADE OF D-

CHEM6520 Enzymology **Credit Hours: 4**

Survey of current methods to study enzyme-catalyzed reactions, and application to examples from major enzyme, groups. Current topics in enzymology include abzymes and ribozymes, artificial enzymes, and enzymes, and enzyme engineering.

CHEM6530 Nucleic Acid Chemistry **Credit Hours: 4**

The structural and chemical properties of nucleic acids and the resulting biological consequences. Topics include: 3D structures, conformation, protein/nucleic acid interactions, physical properties and chemical reactions, mutagenesis, damage/repair, and reconbination.

Prerequisites: CHEM 6500 FOR LEVEL GR WITH MIN. GRADE OF D-

CHEM6540 Macromolecular Crystallography **Credit Hours: 2**

Fundamental theory and practical application of X-ray diffraction to macromolecular structure determination, including protein crystallization and manipulation, data collection and reduction, phase solution, electron density interpretation, structural refinement and validation.

Prerequisites: CHEM 6850 FOR LEVEL GR WITH MIN. GRADE OF D-

CHEM6550 Practical Protein Crystallography **Credit Hours: 2**

Hands-on training in protein crystallography. Laboratory projects include: protein crystallization, crystal manipulation and mounting, X-ray diffraction data collection, data reduction, structure solution, electron density interpretation, refinement and cultural validation.

Prerequisites: CHEM 6850 FOR LEVEL GR WITH MIN. GRADE OF D-

CHEM6570 Biophysical Chemistry **Credit Hours: 4**

Principles and applications of physical chemistry as applied to biological macromolecules (i.e., proteins and nucleic acids in solution), including thermodynamics, kinetics and spectroscopy of macromolecular interactions.

CHEM6580 Bioinorganic Chemistry **Credit Hours: 4**

This course surveys biologically important metals and metal-ligand complexes, and examines the role of metal ions in proteins, metal ion transport and regulation, and metals in medicine

CHEM6600 Physical Inorganic Chemistry **Credit Hours: 4**

[4 hours] Symmetry, bonding theories, magnetism, and spectroscopic characterization of inorganic compounds are described. Coverage of spectroscopic techniques such as NMR, EPR, UV/VIS, IR, AND Mossbauer focus on applications to inorganic systems. Prerequisite: Permission of Department.

CHEM6610 Chemistry of Transition and Post-Transition Elements **Credit Hours: 4**

The inorganic and organometallic chemistry of the transition metals, lanthanides and actinides is described. Synthesis, structure, bonding, reactivity are considered. Applications in catalysis, bioinorganic, and materials chlemistry are discussed. Prerequisite: Permission of Department.

CHEM6620 Chemistry of the Main Group Elements **Credit Hours: 4**

The inorganic and organomethallic chemistry of main group elements is described. Synthesis, structure, bonding, and reactivity are considered. The use of main group reagents in synthesis, catalysis, and materials chemistry are discussed.

CHEM6700 Advanced Physical Chemistry **Credit Hours: 4**

[4 hours] Chemical systems and processes in the context of classical equilibrium thermodynamics. It introduces non-equilibrium and statistical themodynamics to elucidate chemical changes and the connection between molecular and macroscopie system properties. Prerequisite: Permission of Department.

CHEM6710 Quantum_Chemistry and Spectroscopy **Credit Hours: 4**

Fundamental principles of quantum mechanics and their application to model systems, atoms and molecules; Introduction to molecular spectroscopy. Prerequisite: Permission of Department.

CHEM6720 Modern Topics in Physical Chemistry **Credit Hours: 4**

[4 hours] Advanced topics of current interest is physical chemistry. Examples of topics include nanomaterials science, spectroscopic techniques, or molecular modeling. Prerequisite: Permission of department.

CHEM6800 Advanced Materials Chemistry **Credit Hours: 4**

[4 hours] Introduction to important classes of solids, including conductors, magnetic materials, ferroelectrics, glasses, microporous materials, organic solids. Traditional and novel synthic approaches, structure/property relationships, and characterization methods specific to solids. Prerequisite: Permission of Department.

CHEM6810 Materials Science I **Credit Hours: 4**

A generic materials science approach to the study of crystalline structure and defects (point, line and planar) in crystalline materials. The mechanisms and kinetics of diffusion in the condensed state.

CHEM6820 Materials Science II **Credit Hours: 4**

A materials science approach to the thermodynamics of condensed state equilibria. Phase transformation kinetics.

CHEM6850 X-Ray Crystallography **Credit Hours: 4**

[4 hours] Theory and practice of structure determination by X-ray diffraction. Basics of symmetry, diffraction, and reciprocal space. Hand-on introduction to single-crystal and powder methods. Prerequisite: Permission of Department.

CHEM6920 Chemistry Colloquium **Credit Hours: 1-4**

Presentations on research or current literature.

CHEM6930 Chemistry Seminar **Credit Hours: 1-2**

Seminars conducted by individual members of the department.

CHEM6940 Graduate Readings in Chemistry **Credit Hours: 1-2**

Content and organization of the literature of chemistry; its utilization in the preparation of a concise review and presentation. Culminating seminar for the non-thesis Master of Science in Chemistry.

CHEM6960 Thesis Research **Credit Hours: 1-15**

Original investigations of significant chemical problems at the master's level under the guidance of a member of the faculty.

CHEM6980 Special Topics In Chemistry **Credit Hours: 1-4**

Discussions of newly developing areas in chemistry research.

CHEM7300 Principles Of Analytical Chemistry **Credit Hours: 1-4**

Tutorial in selected topics in analytical chemistry.

CHEM7400 Principles Of Organic Chemistry **Credit Hours: 1-4**

Tutorial in selected topics in organic chemistry. S/U grading only.

CHEM7500 Principles Of Biological Chemistry **Credit Hours: 1-4**

Tutorial in selected topics in biological chemistry.

CHEM7600 Principles Of Inorganic And Organometallic Chemistry **Credit Hours: 1-4**

Tutorial in selected topics in inorganic and organometallic chemistry. S/U grading only.

CHEM7700 Principles Of Physical Chemistry **Credit Hours: 1-4**

Tutorial in selected topics in physical chemistry. S/U grading only.

CHEM7800 Principles Of Materials Chemistry **Credit Hours: 1-4**

Tutorial in selected topics in materials chemistry.

CHEM8300 Advanced Analytical Chemistry **Credit Hours: 4**

An overview of new techniques in analytical chemistry. Topics include sample preparation and sampling, spectroscopic, separation, electrochemical, surface characterization and thermal methods. Prerequisite: Permission of department.

CHEM8310 Separation Methods **Credit Hours: 3**

[3 hours] The theory, design and application methods. Topics include extraction techniques, gas, liquid, and supercritical fluid chromatography, affinity and chiral separation, and capillary electrophoresis.

CHEM8320 Electrochemistry **Credit Hours: 4**

A fundamental study of electrochemical concepts, methods, instrumentation and applications. Prerequisite: Permission of department.

CHEM8330 Spectroscopic Methods And Analysis Of Spectra **Credit Hours: 4**

A comprehensive study of theory and instrumentation. Applications of spectroscopic methods including spectral interpretation. Topics include a study of absorption, emission, Raman, NMR, ESR, mass spectrometry, and related subjects. Important methodology and strategy in organic synthesis including disconnection and retrosynthetic analysis.

CHEM8350 Separation Methods Laboratory **Credit Hours: 1**

Experiments covering topics discussed in CHEM 6310 lectures. Five hours of laboratory per week. Approved chemical safety goggles meeting the American National Standard 287.1-1968 must be worn by every student during every laboratory class meeting.

Corequisites: CHEM8310

CHEM8400 Advanced Organic Chemistry **Credit Hours: 4**

Section 1 (2 hrs): Basic heterocyclic synthesis and methodology. Section 2 (2 hrs): Reducing reagents and new carbon-carbon bond forming processes. Section 3 (4 hrs): Material covered in Sections 1 and 2.

CHEM8410 Organic Synthesis **Credit Hours: 4**

Important methodology and strategy in organic synthesis including disconnection and retrosynthetic analysis.

CHEM8420 Topics in Modern Organic Chemistry **Credit Hours: 4**

Section 1 (2 hrs): Physical basis of organic chemistry. Section 2 (2 hrs): Molecular orbital theory, mechanistic chemistry and reactive intermediates. Section 3 (4 hrs): Material covered in Sections 1 and 2.

CHEM8430 Medicinal Chemistry **Credit Hours: 4**

Qualitative and quantitative aspects of the design of new therapeutic agents are discussed. Approaches to the design of drugs and new therapeutic modalities directed at enzymes, receptors, membrane transport proteins and nucleic acids will be examined.

CHEM8500 Advanced Biological Chemistry **Credit Hours: 4**

The chemistry of cellular and molecular transformations in biochemical systems. Molecular structure of proteins, nucleic acids and membranes. Metabolism and biosynthesis of carbohydrates, amino acids and lipids; gene regulation and replication.

CHEM8510 Protein Chemistry **Credit Hours: 4**

A detailed analysis of the structure and function of proteins. Current methodology for the analysis of structure, the basis for molecular associations and relationships between structure and biological function.

Prerequisites: CHEM 6500 FOR LEVEL GR WITH MIN. GRADE OF D- OR CHEM 8500 FOR LEVEL GR WITH MIN. GRADE OF D-

CHEM8520 Enzymology **Credit Hours: 4**

Survey of current methods to study enzyme-catalyzed reactions, and application to examples from major enzyme, groups. Current topics in enzymology include abzymes and ribozymes, artificial enzymes, and enzymes, and enzyme engineering.

CHEM8530 Nucleic Acid Chemistry **Credit Hours: 4**

The structural and chemical properties of nucleic acids and the resulting biological consequences. Topics include: 3D structures, conformation, protein/nucleic acid interactions, physical properties and chemical reactions, mutagenesis, damage/repair, and reconbination.

Prerequisites: CHEM 6500 FOR LEVEL GR WITH MIN. GRADE OF D- OR CHEM 8500 FOR LEVEL GR WITH MIN. GRADE OF D-

CHEM8540 Macromolecular Crystallography **Credit Hours: 2**

Fundamental theory and practical application of X-ray diffraction to macromolecular structure determination, including protein crystallization and manipulation, data collection and reduction, phase solution, electron density interpretation, structural refinement and validation.

Prerequisites: CHEM 6850 FOR LEVEL GR WITH MIN. GRADE OF D- OR CHEM 8850 FOR LEVEL GR WITH MIN. GRADE OF D-

CHEM8550 Practical Protein Crystallography **Credit Hours: 2**

Hands-on training in protein crystallography. Laboratory projects include: protein crystallization, crystal manipulation and mounting, X-ray diffraction data collection, data reduction, structure solution, electron density interpretation, refinement and cultural validation.

Prerequisites: CHEM 8850 FOR LEVEL GR WITH MIN. GRADE OF D-

CHEM8570 Biophysical Chemistry **Credit Hours: 4**

Principles and applications of physical chemistry as applied to biological macromolecules (i.e., proteins and nucleic acids in solution), including thermodynamics, kinetics and spectroscopy of macromolecular interactions.

CHEM8580 Bioinorganic Chemistry **Credit Hours: 4**

This course surveys biologically important metals and metal-ligand complexes, and examines the role of metal ions in proteins, metal ion transport and regulation, and metals in medicine

CHEM8600 Advanced Inorganic And Organometallic Chemistry — Credit Hours: 4

[4 hours] Symmetry, bonding theories, magnetism, and spectroscopic characterization of inorganic compounds are described. Coverage of spectroscopic techniques such as NMR, EPR, UV/VIS, IR, AND Mossbauer focus on applications to inorganic systems. Prerequisite: Permission of Department.

CHEM8610 Chemistry of Transition and Post-Transition Elements — Credit Hours: 4

The inorganic and organometallic chemistry of the transition metals, lanthanides and actinides is described. Synthesis, structure, bonding, reactivity are considered. Applications in catalysis, bioinorganic, and materials chlemistry are discussed. Prerequisite: Permission of Department.

CHEM8620 Chemistry of the Main Elements — Credit Hours: 4

The inorganic and organomethallic chemistry of main group elements is described. Synthesis, structure, bonding, and reactivity are considered. The use of main group reagents in synthesis, catalysis, and materials chemistry are discussed.

CHEM8700 Advanced Physical Chemistry — Credit Hours: 4

[4 hours] Chemical systems and processes in the context of classical equilibrium thermodynamics. It introduces non-equilibrium and statistical themodynamics to elucidate chemical changes and the connection between molecular and macroscopie system properties. Prerequisite: Permission of Department.

CHEM8710 Quantum_Chemistry and Spectroscopy **Credit Hours: 4**

Fundamental principles of quantum mechanics and their application to model systems, atoms and molecules; Introduction to molecular spectroscopy. Prerequisite: Permission of Department.

CHEM8720 Modern Topics in Physical Chemistry **Credit Hours: 4**

[4 hours] Advanced topics of current interest is physical chemistry. Examples of topics include nanomaterials science, spectroscopic techniques, or molecular modeling. Prerequisite: Permission of department.

CHEM8800 Advanced Materials Chemistry **Credit Hours: 4**

[4 hours] Introduction to important classes of solids, including conductors, magnetic materials, ferroelectrics, glasses, microporous materials, organic solids. Traditional and novel synthic approaches, structure/property relationships, and characterization methods specific to solids. Prerequisite: Permission of Department.

CHEM8810 Materials Science I **Credit Hours: 4**

A generic materials science approach to the study of crystalline structure and defects (point, line and planar) in crystalline materials. The mechanisms and kinetics of diffusion in the condensed state.

CHEM8820 Materials Science II **Credit Hours: 4**

A materials science approach to the thermodynamics of condensed state equilibria. Phase transformation kinetics.

CHEM8850 X-Ray Crystallography **Credit Hours: 4**

[4 hours] Theory and practice of structure determination by X-ray diffraction. Basics of symmetry, diffraction, and reciprocal space. Hand-on introduction to single-crystal and powder methods. Prerequisite: Permission of Department.

CHEM8920 Chemistry Colloquium **Credit Hours: 1-4**

Presentations on research or current literature.

CHEM8930 Chemistry Seminar **Credit Hours: 1-2**

Seminars conducted by individual members of the Department.

CHEM8940 Graduate Readings in Chemistry **Credit Hours: 1**

Instruction on the content and organization of the scientific literature of chemistry, and its utilization in the preparation of a concise review

CHEM8960 Dissertation Research **Credit Hours: 1-15**

Original investigations of significant chemical problems at the Doctoral level under the guidance of a member of the faculty.

CHEM8980 Special Topics In Chemistry **Credit Hours: 1-4**

Discussions of newly developing areas in chemistry research.

CHIN1110 Elementary Chinese I **Credit Hours: 4**

CHIN1120 Elementary Chinese II **Credit Hours: 4**

Prerequisites: CHIN 1110 FOR LEVEL UG WITH MIN. GRADE OF D-

CHIN2140 Intermediate Chinese I **Credit Hours: 3**

Prerequisites: (CHIN 1110 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHIN 1120 FOR LEVEL UG WITH MIN. GRADE OF D-)

CHIN2150 Intermediate Chinese II **Credit Hours: 3**

Prerequisites: (CHIN 1110 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHIN 1120 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHIN 2140 FOR LEVEL UG WITH MIN. GRADE OF D-)

CI1900 Introduction To Middle Grades Education Linking Seminar **Credit Hours: 1**

This course introduces students to the world of middle grades education. The students will explore the nature of middle grades education, its philosophy, history, students, curriculum and teaching.

CI1910 Communication Skills In The Discipline **Credit Hours: 1**

A seminar which focuses on the relationship among the skills learned in English composition classes, the art of explaining and communicating and the specific disciplines. Students will be encouraged to see language skills in the wider context of enabling the understanding of and explaining in their own academic major. They will be encouraged to use various means of communication (including electronic) to interpret concepts in their major area and consider ways in which a secondary teacher would need to implement these same experiences in the classroom.

CI1920 Introduction To Foreign Language Education: Linking Seminar I **Credit Hours: 1**

This course introduces students to the world of foreign language education. Students will explore the nature of foreign language education, its philosophy, history, types of schools, students, curriculum and teaching.

CI2900 Diversity And Books Linking Seminar **Credit Hours: 1**

Students will learn about various forms of cultural diversity as presented in books appropriate for middle childhood learners.

CI2910 Study Tour Linking Seminar **Credit Hours: 1**

This course will allow students to explore education-related issues within the context of society in general. Structured field trips, coupled with pre- and post-seminars are planned.

CI2920 Case Studies Linking Seminar **Credit Hours: 1**

Students will learn about cognitive, physical, emotional and social characteristics of pre- and young adolescents through participant observation in study and recreational settings and they will prepare a case study.

CI2930 Arts And Science Linking Seminar In Mathematics **Credit Hours: 1**

Students will examine current reform efforts in mathematics education and the impact on the teaching and learning of mathematics at all levels - PreK-college. Students must join a professional mathematics education organization.

CI2940 Arts And Science Linking Seminar In Science **Credit Hours: 1**

Students will examine current reform efforts in science education and the impact on the teaching and learning of science at all levels - PreK-college. Students must join a professional science education organization.

CI2950 Arts And Science Linking Seminar In Social Studies **Credit Hours: 1**

Students will examine current reform efforts in social studies education and the impact on the teaching and learning of social studies at all levels - PreK-college. Students must join a professional social studies education organization.

CI2960 Arts And Science Linking Seminar In Reading/Language Arts **Credit Hours: 1**

Students will examine current reform efforts in reading/language arts education and the impact on the teaching and learning of reading/language arts at all levels - PreK-college. Students must join a professional reading/language arts education organization.

CI2970 An Orientation To The School Environment And Developing A Personal Philosophy Of Teaching **Credit Hours: 1**

This course will help the student explore school context including the sociology and culture of high schools. The goal of this course is to help students apply theory and explore the ways of supporting the wide diversity of backgrounds and abilities of students in today¿s high schools. Students will be helped to see the necessity of and begin the development of a personal philosophy and set of beliefs with respect to the educational processes in which they will participate.

CI2980 Introduction To Foreign Language Education: Linking Seminar II **Credit Hours: 1**

Students will understand salient factors relating to the effective teaching of foreign languages in elementary, middle-junior and high school. Specifically, students will assist foreign language teachers in teaching their students.

CI3010 Teaching Elementary Reading, Language Arts And Social Studies **Credit Hours: 7**

Integration of instruction in listening, talking, writing and reading skills with purposes, scope and sequence of Social Studies. Ways to help children grow and develop in these areas. Preparation of an integrated unit.

CI3020 Integrated Elementary Field Experience **Credit Hours: 3**

Prepare and teach integrated language arts/social studies unit and teach reading/language arts in an elementary, or middle school classroom.

CI3100 Effective Secondary School Teaching Methods **Credit Hours: 3**

Introduction to theory and research supporting effective curriculum development and instruction. Students acquire knowledge and skills necessary to create effective classroom environments.

CI3110 Secondary Field Experience I **Credit Hours: 1-2**

Students will implement and apply skills of instructional design, content area reading and classroom management within selected secondary school settings.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI3210 Office Production **Credit Hours: 2**

Development of understanding and judgment relating to the production of documents and statistical reports. Introduction to Cortez Peters method of teaching keyboarding.

CI3220 Office Procedures **Credit Hours: 3**

Analysis of the activities of today's office professionals. Includes office technology, management, communication procedures (oral and written) and office procedures.

CI3230 Information Processing For Business Education **Credit Hours: 3**

Hands-on experience in the operation of information processing equipment used in today's modern offices.

CI3240 Best Practices In Middle Level Teaching **Credit Hours: 3**

This course will provide a comprehensive study of effective teaching in the middle level schools. Students will study historical, philosophical and psychological factors, transescent instructional strategies, discipline, classroom management and evaluation.

CI3400 Literacy Issues **Credit Hours: 3**

An introduction to literacy and the acquisition of reading and writing skills/proficiency. Presents a study of language development, language diversity, the process of reading and writing and their development.

CI3430 Phonics And Word Identification For Early Childhood Education **Credit Hours: 3**

Phoneme-grapheme relationships using age appropriate techniques with young children, teaching phonics and word recognition, phonological and morphological underpinnings of English spelling, reading disabilities, sound awareness in spoken language.

CI3440 Phonics And Word Identification For Middle Childhood Education **Credit Hours: 3**

Students learn methods for using phonics and word identification skills with pre- and early adolescent learners, focusing on strategies to help with reading, writing and spelling in the content areas.

CI3460 Literacy And Reading Development For Young Children **Credit Hours: 3**

Professional standards for reading/language arts with specific attention to diverse learners. PreK through grade 3. Developmentally-appropriate classroom design and methods. Understanding of print. Use of computer software.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI3900 Internship Seminar: Relating College Level Content To The Secondary School Curriculum **Credit Hours: 1**

The course will consider the content of the college courses taken in a student's major area and relate it to specific courses in the secondary school curriculum. Examples will be developed of the ways in which concepts of university level courses are related to the curriculum of the content area courses at the secondary school level. Students will be encouraged to develop materials and applications of the college level content to a conceptual level appropriate to the secondary student. Students will be expected to use computer technology in several ways.

CI4000 Principles Of Curriculum Integration **Credit Hours: 3**

A course designed to introduce students to major curriculum trends and issues. Focus will be placed on theory and practical issues related to curriculum integration and team teaching.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4010 Middle Grades Field Experience For Curriculum Integration **Credit Hours: 1**

A field experience for regular education and special education students. Teaching experiences to demonstrate knowledge and pedagogical skill in a team taught integrated unit.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4030 Teaching Science In The Middle Grades **Credit Hours: 4**

Introduction to the purposes, scope and sequence, resources, curriculum, instruction and evaluation in middle grades science. Methods and materials for teaching science concepts.

CI4040 Teaching Science In The Primary Grades **Credit Hours: 4**

Introduction to the purposes, scope and sequence, resources, curriculum, instruction and evaluation in primary science. Relationships to DAP and science concept development.

CI4050 Science Field Experience **Credit Hours: 1**

Prepare and teach a science unit of instruction in the elementary classroom.

CI4060 Teaching Elementary School Mathematics **Credit Hours: 4**

Focus on the mathematics education of children in early childhood through the middle grades with emphasis on mathematics learning process, mathematics content, effective teaching strategies, instructional materials and assessment techniques.

CI4070 Teaching Elementary School Mathematics - Field **Credit Hours: 1**

Teach a mathematics unit in an early childhood, elementary, or middle grade classroom.

CI4080 Integrated Elementary Teaching Methods I **Credit Hours: 5**

Methods for teaching and integrating language arts in diverse classrooms. Emphasis on understanding the reading and writing process from emergent literacy through middle school. For Special Education Majors only.

CI4090 Integrated Elementary Teaching Methods II **Credit Hours: 5**

Integrated approach to teaching mathematics and science. Emphasis on the learning process, mathematics and science content, effective teaching strategies, instructional materials and assessment techniques. For Special Education Majors Only.

CI4130 Teaching In Urban Communities **Credit Hours: 3**

Focus on student learning in urban settings. Students will examine urban demographic and school achievement data, develop a profile of urban students and develop appropriate school activities.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4140 Teaching Methods For Foreign Languages **Credit Hours: 3**

Consideration of current theory and practice in teaching foreign languages in elementary and secondary schools. Focus on planning instruction, materials selection and methods for teaching communication skills and culture.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4150 Teaching Methods For Secondary English **Credit Hours: 3**

Language immersion techniques, mastery-based teaching and reliance on reading/writing-to-learn activities. Develop proficiency in methodologies that reflect current research and effective instructional practices in secondary English and Communications.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4160 Teaching Methods For Secondary Mathematics **Credit Hours: 3**

Preparation for teaching in the secondary mathematics classroom. Techniques for motivating students, using questioning and critical thinking strategies and integrating technology are developed.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4170 Teaching Methods For Secondary Science **Credit Hours: 3**

In-depth study of the methods and materials for teaching secondary science. Apply knowledge in a secondary classroom.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4180 Teaching Methods For Secondary Social Studies Methods **Credit Hours: 3**

In-depth study of methods and materials for teaching social studies. Implementation of secondary curriculum within the context of current technology and the development of critical thinking skills.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4190 Secondary Field Experience II **Credit Hours: 3**

Students will develop and implement a unit plan in the content area integrating teaching of content, thinking skills and adjusting the unit to a special needs population.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4210 Administrative Office Management **Credit Hours: 3**

Office functions as part of business administration, including physical facility planning, office systems, procedures and services, control of office work and administrative/supervision of office staff.

CI4220 Information Management For Business Education **Credit Hours: 3**

Hands-on experience in a current word processing package. Also provides an overview of word processing methodologies, concepts and techniques needed to teach a secondary course.

CI4230 Business Teaching Methods I **Credit Hours: 3**

Development and application of appropriate materials and methods in teaching general business, accounting and computer technology.

CI4240 Business Technology Methods II **Credit Hours: 3**

Development and application of appropriate materials and methods in teaching keyboarding, business communication/English, vocational education and computer applications. Course required for vocational certification.

CI4250 Methods For Middle Grades Mathematics Licensure **Credit Hours: 4**

A course for preservice middle grade teachers seeking licensure in mathematics. The course will focus on curriculum, scope and sequence, resources, learning activities, teaching strategies, technology use and assessment following NCTM Standards and the Ohio Mathematics Model.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4260 Methods For Middle Grades Science Licensure **Credit Hours: 4**

Designed for middle grade teachers seeking licensure in science. The course covers standards, curriculum, learning activities, teaching strategies, use of technology and assessment techniques in a middle school setting.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4270 Methods For Middle Grades Social Studies Licensure **Credit Hours: 4**

This course will focus upon the social studies education of middle grades students with an emphasis on standards, scope and sequence, resources, learning activities, teaching strategies, technology evaluation techniques.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4280 Methods For Middle Grades Reading/Language Arts Licensure **Credit Hours: 4**

A course for preservice middle grades teachers seeking licensure in reading/language arts. This course will focus upon the literary education of children in the middle grades. Standards, curriculum, scope and sequence, resources, learning activities, teaching strategies, technology use and assessment will be addressed following NCTE standards and the Ohio Language Arts Model.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4290 Middle Grades Methods Field Experience **Credit Hours: 2**

Field experience to demonstrate knowledge and pedagogical skills as students teach in two licensure areas. Instructional practice, assessment strategies and technology use will be integrated in tow units from a student's licensure areas.

CI4300 Literature For Children **Credit Hours: 3**

Emphasis on all genres of literature for children, including poetry, traditional literature, fantasy, realistic fiction, biography and other information books, particularly for the preschool and primary student.

CI4310 Literature For Middle Graders **Credit Hours: 3**

Emphasis on all genres of literature for children, including poetry, traditional literature, fantasy, realistic fiction, both historical and contemporary , biography and other information books. Geared for the middle school student.

CI4320 Literature For Young Adults **Credit Hours: 3**

Survey of literature materials written for the junior and senior high school student. Emphasis is placed on all genres, literary elements and the use of literature across the curriculum.

CI4360 Multicultural Literature **Credit Hours: 3**

Picture books, fiction, biography and poetry appropriate for elementary and middle school students that interpret and reflect honestly the lives of persons of color will be studied and evaluated.

CI4390 Sandberg Children's Literature Institute **Credit Hours: 3**

To broaden students' knowledge of current professionals in children's literature, nationally-known authors, illustrators and editors presentations.

CI4400 Reading In Middle Grades **Credit Hours: 3**

Using various genres of literature, students focus on instructional strategies across the curriculum for teaching, assessing, diagnosing and remediating reading and reading difficulties. Evaluation of learning through writing emphasized.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4430 Issues In Second Language Teaching **Credit Hours: 3**

A critical study of teaching foreign languages and English as a second language in secondary schools including current curriculum, materials, teaching strategies and evaluation.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4440 Issues In Linguistics, Writing, And Grammar **Credit Hours: 3**

Examine the research on structural and generative grammars and oral language acquisition. Analyze process writing research, teaching-learning principles, and practices that employ process writing techniques.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4470 Reading Assessment And Diagnosis **Credit Hours: 3**

Focus on the knowledge and skill needed to assess the reading and writing of students and to plan appropriate instruction.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4480 Reading Assessment And Remediation Practicum **Credit Hours: 3**

Focus on diagnostic assessment that represents differences in learners and emphasizes meeting student needs through a variety of instructional strategies to remediate problems in phonics, word recognition, fluency, comprehension and writing.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4490 Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Educatio **Credit Hours: 3**

Study of the integration of reading comprehension, writing, oral language and word skill development in content reading. Attention will be given to instructional methods as well as assessment practices.

CI4510 Mathematics For The Young Child **Credit Hours: 3**

Development of mathematical understanding in young children, appropriate learning and assessment experiences and analysis of curriculum. Mathematical focus on place value, number sense, geometry, measurement, algebra, data analysis and probability.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4520 Mathematics For The Middle School **Credit Hours: 3**

Conceptualization of mathematics curriculum and its implementation in the classroom. The inductive approach will be emphasized. Examination of middle school math concepts.

CI4530 Teaching Geometry In Grades K-12 **Credit Hours: 3**

Examination of the development of mathematics concepts and skills across the K-12 curriculum. Discussion of mathematics content, teaching methods, instructional materials, assessment techniques and applications to classroom practice.

CI4540 Teaching Algebra In Grades K-12 **Credit Hours: 3**

Examination of the development of mathematics concepts and skills across K-12 curriculum. Discussion of mathematics content, teaching methods, instructional materials, assessment techniques and applications to classroom practice.

CI4550 Teaching Problem Solving In Mathematics **Credit Hours: 3**

Focuses on the art of problem solving and its implementation in the classroom. Basic problem solving strategies are developed; materials and methods for their integration in mathematics teaching are provided.

CI4570 Curriculum Issues In Mathematics **Credit Hours: 3**

Focuses on the content of the 7-12 mathematics curriculum and its delivery in secondary schools. Consideration is given to the role of technology, proficiency testing, conceptualizations of mathematics and resulting implications.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4640 Environmental Education **Credit Hours: 3**

Issues, methods and materials related to teaching Environmental Science in grades PreK-12. Field trips to areas of environmental interest will be part of the course.

CI4670 Science In Middle School Curriculum **Credit Hours: 3**

Nature, scope and role of science experiences in learning development of middle school age children; integration and application of current developments; theory and research in middle school science education.

CI4680 Issues In Science Education **Credit Hours: 3**

This course focuses on theoretical issues related to teaching science in grades pre K-12 and is designed for preservice teachers.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4710 Teaching Strategies In Multiculture Education **Credit Hours: 3**

Examines multicultural curriculum and teaching strategies. Reviews ethnicity, culturally pluralistic curricula, selection of instructional materials, grouping practices, assessment of learning and multi-ethnic schools, with an emphasis on improving instruction.

CI4720 Issues In Social Studies **Credit Hours: 3**

Examines current issues of content and pedagogy in secondary social studies.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4740 Models Of Valuing **Credit Hours: 3**

Reviews the rationale, research and strategies for character education, values clarification, moral developments as well as programs designed to promote self concept.

CI4760 Teaching Local History **Credit Hours: 3**

Rationale, strategies and resources for teaching local history including demonstrations of teaching oral history and utilization of community resources.

CI4790 Using News Media In The Classroom **Credit Hours: 3**

Rationale and strategies for using newspapers as classroom resource for teaching across curriculum. Participants will explore classroom applications after interviewing reporters, photographers, cartoonists as well as Newspaper in Education classroom teachers.

CI4900 Student Teaching Seminar **Credit Hours: 2-4**

Focuses reflectivity on common experiences in Student Teaching. Attention to resume preparation, portfolio use, job interviews.

CI4910 Internship Seminar: Reforms, Research And Critical Literacy In The Content Areas **Credit Hours: 3**

A professional teaching and reflection seminar that places internship experience in the context of reforms, research and critical literacy in the content areas. This will include a study of reports, studies and resulting recommendations of the societies as well as those at the state, national and international levels. Critical literacy will be examined within the framework of necessary knowledge for an informed citizenry. Outcomes of this seminar may be integrated in the professional portfolio presentation. Coursework will be creatively scheduled to dovetail with the internship experience.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4930 Internship/Student Teaching **Credit Hours: 6-12**

Full-time supervised classroom teaching for 8-15 weeks.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4950 Workshop In Curriculum And Instruction **Credit Hours: 1-5**

Workshops developed around topics of interest and concern for pre-service and in-service teachers and other education personnel. Practical application of workshop topics will be emphasized.

CI4980 Special Topics In Curriculum And Instruction **Credit Hours: 1-5**

Topics of interest and concern to preservice, inservice and non-degree teachers within school districts and community agencies. The course may be included in an undergraduate degree program.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CI4990 Undergraduate Independent Study In Curriculum And Instruction **Credit Hours: 1-5**

Provides student the opportunity to work individually on professional problems under the direction of the staff of the department of curriculum and instruction. This course is open to seniors with the consent of the adviser and permission of the instructor.

CI5150 Teaching Methods For Secondary English **Credit Hours: 3**

Language immersion techniques, mastery-based teaching and reliance on reading/writing-to-learn activities. Develop proficiencies in methodologies that reflect current research and best practice. Alternative preservice methods.

CI5160 Teaching Methods For Secondary Mathematics **Credit Hours: 3**

Preparation for teaching in the secondary mathematics classroom. Techniques for motivating students, using questioning and critical thinking strategies and integrating technology are developed.

CI5170 Teaching Methods For Secondary Science **Credit Hours: 3**

In-depth study of the methods and materials for teaching secondary science. Apply knowledge in a secondary classroom.

CI5180 Teaching Methods For Secondary Social Studies Methods **Credit Hours: 3**

In-depth study of methods and materials for teaching social studies. Implementation of secondary curriculum within the context of current technology and the development of critical thinking skills.

CI5190 Secondary Field Experience II **Credit Hours: 3**

Field experience for alternative 712 certification. Classroom observations and reports Teach series of lessons or unit of study in secondary classroom. Students will develop and implement a unit plan in the content area integrating teaching of content, thinking skills and adjusting the unit to a special needs population.

CI5210 Administrative Office Management **Credit Hours: 3**

Office functions as part of business administration, including physical facility planning, office systems, procedures and services, control of office work and administration/supervision of office staff.

CI5220 Information Management For Business Education **Credit Hours: 3**

Hands-on experience in a current word processing package. Also provides an overview of word processing methodologies, concepts and techniques needed to teach a secondary course.

CI5250 Methods For Middle Grades Mathematics Licensure **Credit Hours: 4**

A course for preservice middle grade teachers seeking licensure in mathematics. The course will focus on curriculum, scope and sequence, resources, learning activities, teaching strategies, technology use and assessment following NCTM standards and the Ohio Mathematics Model.

Prerequisites: EDP 5220 FOR LEVEL GR WITH MIN. GRADE OF D-

CI5260 Methods For Middle Grades Science Licensure **Credit Hours: 4**

Designed for middle grades teachers seeking licensure in science. The course covers standards, curriculum, learning activities, teaching strategies, use of technology and assessment techniques in a middle school setting.

Prerequisites: EDP 5220 FOR LEVEL GR WITH MIN. GRADE OF D-

CI5270 Methods For Middle Grades Social Studies Licensure **Credit Hours: 4**

This course will focus upon the social studies education of middle grades students with an emphasis on standards, scope and sequence, resources, learning activities, teaching strategies, technology evaluation techniques.

Prerequisites: EDP 5220 FOR LEVEL GR WITH MIN. GRADE OF D-

CI5280 Methods For Middle Grades Reading/Language Licensure **Credit Hours: 4**

A course for preservice middle grades teachers seeking licensure in reading/language arts. This course will focus upon the literary education of children in the middle grades. Standards, curriculum, scope and sequence, resources, learning activities, teaching strategies, technology use and assessment will be addressed following NCTE standards and the Ohio Language Arts Model.

Prerequisites: EDP 5220 FOR LEVEL GR WITH MIN. GRADE OF D-

CI5300 Literature For Children **Credit Hours: 3**

Emphasis on all genres of literature for children, including poetry, traditional literature, fantasy, realistic fiction, biography and other information books, particularly for the preschool and primary student.

CI5310 Literature For Middle Graders **Credit Hours: 3**

Emphasis on all genres of literature for children, including poetry, traditional literature, fantasy, realistic fiction, both historical and contemporary, biography and other informational books. Geared for the middle school student.

CI5320 Literature For Young Adults **Credit Hours: 3**

Survey of literature materials written for the junior and senior high school student. Emphasis is placed on all genres, literary elements and uses of literature across the curriculum.

CI5360 Multicultural Literature **Credit Hours: 3**

Picture books, fiction, biography and poetry appropriate for elementary and middle school students that interpret and reflect honestly the lives of persons of color will be studied and evaluated.

CI5390 Sandberg Children's Literature Institute **Credit Hours: 3**

To broaden students' knowledge of current professionals in children's literature, nationally-known authors, illustrators or editors presentations.

CI5430 Issues In Second Language Instruction **Credit Hours: 3**

A critical study of teaching foreign languages and English as a second language in secondary schools including current curriculum, materials, teaching strategies and evaluation.

CI5440 Issues in Ling, Writ, Grammar **Credit Hours: 3**

CI5450 Creativity And Language Arts **Credit Hours: 3**

An exploration and analysis of research on cultivating creativilty and enhancing literacy achlievement at the middle and secondary levels.

CI5460 Theory & Practice In Language Arts **Credit Hours: 3**

Advanced methods for teaching and integrating language arts in diverse classrooms. Emphasis is on understanding the reading and writing process from emergent literacy through middle school.

CI5470 Reading Assessment And Diagnosis **Credit Hours: 3**

Focus on knowledge and skill needed to assess reading and writing of students and to plan appropriate instruction.

CI5480 Reading Assessment And Remediation Practicum **Credit Hours: 3**

Focus on diagnostic assessment that represents differences in learners and emphasizes meeting student needs through a variety of instructional strategies to remediate problems in phonics, word recognition, fluency, comprehension and writing.

CI5490 Content Area Reading For Adolescent Young Adult, Multi-Age, And Career And Technical Educatio **Credit Hours: 3**

Study of the integration of reading comprehension, writing, oral language and word skill development in content reading. Attention will be given to instructional methods as well as assessment practices.

CI5510 Mathematics For The Young Child **Credit Hours: 3**

Development of mathematical understanding in young children, appropriate learning and assessment experiences and analysis of curriculum. Mathematics focus on place value, number sense, geometry, measurement, algebra, data analysis and probability.

CI5520 Mathematics For The Middle School **Credit Hours: 3**

Conceptualization of mathematics curriculum and its implementation in the classroom. The inductive approach will be emphasized. Examination of middle school math concepts.

CI5530 TEACHING AND LEARNING GEOMETRY AND MEASUREMENT **Credit Hours: 3**

Examination of the development of mathematics concepts and skills across the K-12 curriculum. Discussion of mathematics content, teaching methods, instructional materials, assessment techniques and applications to classroom practice.

CI5540 Teaching and Learning Algebra **Credit Hours: 3**

Examination of the development of algebraic concepts and skills across the K-12 curriculum. Emphasis on current research, theory, and innovative approaches for teaching and learning algebra

CI5550 Teaching Problem Solving In Mathematics **Credit Hours: 3**

Focuses on the art of problem solving and methods and materials for classroom implementation. Consideration given to current trends and related resource regarding use of problem solving in mathematics teaching.

CI5560 ASSESSMENT IN MATHEMATICS EDUCATION **Credit Hours: 3**

Study of the role of assessment in the teaching and learning of mathematics. Examination of current research, assessment techniques, and trends and ways in which assessment can guide and inform mathematics instruction.

CI5570 Curriculum Issues In Mathematics **Credit Hours: 3**

ocuses on the content of the 7-12 mathematics curriculum and its delivery in secondary schools. Consideration is given to the role of technology, proficiency testing, conceptualizations of mathematics and resulting implications.

Prerequisites: CI 5160 FOR LEVEL GR WITH MIN. GRADE OF D-

CI5580 TEACHING AND LEARNING NUMBER, DATA, AND PROBABILITY **Credit Hours: 3**

Examination of the development of concepts and skills associated with number, data, and probability across the K-12 curriculum. Emphasis on current research, theory, and innovative instructional approaches.

CI5590 Topics in Mathematics Education **Credit Hours: 3**

Examination and exploration of policy issues, research, and national trends that have implications for teachers, curriculum specialists, school districts, and others involved in mathematics education

CI5640 Environmental Education **Credit Hours: 3**

Issues, methods and materials related to teaching environmental science in grades PreK-12. Field trips to areas of environmental interest will be part of the course.

CI5650 Mentoring a Preservice Teacher **Credit Hours: 3**

Prepares mentors to guide prospective teachers as they learn to teach in classroom settings. Emphasis is on reform oriented practice, developing productive mentor-mentee relationships, and guiding and assessing novices¿ learning.

CI5660 Technological Tools In Science Education **Credit Hours: 3**

Use of technology tools to foster learning in science classrooms. Emphasis is on integrating practical applications, research and theoretical perspectives to become intelligent users of computer applications in science education.

CI5670 Science In The Middle School Curriculum **Credit Hours: 3**

Nature, scope and role of science experiences in learning and development of middle school age children; integration and application of current developments; theory and research in middle school science education.

CI5680 Issues In Science Education **Credit Hours: 3**

This course focuses on theoretical issues related to teaching science in grades preK-12 and is designed for preservice teachers.

Prerequisites: CI 5170 FOR LEVEL GR WITH MIN. GRADE OF D-

CI5690 Project-Based Science **Credit Hours: 3**

Advanced methods for teaching science to engage learners in extended inquiry as they investigate real-world questions. Emphasis on innovative instructional strategies, research and theoretical perspectives to promote deep understanding of fundamental concepts.

CI5710 Teaching Strategies In Multicultural Education **Credit Hours: 3**

Examines multicultural curriculum and instructional issues. Reviews diversity issues. Reviews diversity issues, pluralistic curricula, selection and development of instructional materials, grouping practices, assessment of learning and multi-ethnic schools. Emphasis on improving instruction.

CI5720 Issues In Social Studies **Credit Hours: 3**

Examines current issues of content and pedagogy in secondary social studies.

Prerequisites: CI 5180 FOR LEVEL GR WITH MIN. GRADE OF D-

CI5740 Models Of Valuing **Credit Hours: 3**

Rationale, research and strategies for character education, values clarification, moral development and self concept programs. Students will do a critical review of programs in values education.

CI5760 Teaching Local History **Credit Hours: 3**

Rationale, strategies and resources for teaching local history including demonstrations of teaching oral history and utilization of community resources.

CI5790 Using News Media In The Classroom **Credit Hours: 3**

Rationale and strategies for using newspapers as classroom resource for teaching across curriculum. Explore classroom applications after interviewing reporters, photographers, cartoonists as well as Newspaper in Education classroom teachers.

CI5810 Instructional Strategies **Credit Hours: 3**

Purposes of classroom instruction and role of the teacher. Investigation and characteristics of mediated instruction, lecture-recitation, inductive discussion and inquiry and cooperative learning models. Modeling activities.

CI5820 Analysis Of School Curriculum & Teaching **Credit Hours: 3**

Introduction to curriculum and teaching for initial 1-8 certification at the graduate level. Analysis of classroom management, curriculum and instructional planning and evaluation strategies. Unit and lesson preparations.

CI5830 Teaching In The Middle And Junior High **Credit Hours: 3**

An exploration of quality teaching in middle grades schools (5-9) including historical and philosophical foundations, developmental traits of students, current curriculum, teaching strategies, discipline and classroom management and evaluation.

CI5860 Middle-Junior High Curriculum **Credit Hours: 3**

An exploration of the junior high and middle school curriculum including philosophical, psychological and historical bases, current organization and design and principles of curriculum development. Designing developmentally-appropriate curriculum is stressed.

CI5870 Secondary School Curriculum **Credit Hours: 3**

Exploration of senior high school curriculum. Social, psychological, historical and philosophical foundations. Curriculum organization and design. Sources of curriculum.

CI5880 Thinking Works: Comprehensive Content Reading **Credit Hours: 3**

This course explores innovative research-based instructional strategies that show students how to teach comprehension as a constructive process in all curricula areas. It explores alternative methods for addressing the needs of less advanced students and multicultural populations.

CI5950 Workshop In Curriculum & Instruction **Credit Hours: 1-5**

Workshops developed around topics of interest and concern to inservice teachers. Practical application of workshop topics will be emphasized. Students may include several workshops in their master's or specialist degree programs.

CI5980 Special Topics In Curriculum & Instruction **Credit Hours: 1-5**

A course developed around topics of interest and concern to inservice teachers within school districts and agencies. Stresses solution and resolution of education problems occurring within the district.

CI5990 Graduate Independent Study In Curriculum And Instruction **Credit Hours: 1-5**

Individual study designed to provide a student the opportunity to work individually on professional problems under the direction of the faculty of the Department of Curriculum and Instruction.

CI6370 Fundamentals Of Grant Writing **Credit Hours: 3**

This seminar will teach participants about fundamentals of grant writing. Topics covered will include: locating sources of funding, writing grants, designing evaluation instruments and administering grants.

CI6400 Trends In Literacy Acquisition **Credit Hours: 3**

Study of the theories and problems of literacy instruction. Factors affecting literacy development including organizations and climate of the classroom texts and instructional methods will be considered.

CI6410 Content Area Literacy **Credit Hours: 3**

Study of the integration of reading and writing in the content areas. Attention will be given to instructional methods as well as assessment practices.

CI6420 Content Area Literacy For Secondary Teachers **Credit Hours: 3**

Study of the integration of reading and writing in the content areas. Attention will be given to instructional methods as well as assessment practices.

CI6430 Diagnosis Of Reading Disability **Credit Hours: 3**

Teachers acquire the knowledge and skill needed to assess the reading and writing of students and to plan appropriate instruction.

Prerequisites: CI 6400 FOR LEVEL GR WITH MIN. GRADE OF D-

CI6440 Remediation Practicum **Credit Hours: 3**

Focus on comprehension, vocabulary and word identification strategies for supporting disabled readers in the regular classroom in learning to read independently.

Prerequisites: (CI 6400 FOR LEVEL GR WITH MIN. GRADE OF D- AND CI 6430 FOR LEVEL GR WITH MIN. GRADE OF D-)

CI6460 Writing Process **Credit Hours: 3**

Understanding and implementation of writing process in elementary classrooms, focusing on helping students write more effectively in three genre-fiction, nonfiction and poetry, as well as on evaluating student writing.

CI6470 Integrating Language Arts Across The Curriculum **Credit Hours: 3**

Addresses the philosophical underpinnings of integrated instruction as well as practical aspects of its implementation. Students incorporate literature and instructional strategies in thematic units.

CI6490 Theory And Research In Literacy **Credit Hours: 3**

Extensive examination of current research in literacy instruction. The influence of scientific studies on teaching procedures, materials and contexts of learning will be considered.

CI6590 Theory And Research In Mathematics Education **Credit Hours: 3**

Analysis of the latest research in mathematics curriculum of the elementary school. A critical appraisal is made of current issues in mathematics instruction.

CI6650 Advanced Mentorship for Teachers **Credit Hours: 3**

Investigates theoretical frameworks for mentoring in reform-oriented teacher education. Mentors¿ roles as collaborators for student learning, guides and partners for teacher learning, and professionals and leaders in classrooms are examined.

CI6690 Theory And Research In Science Education **Credit Hours: 3**

Critical appraisal of current issues and trends in science education research. Emphasis on research investigations concerning concepts and issues in science learning theory, curriculum development and assessment.

CI6750 Children Of Substance Abuse-Strategies And Curriculum Materials **Credit Hours: 3**

Examination of family substance abuse and dysfunction. Hidden learning, roles and patterns of behavior among COSAs. Strategies and materials for elementary, middle school, junior high COSAs.

CI6790 Theory And Research In Social Studies **Credit Hours: 3**

Intensive study of contemporary developments in social studies including national standards, current research and major publications.

CI6800 Foundations Of Curriculum & Instruction **Credit Hours: 3**

Consideration is given to major conceptualizations (models) of curriculum and instruction - classical, technological, personalized and interactional. Stress is placed upon the philosophical, psychological and historical determinants of these curricular models.

CI6810 Curriculum Development: K-12 **Credit Hours: 3**

Study of essential structural components of curriculum. Role of the educator in making defensible curriculum decisions. Issues related to curricular aims, content, designs and evaluation are examined with the assistance of curriculum theory.

CI6820 Program Development For Non-School Settings **Credit Hours: 3**

Program development for community agency personnel training and staff development. Principles of curriculum design applied to non-school programs. Model for design; evaluation.

CI6830 Curriculum Trends And Issues **Credit Hours: 3**

Analysis of current curriculum developments in public school education such as the major curriculum reform projects, individualization of programs, compensatory programs, ITU and programmed instructional packages and related developments.

CI6840 Curriculum For Educational Leaders **Credit Hours: 3**

Study of initiating and implementing curriculum change in the school setting. Students will build upon a review and examine key theories of educational leadership concerned with curriculum development.

CI6900 Masters Research Seminar In Curriculum And Instruction **Credit Hours: 2-3**

Examination of research and current issues in curriculum and instruction. Emphasis on theory and research and evaluation models. Preparation and submission of article manuscript.

CI6920 Masters Research Project In Curriculum And Instruction **Credit Hours: 1-3**

Students will complete an individual research project under the direction of a committee of at least two faculty members in Curriculum and Instruction, ordinarily including the faculty adviser.

CI6940 Internship In Curriculum And Instruction **Credit Hours: 8**

Placement of a master¿s student in appropriate school district setting under direction of a CI instructor. :04 Middle Childhood Education, :05 Adolescent and Young Adult Education, :06 Multiage. Prerequisite: Methods course in subject area. Corequisite: CI5990. Course may not be used to satisfy Master's program requirements.

CI6960 Masters Thesis In Curriculum And Instruction **Credit Hours: 1-3**

Students will complete a thesis under the direction of committee of at least two faculty members from Curriculum and Instruction, ordinarily including the faculty adviser.

CI7460 Theory & Practice In Language Arts **Credit Hours: 3**

Advanced methods for teaching and integrating language arts in diverse classrooms. Emphasis is on understanding the reading and writing process from emergent literacy through middle school.

CI7530 TEACHING AND LEARNING GEOMETRY AND MEASUREMENT **Credit Hours: 3**

Examination of the development of mathematics concepts and skills associated with geometry and measurement across the K-12 curriculum. Emphasis on current research, theory, and innovative instructional approaches to the teaching and learning of geometry and measurement.

CI7540 Teaching and Learning Algebra **Credit Hours: 3**

Examination of the development of algebraic concepts and skills across the K-12 curriculum. Emphasis on current research, theory, and innovative approaches for teaching and learning algebra.

CI7560 ASSESSMENT IN MATHEMATICS EDUCATION **Credit Hours: 3**

Study of the role of assessment in the teaching and learning of mathematics. Examination of current research, assessment techniques, and trends and ways in which assessment can guide and inform mathematics instruction

CI7580 TEACHING AND LEARNING NUMBER, DATA, AND PROBABILITY **Credit Hours: 3**

Examination of the development of concepts and skills associated with number, data, and probability across the K-12 curriculum. Emphasis on current research, theory, and innovative instructional approaches

CI7590 TOPICS IN MATHEMATICS EDUCATION **Credit Hours: 3**

Examination and exploration of policy issues, research, and national trends that have implications for teachers, curriculum specialists, school districts, and others involved in mathematics education.

CI7650 Mentoring a Preservice Teacher **Credit Hours: 3**

Prepares mentors to guide prospective teachers as they learn to teach in classroom settings. Emphasis is on reform oriented practice, developing productive mentor-mentee relationships, and guiding and assessing novices¿ learning.

CI7660 Technological Tools In Science Education **Credit Hours: 3**

Use of technology tools to foster learning in science classrooms. Emphasis is on integrating practical applications, research and theoretical perspectives to become intelligent users of computer applications in science education.

CI7690 Project-Based Science **Credit Hours: 3**

Advanced methods for teaching science to engage learners in extended inquiry as they investigate real-world questions. Emphasis on innovative instructional strategies, research and theoretical perspectives to promote deep understanding of fundamental concepts.

CI7810 Instructional Strategies **Credit Hours: 3**

Purposes of classroom instruction and role of the teacher. Investigation and characteristics of mediated instruction, lecture-recitation, inductive discussion and inquiry and cooperative learning models. Modeling activities.

CI7830 Teaching In The Middle And Junior High **Credit Hours: 3**

An exploration of quality teaching in middle grades schools (5-9) including historical and philosophical foundations, developmental traits of students, current curriculum, teaching strategies, discipline and classroom management and evaluation.

CI7860 Middle-Junior High Curriculum **Credit Hours: 3**

An exploration of the junior high and middle school curriculum including philosophical, psychological and historical bases, current organization and design and principles of curriculum development. Designing developmentally-appropriate curriculum is stressed.

CI7870 Secondary School Curriculum **Credit Hours: 3**

Exploration of senior high school curriculum. Social, psychological, historical and philosophical foundations. Curriculum organization and design. Sources of curriculum.

CI7880 Thinking Works: Comprehensive Content Reading **Credit Hours: 3**

This course explores innovative research-based instructional strategies that show students how to teach comprehension as a constructive process in all curricula areas. It explores alternative methods for addressing the needs of less advanced students and multicultural populations.

CI7940 Specialist Practicum In Curriculum And Instruction **Credit Hours: 1-3**

Observation and supervised experience in an appropriate setting. Students will be assigned to work as interns under the joint supervision of school and University personnel.

CI7980 Special Topics In Curriculum & Instruction **Credit Hours: 1-5**

A course developed around topics of interest and concern to inservice teachers within school districts and agencies. Stresses solution and resolution of education problems occurring within the district.

CI8370 Fundamentals Of Grant Writing **Credit Hours: 3**

This seminar will teach participants about fundamentals of grant writing. Topics covered will include: locating sources of funding, writing grants, designing evaluation instruments and administering grants.

CI8400 Trends In Literacy Acquisition **Credit Hours: 3**

Study of the theories and problems of literacy instruction. Factors affecting literacy development including organizations and climate of the classroom texts and instructional methods will be considered.

CI8410 Content Area Literacy **Credit Hours: 3**

Study of the integration of reading and writing in the content areas. Attention will be given to instructional methods as well as assessment practices.

CI8420 Content Area Literacy For Secondary Teachers **Credit Hours: 3**

Study of the integration of reading and writing in the content areas. Attention will be given to instructional methods as well as assessment practices.

CI8430 Diagnosis Of Reading Disability **Credit Hours: 3**

Teachers acquire the knowledge and skill needed to assess the reading and writing of students and to plan appropriate instruction.

Prerequisites: CI 6400 FOR LEVEL GR WITH MIN. GRADE OF D-

CI8440 Remediation Practicum **Credit Hours: 3**

Focus on comprehension, vocabulary and word identification strategies for supporting disabled readers in the regular classroom in learning to read independently.

Prerequisites: (CI 6400 FOR LEVEL GR WITH MIN. GRADE OF D- AND CI 6430 FOR LEVEL GR WITH MIN. GRADE OF D-)

CI8460 Writing Process **Credit Hours: 3**

Understanding and implementation of writing process in elementary classrooms, focusing on helping students write more effectively in three genre-fiction, nonfiction and poetry, as well as on evaluating student writing.

CI8470 Integrating Language Arts Across The Curriculum **Credit Hours: 3**

Addresses the philosophical underpinnings of integrated instruction as well as practical aspects of its implementation. Students incorporate literature and instructional strategies in thematic units.

CI8490 Theory And Research In Literacy **Credit Hours: 3**

Extensive examination of current research in literacy instruction. The influence of scientific studies on teaching procedures, materials and contexts of learning will be considered.

CI8590 Theory And Research In Mathematics Education **Credit Hours: 3**

Analysis of the latest research in mathematics curriculum of the elementary school. A critical appraisal is made of current issues in mathematics instruction.

CI8650 Advanced Mentorship **Credit Hours: 3**

Investigates theoretical frameworks for mentoring in reform-oriented teacher education. Mentors¿ roles as collaborators for student learning, guides and partners for teacher learning, and professionals and leaders in classrooms are examined.

CI8690 Theory And Research In Science Education **Credit Hours: 3**

Critical appraisal of current issues and trends in science education research. Emphasis on research investigations concerning concepts and issues in science learning theory, curriculum development and assessment.

CI8700 Doctoral Pro-Seminar I: Introduction to Scholarship in Curriculum and Instruction **Credit Hours: 3**

The doctoral research cycle begins by introducing students to issues in curriculum and instruction, establishing a research agenda, and building a community of scholars. Pre-requisite to Pro-Seminar II.

CI8710 Doctoral Pro-Seminar II: Themes in theory and research in Curriculum and Instruction **Credit Hours: 3**

The doctoral research cycle continues by examining the paradigmatic and theoretical bases of C&I research. Develop lines of inquiry grounded in theoretical knowledge and personal interests. Prerequisite: Pro-Seminar I.

Prerequisites: CI 8700 FOR LEVEL GR WITH MIN. GRADE OF D-

CI8720 Doctoral Pro-Seminar III: Themes in theory and research in curriculum and instruction. **Credit Hours: 3**

The doctoral research cycle is completed. A study is designed, conducted and disseminated within a research group under the guidance of a mentor. Prerequisite: CI 8700 + 8710.

Prerequisites: CI 8710 FOR LEVEL GR WITH MIN. GRADE OF D-

CI8750 Children Of Substance Abuse-Strategies And Curriculum Materials **Credit Hours: 3**

Examination of family substance abuse and dysfunction. Hidden learning, roles and patterns of behavior among COSAs. Strategies and materials for elementary, middle school, junior high COSAs.

CI8790 Theory And Research In Social Studies **Credit Hours: 3**

Intensive study of contemporary developments in social studies including national standards, current research and major publications.

CI8800 Foundations Of Curriculum & Instruction **Credit Hours: 3**

Consideration is given to major conceptualizations (models) of curriculum and instruction - classical, technological, personalized and interactional. Stress is placed upon the philosophical, psychological and historical determinants of these curricular models.

CI8810 Curriculum Development: K-12 **Credit Hours: 3**

Study of essential structural components of curriculum. Role of the educator in making defensible curriculum decisions. Issues related to curricular aims, content, designs and evaluation are examined with the assistance of curriculum theory.

CI8820 Program Development For Non-School Settings **Credit Hours: 3**

Program development for community agency personnel training and staff development. Principles of curriculum design applied to non-school programs. Model for design; evaluation.

CI8830 Curriculum Trends And Issues **Credit Hours: 3**

Analysis of current curriculum developments in public school education such as the major curriculum reform projects, individualization of programs, compensatory programs, ITU and programmed instructional packages and related developments.

CI8840 Curriculum For Educational Leaders **Credit Hours: 3**

Study of initiating and implementing curriculum change in the school setting. Students will build upon a review and examine key theories of educational leadership concerned with curriculum development.

CI8860 Advanced Curriculum Theory **Credit Hours: 3**

Problems of conducting systematic inquiry in the curriculum field. Students will discuss ideas and research of curriculum scholars. Requires the ability to analyze and evaluate current programs and scholarly writing.

CI8870 Curriculum Criticism **Credit Hours: 3**

An in-depth investigation of the foundations of curriculum inquiry with specific emphasis on the application of contemporary philosophy, curricular criticism and possibility in the design of educational programs.

CI8900 Doctoral Seminar In Curriculum And Instruction **Credit Hours: 2-4**

This seminar will consider problems and provide advanced study for doctoral students in Curriculum and Instruction.

CI8930 Independent Research In Curriculum And Instruction **Credit Hours: 1-5**

Individual study is designed to provide the doctoral student opportunity to work individually on professional problems under the direction of CI faculty.

CI8940 Doctoral Internship In Curriculum And Instruction **Credit Hours: 1-3**

Placement of doctoral students in appropriate school, school district, or other professional setting under direction of joint placement personnel and CI faculty.

CI8960 Dissertation In Curriculum And Instruction **Credit Hours: 1-10**

Original research in an area of curriculum and instruction.

CIEC3200 Early Childhood Education: Philosophy And Practice **Credit Hours: 3**

The course emphasizes the role, attitude and characteristics of the effective teacher of young children.

CIEC3250 Public Policy And Advocacy Issues In Early Childhood **Credit Hours: 2**

Designed to heighten an awareness about the effect of public policy on young children, their educational opportunities and their parents and sensitize students to advocacy and its many manifestations.

CIEC3310 Curriculum And Methods For Preschool Education **Credit Hours: 4**

In-depth study of curriculum development, designing learning environments and anti-bias procedures for preschool children. Students will plan and implement learning activities in field placement.

CIEC3320 Play And Learning **Credit Hours: 3**

A study of the young child's play and its relationship to learning. Students will design activities and a socio-dramatic play kit to facilitate play in assigned early childhood settings.

CIEC3350 Child, Family & Public Policy In Early Childhood **Credit Hours: 3**

This course is designed to establish awareness of public policy issues and advocacy techniques, knowledge of family systems, effective home/school communication and collaborative procedures.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CIEC3380 Field Experience: Socio-Cultural Dimensions Of Education **Credit Hours: 3**

This course is designed to explore the socio-cultural context of the school, family and community as important influences in learning. Students will be assigned to work with a family, gather data and information about their field sites and attend IEP and IFSP conferences.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CIEC3900 Ece Linking Seminar III **Credit Hours: 1**

A culminating reading and discussion seminar that continues and intensifies the activities of earlier seminars (CIEC 1900 and 2900). Emphasis will be on transforming the content of the Humanities, Sciences and Social Sciences into appropriate Early Childhood curriculum.

CIEC4070 Effective Teaching Practices, Pre-K To 3rd Grade **Credit Hours: 3**

This course is designed to apply characteristics of best practice to curriculum development and implementation with adherence to the national and state curriculum standards as they apply to children, age 3 to 8, with diverse educational needs.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CIEC4150 Setting The Stage For Early Childhood Learning: Inspirations From Reggio Emilia **Credit Hours: 3**

This course will explore Reggio's philosophy of early childhood education and the numerous ways that children explore the "hundred languages." Reggio uses these languages (art, clay, wire, sculpture, light, shadow, etc.) as a way to help children represent their world and what they know about it.

CIEC4340 Infant/Toddler Curriculum **Credit Hours: 3**

Sequential development of the young child from birth to 3 years. Taken in conjunction with placement in early childhood setting, permitting opportunities to participate in the caregiving of infants/toddlers.

CIEC4380 Practicum: Preschool **Credit Hours: 1-2**

Practicum experience in preschool settings where students will observe, plan, implement and evaluate activities. Students will spend two half days per week in their field placements.

CIEC4390 Preschool Seminar **Credit Hours: 2**

Planning, teacher made materials and managing classrooms will be covered.

CIEC4460 Science Methods For Early Childhood Education **Credit Hours: 3**

This course is designed to help teachers of science in grades Pre-Kindergarten through third to understand the concepts, ideas and applications of science in the real world. Students will learn how scientific thinking involves collecting data, analyzing data, making decisions and taking action based on those decisions. Students will learn how to plan effective science experience for young children that cause them to explore environments and act upon their descoveries. Students will learn how to assess the scientific thinking of young children appropriately, using formal and infornal strategies.

Prerequisites: CIEC 4480 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

Corequisites: CIEC4480

CIEC4480 Integrative Field Experience: Best Practices **Credit Hours: 3**

A five half day a week field experience in an inclusive Pre-K or primary classroom with focus on the implementation of content and skill based curriculum using the best practice methods and the integration of appropriate technology.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CIEC4490 Integrative Seminar: Best Practices **Credit Hours: 2**

A seminar designed to provide a forum for group sharing and reflection about curricular design and implementation in the inclusive Pre-K and kindergarten-grade 3 field settings.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CIEC4510 Language And Literacy **Credit Hours: 3**

A study of the language, literacy and concept development of the young child with emphasis on the factors that influence this development and classroom practice which fosters their development.

CIEC4520 Multisensory Experiences **Credit Hours: 3**

Developmental, sensory and neurological principles underlying the planning and implementation of developmentally appropriate learning activities for young children.

CIEC4530 Affective Experiences **Credit Hours: 3**

Emphasizes the rationale and methods for providing a wholesome affective environment for young children in preschool and primary settings.

CIEC4540 Pre-Kindergarten Programs **Credit Hours: 3**

Provides early childhood educators with skills and knowledge related to the successful operation of an early childhood center, school, or program. Standards and regulations as set forth by State licensing agencies as well as accreditation by NAEYC will be covered.

CIEC4550 Teaching Methods For Early Childhood Social Studies **Credit Hours: 3**

In depth study of methods and materials for teaching social studies from pre-school to third grade. Implementation of early childhood curriculum with the context of current technology and the development of critical thinking skills.

Prerequisites: (CIEC 3200 FOR LEVEL UG WITH MIN. GRADE OF D- AND EDP 3210 FOR LEVEL UG WITH MIN. GRADE OF D-)

CIEC4580 Practicum: Infant/Toddler **Credit Hours: 1**

Practicum experience in infant/toddler settings where students will observe, plan, implement and evaluate activities.

CIEC4590 Infant/Toddler Seminar **Credit Hours: 2**

Planning, teacher made materials and the environment for infant and toddlers will be covered.

CIEC4750 Developmental Assessment In Early Childhood **Credit Hours: 3**

This course focuses on methods of assessment in early childhood classrooms. Issues covered include methods of observation, interpreting formal assessment results and using information gained from assessment to plan curriculum.

CIEC4760 Principles Of Developmentally Appropriate Curriculum **Credit Hours: 4**

A study of the principles and knowledge base for designing developmentally appropriate curriculum and classroom environments. Principles of anti-bias education are also addressed. Students make observations in four K to grade 3 classrooms.

CIEC4770 Practicum: Primary Grades **Credit Hours: 3**

Practicum experience in primary grade settings (grades K-3) where students will observe, plan, implement and evaluate activities.

CIEC4790 Kindergarten Seminar **Credit Hours: 2**

Planning, research, teacher made materials appropriate for environments for kindergarten children will be covered.

CIEC4900 Internship/Student Teaching Seminar **Credit Hours: 3**

A seminar designed to reflect on the student teaching experience and to enhance the student teacher's final preparation for employment. Professional issues, ethical behavior, resume and interview techniques and other processes and professional entry concerns. For early childhood student teachers.

Prerequisites: UPDV FOR MIN. SCORE OF 1

CIEC4910 Ece Senior Research Project **Credit Hours: 2**

The internship senior will complete an action research study or related topic about student learning. In addition to a completed paper, the student will give a multi-media presentation that clearly articulates the research question/problem, methods used in the study and the results of the study.

Prerequisites: UPDV FOR MIN. SCORE OF 1

Corequisites: CIEC4930

CIEC4930 Internship/Student Teaching **Credit Hours: 8-16**

Planned experience in public school classrooms under direction of University supervisor. Observation of teaching of experienced teacher; gradual acceptance of full responsibility by student teacher for planning, instruction, evaluation and related duties.

Prerequisites: UPDV FOR MIN. SCORE OF 1

Corequisites: CIEC4900

CIEC4950 Workshop I Early Childhood Education **Credit Hours: 1-5**

Workshop developed around topics of interest and concern for pre-service and in-service teachers and other education personnel. Practical application of workshop topics will be emphasized.

CIEC4980 Special Topics In Early Childhood Education **Credit Hours: 1-5**

Topics of interest and concern to preservice, inservice and non-degree teachers within districts and community agencies served by the Center for Educational Development. May be included in an undergraduate degree program.

CIEC4990 Undergraudate Independent Study In Early Childhood Education **Credit Hours: 1-5**

Individual study designed to provide a student the opportunity to work individually on professional problems under the direction of the Early Childhood faculty.

CIEC5000 Ece: Philosophy And Practice **Credit Hours: 3**

A comprehensive introduction to the profession of early childhood education by examining relevant issues as they relate to overall development of children ages birth to eight years.

CIEC5070 Effective Teaching Practices: Pre-K To 3rd Grade **Credit Hours: 3**

Applies characteristics of best practice to curriculum development and implementation with adherence to national and state curriculum standards as they apply to children, age 3 to 8, with diverse educational needs.

Prerequisites: (EDP 5210 FOR LEVEL GR WITH MIN. GRADE OF D- AND CIEC 5000 FOR LEVEL GR WITH MIN. GRADE OF D-)

CIEC5150 Setting The Stage For Early Childhood Learning: Inspirations From Reggio Emilia **Credit Hours: 3**

This course will explore Reggio's philosophy of early childhood education and the numerous ways that children explore the "hundred languages." Reggio uses these languages (art, clay, wire, sculpture, light, shadow, etc.) as a way to help children represent their world and what they know about it.

CIEC5340 Infant/Toddler Curriculum **Credit Hours: 3**

Introduction to the sequential development of the young child from birth to 3 years. Students will engage in field hours in infant-toddler settings, design learning materials and critique research in topics related to infant/toddler curriculum.

CIEC5350 Public Policy And Advocacy In Early Childhood Education **Credit Hours: 3**

Students will understand the implications of social, political and economic policies on the emergence of services for young children in the 21st century.

Prerequisites: CIEC 5000 FOR LEVEL GR WITH MIN. GRADE OF D-

CIEC5380 Practicum: Preschool **Credit Hours: 3**

Practicum experience in pre-kindergarten settings where students will observe, plan, implement and evaluate activities.

Prerequisites: (CIEC 5070 FOR LEVEL GR WITH MIN. GRADE OF D- AND EDP 5210 FOR LEVEL GR WITH MIN. GRADE OF D-)

CIEC5460 Science Methods For Early Childhood Education **Credit Hours: 3**

This course is designed to help teachers of science in grades Pre-Kindergarten through third to understand the concepts, ideas and applications of science in the real world. Students will learn how scientific thinking involves collecting data, analyzing data, making decisions and taking action based on those decisions. Students will learn how to plan effective science experience for young children that cause them to explore environments and act upon their descoveries. Students will learn how to assess the scientific thinking of young children appropriately, using formal and infornal strategies.

CIEC5520 Multisensory Experiences **Credit Hours: 3**

Development and sensory principles underlying the planning and implementation of developmentally appropriate learning activities for young children. Technical content will include the physical and neurological bases for learning.

CIEC5530 Affective Experiences **Credit Hours: 3**

This course focuses on teacher planning and activities that support the socio-emotional development of young children.

CIEC5540 Prekindergarten Programs **Credit Hours: 3**

Focuses on the successful operations of an early childhood program. Covers topics such as licensing and certification standards, staff development selection and purchase of equipment and proper food and health services.

CIEC5550 Teaching Methods For Early Childhood Social Studies **Credit Hours: 3**

In depth study of methods and materials for teaching social studies from pre-school to third grade. Implementation of early childhood curriculum within the context of current technology and the development of critical thinking skills.

Prerequisites: (CIEC 5000 FOR LEVEL GR WITH MIN. GRADE OF D- AND EDP 5210 FOR LEVEL GR WITH MIN. GRADE OF D-)

CIEC5580 Practicum: Infant/Toddler **Credit Hours: 1**

Practicum experience in infant/toddler settings where students will observe, plan, implement and evaluate activities.

CIEC5590 Infant Toddler/Seminar **Credit Hours: 2**

Planning, research, teacher-made materials appropriate for environments for infants and toddlers will be covered.

CIEC5770 Practicum: Primary (k-3) **Credit Hours: 3**

Practicum experience in grades Kindergarten through 3 where students will observe, plan, implement and evaluate activities.

Prerequisites: (CIEC 5070 FOR LEVEL GR WITH MIN. GRADE OF D- AND EDP 3210 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (CIEC 5070 FOR LEVEL GR WITH MIN. GRADE OF D- AND EDP 5210 FOR LEVEL GR WITH MIN. GRADE OF D-) OR (CIEC 4070 FOR LEVEL UG WITH MIN. GRADE OF D- AND EDP 3210 FOR LEVEL UG WITH MIN. GRADE OF D-)

CIEC5800 Teacher/Parent Child Relations **Credit Hours: 3**

This course is designed to assist the classroom teacher in building positive relationships with the parents of students and to develop effective strategies for communicating with them.

CIEC5950 Workshop In Early Childhood Education **Credit Hours: 1-5**

Workshops developed around topics of interest and concern to inservice teachers. Practical application of workshop topics will be emphasized. Students may include several workshops in their master's or specialist degree programs.

CIEC5980 Special Topics In Early Childhood Education **Credit Hours: 1-5**

A course developed around topics of interest and concern to inservice teachers within districts served by the Center for Educational Research and Services. Stresses solution and resolution of educational problems occurring within the district.

CIEC5990 Graduate Independent Study In Early Childhood Education **Credit Hours: 1-5**

Individual study designed to provide a student the opportunity to work individually on professional problems under the direction of the faculty in Early Childhood Education.

CIEC6310 Pre-K/Primary Curriculum **Credit Hours: 3**

The study and design of early childhood curriculum from a best practice/developmental perspective including integrated curriculum, anti-bias approaches, authentic assessment, direct learning strategies. Student self assessment and change project required.

CIEC6320 Meaning And Development Of Play Behavior **Credit Hours: 3**

Theoretical bases of play behavior and its role in curriculum development/assessment. Students implement and evaluate a sociodramatic play kit and conduct library research on one aspect of play behavior.

CIEC6330 Language And Concept Development **Credit Hours: 3**

Study of the language and literacy development of the young child with emphasis upon the factors that influence and support this development. Students will do projects to implement their learning.

CIEC6750 Developmental And Classroom Assessment **Credit Hours: 3**

Focuses upon teaching and learning in a developmental learning environment. Emphases includes observing the developmental characteristics of young children and assessment for prescriptive teaching.

CIEC6900 Masters Research Seminar In Early Childhood Educaton **Credit Hours: 2-3**

Examination of research and current issues in early childhood education. Emphasis on theory and research and evaluation models.

Prerequisites: CIEC 6950 FOR LEVEL GR WITH MIN. GRADE OF D-

CIEC6920 Masters Research Project In Early Childhood Education **Credit Hours: 1-3**

Student will complete an individual research project under the direction of a committee of at least two faculty members in Early Childhood ordinarily involving the faculty advisor.

CIEC6940 Internship In Early Childhood **Credit Hours: 1-12**

Placement of a Master's student in an appropriate PreK-Grade 3 school setting under the direction of a CIEC instructor. A maximum of 3 hours can be applied towards a masters degree.

CIEC6950 Theory And Research In Early Childhood **Credit Hours: 3**

Review and analysis of theory and research related to rationale and methods for program options for young children. Critique research and prepare a review of synthesis of research.

CIEC6960 Masters Thesis In Early Childhood Education **Credit Hours: 1-3**

Students who elect this option will complete a thesis under the direction of committee of at least two faculty members from Early Childhood Education, ordinarily including the faculty advisor.

CIEC7800 Teacher/Parent Child Relations **Credit Hours: 3**

This course is designed to assist the classroom teacher in building positive relationships with the parents of students and to develop effective strategies for communicating with them.

CIEC7940 Specialist Practicum In Early Childhood Education **Credit Hours: 1-3**

Observation and supervised experience in an appropriate setting. Students will be assigned to work as interns under the joint supervision of school and University personnel.

CIEC7980 Special Topics In Early Childhood Education **Credit Hours: 1-5**

A course developed around topics of interest and concern to inservice teachers within districts served by the Center for Educational Research and Services. Stresses solution and resolution of educational problems occurring within the district.

CIEC8310 Pre-K/Primary Curriculum **Credit Hours: 3**

The study and design of early childhood curriculum from a best practice/developmental perspective including integrated curriculum, anti-bias approaches, authentic assessment, direct learning strategies. Student self assessment and change project required.

CIEC8320 Meaning And Development Of Play Behavior **Credit Hours: 3**

Theoretical bases of play behavior and its role in curriculum development/assessment. Students implement and evaluate a sociodramatic play kit and conduct library research on one aspect of play behavior.

CIEC8330 Language And Concept Development **Credit Hours: 3**

Study of the language and literacy development of the young child with emphasis upon the factors that influence and support this development. Students will do projects to implement their learning.

CIEC8340 Curriculum Design For Infants And Toddlers **Credit Hours: 3**

Introduction to the sequential development of the young child from birth to 3 years. Students will engage in field hours in infant-toddler settings, design learning materials and critique research in topics related to infant/toddler curriculum.

CIEC8750 Developmental And Classroom Assessment **Credit Hours: 3**

Focuses upon teaching and learning in a developmental learning environment. Emphases includes observing the developmental characteristics of young children and assessment for prescriptive teaching.

CIEC8900 Doctoral Seminar In Early Childhood Education **Credit Hours: 2-4**

This seminar will consider problems and provide advanced study for doctoral students in Early Childhood Education.

CIEC8930 Independent Research In Early Childhood Education **Credit Hours: 1-5**

Individual study is designed to provide the doctoral student opportunity to work individually on professional problems under the direction of Early Childhood faculty.

CIEC8940 Doctoral Internship In Early Childhood **Credit Hours: 1-3**

Placement of doctoral students in an appropriate PreK-Grade 3 school, school district or other professional setting under the direction of joint placement personnel and CIEC faculty.

CIEC8950 Theory And Research In Early Childhood **Credit Hours: 3**

Review and analysis of theory and research related to rationale and methods for program options for young children. Critique research and prepare a review of synthesis of research.

CIEC8960 Dissertation In Early Childhood Education **Credit Hours: 1-12**

Original research in an area of early childhood education.

CIVE1000 Freshman Civil Engineering Experience **Credit Hours: 1**

Computer literacy, report writing, word processing, table creation, equation, equation writing, data manipulation, data graphical plotting. Introduction to various disciplines in Civil Engineering, Structural, Geotechnical, Transportation, Environmental. Practice in engineering problem solving process.

CIVE1100 Civil Engineering Measurements **Credit Hours: 3**

Study of graphical representations of engineering structures and systems and application by hand drawing and computer aided techniques. Instruments and methods for linear and angular measurements. Error theory and propagation. Familiarization with geographical information systems.

Corequisites: CIVE1110

CIVE1110 Computer Aided Drafting for Civil Engineers **Credit Hours: 1**

Study of graphical representation of engineering structures and systems and application by hand-drawing and computer aided techniques.

Corequisites: CIVE1100

CIVE1150 Engineering Mechanics: Statics **Credit Hours: 3**

Study of coplanar statics of particles, vector addition, resultant components, equilibrium, free body diagrams, equivalent force systems, vector products, scalar products, 2 & 3 dimensional equilibrium of rigid bodies, analysis of machines, pulleys, trusses. Centroids, moments of inertia, shear and bending moment diagrams.

Prerequisites: (MATH 1850 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2130 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (MATH 1920 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2130 FOR LEVEL UG WITH MIN. GRADE OF D-)

CIVE1160 Engineering Mechanics: Strength Of Materials **Credit Hours: 3**

Material properties. Axially loaded members, including eccentric loads and thin wall pressure vessels. Axial load applications: Stress-Strain relationships, Stress & Strain transformations. Torsion: solid sections, circular sections. Torsional load applications: Combined axial and torsion stress. Beams: shear and bending moment diagrams, bending stress, deflection. Beam load applications: Combined shear, torsion and bending stress. Buckling of long columns.

Prerequisites: CIVE 1150 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE1170 Fluid Mechanics For Civil Engineers **Credit Hours: 3**

Fundamental concepts of fluid mechanics required for the solutions of air pollution problems, water resource problems and transportation problems. Use of continuity, momentum and energy equations and dimensional analysis. Application to pipe flow, open channel flow and boundary layer flow. Introduction to turbo machinery. Measurements of fluid flow and discussion on fluid flow devices.

Prerequisites: (PHYS 2130 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1890 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (PHYS 2130 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 2890 FOR LEVEL UG WITH MIN. GRADE OF D-)

CIVE2000 Professional Development **Credit Hours: 1**

Basic concepts of career planning, co-op performance expectations, necessary skills for maximizing learning from experiences and realities of the professional community.

Prerequisites: CIVE 1000 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE2110 Civil Engineering Materials With Laboratory **Credit Hours: 3**

Introduction to properties of aggregates, Portland cement, concrete, steel, glass and bituminous mixtures. Mix designs of cement and asphalt concrete and standard test procedures for strength, workability, serviceability and durability.

Prerequisites: CIVE 1160 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE2990 Individual Study In Civil Engineering **Credit Hours: 1-3**

An opportunity for qualified underclassmen to pursue a relevant area of Civil Engineering of particular personal interest under the supervision of a faculty member.

CIVE3120 Civil Engineering Systems Analysis **Credit Hours: 3**

Systems Approach, optimization by differential calculus techniques, linear programming, transportation and assignment problems, management of construction projects, critical path method, PERT and decision analysis.

Prerequisites: MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 3820 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE3210 Soil Mechanics **Credit Hours: 3**

A study of soil as an engineering material. Geologic origins, physical properties, movement of water through soil, soil stresses, consolidation, shear strength. Engineering properties testing of soils in laboratory.

Prerequisites: (CIVE 1160 FOR LEVEL UG WITH MIN. GRADE OF D- AND CIVE 1170 FOR LEVEL UG WITH MIN. GRADE OF D-)

CIVE3220 Foundation Engineering **Credit Hours: 3**

Application of soil mechanics principles to design for problems encountered in excavations, embankments, foundations, retaining structures, abutments, slope stability. Evaluation of the ability of soil to function in various capacities.

Prerequisites: CIVE 3210 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE3310 Structural Analysis **Credit Hours: 3**

Analysis of statically determinate structures; analysis of simple and compound trusses, beams and frames; introduction to indeterminate structures; slope deflection and moment distribution. Introduction to computer applications.

Prerequisites: (CIVE 1160 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 1050 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1890 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (CIVE 1160 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 1050 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 2890 FOR LEVEL UG WITH MIN. GRADE OF D-)

CIVE3320 Basic Finite Element Methods **Credit Hours: 3**

Introduction to modern computer oriented structural analysis technique. It covers the beam-column element, triangular element and rectangular element. State-of-the-art computer software will be used to analyze bridge trusses, high-rise building frames, foundations, pavements and/or soil masses.

Prerequisites: (CIVE 3310 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 1050 FOR LEVEL UG WITH MIN. GRADE OF D-)

CIVE3410 Steel Design I **Credit Hours: 3**

An introduction to the principles underlying design of axial tension members, axial compression members, beams, columns and base plates. Also includes welded and bolted connections.

Prerequisites: CIVE 3310 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE3420 Reinforced Concrete Design I **Credit Hours: 3**

Introduction to principles and underlying design of basic structural beams, columns, one-way slabs in reinforced concrete. Shear reinforcement.

Prerequisites: CIVE 3310 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE3510 Transportation Engineering I **Credit Hours: 3**

To provide an overview of transportation systems and operating characteristics of various highway modes. Concept of land use/transportation interaction. Considerations of vehicle and human characteristics in design of highway elements. Introduction to highway capacity and traffic control devices. Transportation planning process leading to local area traffic management with introduction to transportation system management and intelligent transportation systems.

Prerequisites: (CIVE 1100 FOR LEVEL UG WITH MIN. GRADE OF D- AND MIME 2300 FOR LEVEL UG WITH MIN. GRADE OF D-)

CIVE3520 Transportation Engineering II **Credit Hours: 3**

Survey of various modes of transport with emphasis on service provided by each and facilities required. Introduction to physical and practical aspects of design of transport facilities including drainage, pavements, railroads, ports and harbors, pipelines and transportation terminals.

Prerequisites: (CIVE 3510 FOR LEVEL UG WITH MIN. GRADE OF D- AND CIVE 3210 FOR LEVEL UG WITH MIN. GRADE OF D- AND CIVE 2110 FOR LEVEL UG WITH MIN. GRADE OF D-)

CIVE3610 Water Supply And Treatment **Credit Hours: 3**

This course includes lecture, laboratory exercises and a team-based design project. The topics covered will include water quality, water supply, design of the physical and chemical treatment processes, water distribution systems and contemporary issues related to drinking water.

Prerequisites: CIVE 1170 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE3620 Air Pollution Engineering I **Credit Hours: 3**

Introduction to sources of air pollution, basic meteorological processes, air quality modeling, technology for air pollution control, odor control and noise pollution. Introduction to health effects of air pollutants, risk assessment and global atmospheric change. The students are required to use the USEPA programs for stack design and computations for ground level concentrations.

Prerequisites: CIVE 1170 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE3630 Wastewater Engineering **Credit Hours: 3**

This course includes lecture, laboratory exercises and a team-based design project. The topics covered will include wastewater collection, treatment and discharge, sludge treatment and disposal, and contemporary issues related to wastewater treatment.

Prerequisites: CIVE 1170 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE3940 Co-Op Experience **Credit Hours: 1**

Approved co-op work experience. Course may be repeated.

CIVE3950 Co-op Experience **Credit Hours: 1**

Approved co-op work experience beyond third required co-op experience. Course may be repeated.

Prerequisites: CIVE 3940 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE4210 Advanced Soil Mechanics **Credit Hours: 3**

A study of soil behavior including stress distributions, deformation, consolidation and shear strength. The course focuses upon the development and use of well accepted solutions and practical applications.

Prerequisites: CIVE 3210 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE4220 Advanced Foundation Engineering **Credit Hours: 3**

Discussion of advanced topics concerned with the application of soil mechanics to subsurface investigation and characterization, soil compaction and site improvement, shallow foundations, deep foundations, slope stability, lateral earth pressures, design of retaining structures and loads on buried structures.

Prerequisites: (CIVE 3210 FOR LEVEL UG WITH MIN. GRADE OF D- AND CIVE 3220 FOR LEVEL UG WITH MIN. GRADE OF D-)

CIVE4240 Design With Geosynthetics **Credit Hours: 3**

Use of geosynthetic materials in engineering design for reinforcement, barrier, separation and/or drainage functions. Design applications for geotechnical, transportation and environmental uses.

Prerequisites: (CIVE 3210 FOR LEVEL UG WITH MIN. GRADE OF D- AND CIVE 3220 FOR LEVEL UG WITH MIN. GRADE OF D-)

CIVE4260 Experimental Soil Mechanics **Credit Hours: 3**

Measurement of and research on the engineering properties of soils, with special emphasis on tests not covered in an introductory soil mechanics laboratory. Design of a testing program to include single and three dimensional consolidation, triaxial and direct shear and hydraulic conductivity testing for fine grained soils. SHANSEP soil properties. Two hours lecture and two hour laboratory.

Prerequisites: CIVE 3210 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE4300 Advanced Mechanics Of Materials **Credit Hours: 3**

Introduction to theory of elasticity, plane-stress and plane-strain problems, yield criteria and failure theories, bending of beams, energy methods, curved flexural members, unsymmetrical bending, torsion, shear center and axisymmetrically loaded members.

Prerequisites: (CIVE 1160 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-)

CIVE4320 Matrix Analysis Of Structures **Credit Hours: 3**

Matrix analysis of continuous beams, trusses and frames by force method and displacement method. Methods of consistent deformation and slope deflection will be discussed to complement the matrix analysis. Computer applications.

Prerequisites: CIVE 3310 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE4340 Experimental Mechanics **Credit Hours: 3**

Application of experimental techniques to stress analysis. Comparison of experimental and analytical methods. Theory of electrical resistance strain gages. Methods of photoelasticity including photostress. Data acquisition systems and their use.

Prerequisites: CIVE 2110 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE4350 Introduction To Structural Dynamics **Credit Hours: 3**

Study of undamped and damped response to free and forced vibrations of single and multi-degree of freedom systems subjected to dynamic loading. Introduction to estimation of seismic loading on structures.

Prerequisites: (MIME 2300 FOR LEVEL UG WITH MIN. GRADE OF D- AND CIVE 3310 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (MIME 2300 FOR LEVEL UG WITH MIN. GRADE OF D- AND CIVE 3410 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (MIME 2300 FOR LEVEL UG WITH MIN. GRADE OF D- AND CIVE 3420 FOR LEVEL UG WITH MIN. GRADE OF D-)

CIVE4410 Timber Design **Credit Hours: 3**

Properties of wood and the design of beams, columns, horizontal diaphragms, shearwalls and connections. Basic behavior of structures and how this behavior is reflected in the design of wood structures.

Prerequisites: CIVE 3310 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE4430 Structural Steel Design II **Credit Hours: 3**

Study of local failure in beams, biaxial bending, plate girders, composite beams, semi-rigid composite connections and beam columns.

Prerequisites: CIVE 3410 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE4440 Reinforced Concrete Design II **Credit Hours: 3**

Analysis and design of columns under axial compression and biaxial bending. Consideration of bar cut-off, development lengths. Design of two-way slabs and building frames in reinforced concrete. Deflection of beams. Shear design provisions for deep beams.

Prerequisites: CIVE 3420 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE4480 Reinforced Masonry Design **Credit Hours: 3**

Study of the design of reinforced and unreinforced masonry design, beams and walls and columns. Working stress design, strength design and empirical design are studied.

Prerequisites: CIVE 3420 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE4510 Materials Engineering **Credit Hours: 3**

Mechanical properties of various civil engineering materials including metallic, ceramic, polymeric and composite materials; microstructures; fracture mechanics; fatigue and other failure modes; environmental effects; fiber reinforced concrete; quality control and nondestructive evaluation.

Prerequisites: CIVE 2110 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE4550 Traffic Control **Credit Hours: 3**

To provide a detailed understanding of the basic concepts of traffic engineering together with driver-roadway-vehicle system characteristics. Capacity analysis of freeways, rural highways, multilane and two lane highways. Traffic control devices and traffic signal design and capacity. Traffic studies and data collections; volume, speed and travel time, accident and parking studies. Introduction to other tools to mitigate traffic congestion.

Prerequisites: CIVE 3510 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE4580 Intelligent Transportation Systems **Credit Hours: 3**

A study of the principles of advanced technologies and ideas that improve transportation mobility and efficiency, enhance safety, maximize use of existing transportation facilities, conserve energy resources and reduce environmental impacts.

Prerequisites: CIVE 3510 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE4610 Hydrology And Water Resources **Credit Hours: 3**

Aspects of Hydrology. Stream gauging. Common and rare event analysis. Hydraulic and hydrologic routing. Irrigation, navigation, flood control and urban drainage. Resource demand conflicts and multiple use planning.

Prerequisites: (CIVE 3610 FOR LEVEL UG WITH MIN. GRADE OF D- AND MIME 4000 FOR LEVEL UG WITH MIN. GRADE OF D-)

CIVE4620 Open Channel Flow Hydraulics **Credit Hours: 3**

Energy and momentum in open channel flow. Channel controls and transitions. Open channel flow with backwater curves. Unsteady flow.

Prerequisites: CIVE 3630 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE4630 Indoor Air Quality **Credit Hours: 3**

Characterization of indoor air pollutants, predictions of indoor air quality levels and indoor air quality control. Four to five design problems involving indoor air quality will be discussed/solved in the class. Special emphasis on the indoor radon and asbestos problems in the United States. Use of USEPA program.

CIVE4640 Industrial Hygiene **Credit Hours: 3**

Basic concepts of industrial hygiene and occupational health hazards, physical and chemical stresses of the industrial environment; sources; effects; measurements; evaluation; control of exposure; and control methods other than ventilation for conservation of industrial health, such as substitution and personal protection, with reference to special operation and industries.

Prerequisites: CIVE 3620 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE4650 Industrial Ventilation **Credit Hours: 3**

Industrial ventilation as related to need of industrial hygiene engineer, including principles of air flow, natural and power ventilation, supply and exhaust, characteristics and design of systems, fans, collectors, testing instruments. Construction guidelines for local exhaust systems.

Prerequisites: (CIVE 1170 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D-)

CIVE4660 Pollution Laboratory **Credit Hours: 1**

Use of different flow devices, calibration of pitot tubes, stack sampling, use of high volume sampler, use of weather station, calibration of primary and secondary flow devices and pollution control equipment. One hour laboratory.

CIVE4670 Solid Waste Management And Disposal **Credit Hours: 3**

A basic study of solid waste management concepts including origin, quantities, qualities, collection and disposal of solid waste materials. The course focuses upon municipal wastes and introduces the student to hazardous waste technologies. The primary course objective is to develop environmentally sound landfill design technologies and other ultimate disposal techniques.

Prerequisites: CIVE 3630 FOR LEVEL UG WITH MIN. GRADE OF D-

CIVE4680 Environmental Law **Credit Hours: 3**

An overview of the major federal environmental statutes: Clean Air Act, Clean Water Act, RCRA, CERCLA, etc. and legal perspective of why they were developed. Exposure to some basic legal principles which will be integrated into the overall study of environmental law. Provides a practical perspective on how the law can be applied to situations encountered by environmental engineers and scientists in the real world.

CIVE4710 Advanced Engineering Systems Modeling **Credit Hours: 3**

A systematic approach to the analysis of complicated engineering systems involving uncertain and probabilistic phenomena. Reliability analysis, systems simulation, Markov process, game theory, expert systems and probabilistic decision analysis.

Prerequisites: (CIVE 2120 FOR LEVEL UG WITH MIN. GRADE OF D- AND MIME 4000 FOR LEVEL UG WITH MIN. GRADE OF D-)

CIVE4750 Senior Design Projects **Credit Hours: 3**

To provide real world civil engineering design experience through a design problem as would be developed in an actual civil engineering consultant's office. Two hours lecture, two hours laboratory.

CIVE4810 Contracts And Specifications **Credit Hours: 3**

To provide an in-depth understanding of contract writing procedures and development of comprehensive specifications for bid documents. Expose students to real world documents and to critically evaluate them in relations to ethics, professionalism and the end product. Pros, cons and necessary elements of a valid contract.

CIVE4820 Project Management **Credit Hours: 3**

Concept of project management in the engineering and construction industry. Development and organization of projects with emphasis on application, preconstruction site investigation, planning, scheduling estimating and design. The bidding and award process. Construction and control methods for specifications. Selection of a professional construction manager. Methods of project management and methods of managing construction.

CIVE4830 Engineering Ethics And Professionalism **Credit Hours: 2**

To provide a philosophical base upon which engineering students may anchor the professional practice and growth of their technical skills, as well as the development of business and professional relationship throughout their lives. Discussion of the entire range of the engineer¿s professional endeavors, obligation to society and commitment to professional ethics.

CIVE4840 Gis For Civil Engineering **Credit Hours: 3**

Introduction to the basic concepts to geographic information systems. The use of commercial software to integrate CAD and database to answer questions using both spatial (maps) and attribute (database) data. Topics studies include CAD/GIS conversion, database design, computer mapping.

CIVE4900 Seminars In Civil Engineering **Credit Hours: 1-3**

An opportunity for qualified upperclassmen to pursue a relevant area of Civil Engineering of particular personal interest under the supervision of a faculty member.

CIVE4960 Honors Thesis Research **Credit Hours: 1-3**

Independent research under the supervision of a faculty member to fulfill the thesis requirement of the University Honors Program.

CIVE5210 Advanced Soil Mechanics **Credit Hours: 3**

A study of soil behavior including stress distributions, deformation, consolidation and shear strength. The course focuses upon the development and use of well accepted solutions and practical applications.

CIVE5220 Advanced Foundation Engineering **Credit Hours: 3**

Discussion of advanced topics concerned with the application of soil mechanics to subsurface investigation and characterization, soil compaction and site improvement, shallow foundations, deep foundations, slope stability, lateral earth pressures, design of retaining structures and loads on buried structures.

CIVE5240 Design With Geosynthetics **Credit Hours: 3**

Use of geosynthetic materials in engineering design for reinforcement, barrier, separation and/or drainage functions. Design applications for geotechnical, transportation and environmental uses.

CIVE5260 Experimental Soil Mechanics **Credit Hours: 3**

Measurement of and research on the engineering properties of soils, with special emphasis on tests not covered in an introductory soil mechanics laboratory. Design of a testing program to include single and three dimensional consolidation, triaxial and direct shear and hydraulic conductivity testing for fine grained soils. SHANSEP soil properties. Two hours lecture and two hour laboratory.

CIVE5300 Advanced Mechanics Of Materials **Credit Hours: 3**

Introduction to theory of elasticity, plane-stress and plane-strain problems, yield criteria and failure theories, bending of beams, energy methods, curved flexural members, unsymmetrical bending, torsion, shear center and axisymmetrically loaded members.

CIVE5320 Matrix Analysis Of Structures **Credit Hours: 3**

Matrix analysis of continuous beams, trusses and frames by force method and displacement method. Methods of consistent deformation and slope deflection will be discussed to complement the matrix analysis. Computer applications.

CIVE5340 Experimental Mechanics **Credit Hours: 3**

Application of experimental techniques to stress analysis. Comparison of experimental and analytical methods. Theory of electrical resistance strain gages. Methods of photoelasticity including photostress. Data acquisition systems and their use.

CIVE5410 Timber Design **Credit Hours: 3**

Properties of wood and the design of beams, columns, horizontal diaphragms, shearwalls and connections. Basic behavior of structures and how this behavior is reflected in the design of wood structures.

CIVE5430 Structural Steel Design II **Credit Hours: 3**

Study of local failure in beams, biaxial bending, plate girders, composite beams, semi-rigid composite connections and beam columns.

CIVE5440 Reinforced Concrete Design II **Credit Hours: 3**

Analysis and design of columns under axial compression and biaxial bending. Consideration of bar cutoff, development lengths. Design of two-way slabs and building frames in reinforced concrete. Deflection of beams. Shear design provisions for deep beams.

CIVE5450 Bridge Design I **Credit Hours: 3**

Design of the three most common types of short span bridges: concrete slabs, steel stringers and prestressed concrete. Additional topics are bearings, rehabilitation and retrofit and design to minimize maintenance.

CIVE5480 Reinforced Masonry Design **Credit Hours: 3**

Study of the design of reinforced and unreinforced masonry design, beams and walls and columns. Working stress design, strength design and empirical design are studied.

CIVE5510 Materials Engineering **Credit Hours: 3**

Mechanical properties of various civil engineering materials including metallic, ceramic, polymeric and composite materials; microstructures; fracture mechanics; fatigue and other failure modes; environmental effects; fiber reinforced concrete; quality control and nondestructive evaluation.

CIVE5550 Traffic Control **Credit Hours: 3**

To provide a detailed understanding of the basic concepts of traffic engineering together with driver-roadway-vehicle system characteristics. Capacity analysis of freeways, rural highways, multilane and two lane highways. Traffic control devices and traffic signal design and capacity. Traffic studies and data collections; volume, speed and travel time, accident and parking studies. Introduction to other tools to mitigate traffic congestion.

CIVE5610 Water Resources And Hydrology **Credit Hours: 3**

Aspects of Hydrology. Stream gauging. Common and rare event analysis. Hydraulic and hydrologic routing. Irrigation, navigation, flood control and urban drainage. Resource demand conflicts and multiple use planning.

CIVE5620 Open Channel Flow Hydraulics **Credit Hours: 3**

Energy and momentum in open channel flow. Channel controls and transitions. Open channel flow with backwater curves. Unsteady flow.

CIVE5630 Indoor Air Quality **Credit Hours: 3**

Characterization of the indoor air pollutants, predictions of indoor air quality levels and indoor air quality control. Four to five design problems involving indoor air quality will be discussed/solved in the class. Special emphasis on indoor radon and asbestos problems in the United States. Use of USEPA program.

CIVE5640 Industrial Hygiene **Credit Hours: 3**

Basic concepts of industrial hygiene and occupational health hazards, physical and chemical stresses of the industrial environment; sources; effects; measurements; evaluation; control of exposure; and control methods other than ventilation for conservation of industrial health, such as substitution and personal protection, with reference to special operation and industries.

CIVE5650 Industrial Ventilation **Credit Hours: 3**

Industrial ventilation as related to need of industrial hygiene engineer, including principles of air flow, natural and power ventilation, supply and exhaust, characteristics and design of systems, fans, collectors, testing instruments. Construction guidelines for local exhaust systems.

CIVE5660 Pollution Laboratory **Credit Hours: 1**

Use of different flow devices, calibration of pitot tubes, stack sampling, use of high volume sampler, use of weather station, calibration of primary and secondary flow devices and pollution control equipment. One hour laboratory.

CIVE5670 Solid Waste Management And Disposal **Credit Hours: 3**

A basic study of solid waste management concepts including origin, quantities, qualities, collection and disposal of solid waste materials. The course focuses upon municipal wastes and introduces the student to hazardous waste technologies. The primary course objective is to develop environmentally sound landfill design technologies and other ultimate disposal techniques.

CIVE5680 Environmental Law **Credit Hours: 3**

An overview of the major federal environmental statutes: Clean Air Act, Clean Water Act, RCRA, CERCLA, etc. and legal perspective of why they were developed. Exposure to some basic legal principles which will be integrated into the overall study of environmental law. Provides a practical perspective on how the law can be applied to situations encountered by environmental engineers and scientists in the real world.

CIVE5710 Advanced Engineering Systems Modeling **Credit Hours: 3**

A systematic approach to the analysis of complicated engineering systems involving uncertain and probabilistic phenomena. Reliability analysis, systems simulation, Markov process, game theory, expert systems and probabilistic decision analysis.

CIVE5810 Contracts And Specifications **Credit Hours: 3**

To provide an in-depth understanding of contract writing procedures and development of comprehensive specifications for bid documents. Expose students to real world documents and to critically evaluate them in relations to ethics, professionalism and the end product. Pros, cons and necessary elements of a valid contract.

CIVE5820 Project Management **Credit Hours: 3**

Concept of project management in the engineering and construction industry. Development and organization of projects with emphasis on engineering application, preconstruction site investigation, planning, scheduling, estimating and design. The bidding and award process. Construction and control methods for specifications. Selection of a professional construction manager. Methods of project management and methods of managing construction.

CIVE5830 Engineering Ethics And Professionalism **Credit Hours: 2**

To provide a philosophical base upon which engineering students may anchor the professional practice and growth of their technical skills, as well as the development of business and professional relationships throughout their lives. Discussion of the entire range of the engineer¿s professional endeavors, obligation to society and commitment to professional ethics.

CIVE5930 Graduate Seminar In Civil Engineering **Credit Hours: 1-3**

An opportunity for qualified graduate students to pursue a relevant area of Civil Engineering of particular personal interest under the supervision of a faculty member.

CIVE6230 Ground Water Modeling **Credit Hours: 3**

Introduction to topics concerning groundwater and its existence, Darcy's law, derivation of flow equation for saturated and unsaturated soil, flow nets, discussion of numerical methods and use of computer programs for groundwater modeling. Includes a term project.

CIVE6240 Site Investigation **Credit Hours: 3**

A study of the availability and proper use of geotechnical and environmental investigative tools and techniques to include GIS, GPS, RS, non-destructive tests utilizing GPR, XRF and IR, destructive tests utilizing GC and MS, geotechnical testing to include SPT, vane shear, cone penetrometer and geophysical methods.

CIVE6250 Mechanics Of Unsaturated Soil **Credit Hours: 3**

Application of Soil Mechanics to unsaturated soils, physics of unsaturated soils, characterization of unsaturated soils. Relationships for flow, shear strength and volume change. Measurements for flow, shear strength and volume change. Predictions for flow, shear strength and volume change. Includes journal reviews.

CIVE6260 Numerical Analysis For Geomechanics **Credit Hours: 3**

A study of numerical methods used in geotechnical engineering and their applications. Emphasis on finite element and finite difference methods for stress, displacement, consolidation, stability and seepage analysis.

Prerequisites: (CIVE 6310 FOR LEVEL GR WITH MIN. GRADE OF D- AND CIVE 6370 FOR LEVEL GR WITH MIN. GRADE OF D-)

CIVE6270 Contaminant Transport Modeling **Credit Hours: 3**

Continuum models of groundwater flow and pollution. Strategies to select domains, boundary and initial conditions to approximate reality. Inherent errors in solution schemes. Use of multidimensional analytic and numerical models to solve groundwater quality problems.

CIVE6300 Continuum Mechanics **Credit Hours: 3**

A unified approach to the study of the mechanics of continuous media; analysis of tensors; kinematics of material media; analysis of deformation and stress; the mathematical statements of the laws of conservation of mass, momentum and energy and the formulation of the mechanical constitutive equations for various classes of solids and fluids.

CIVE6310 Finite Element Methods **Credit Hours: 3**

Study of direct stiffness method, introduction to the minimum potential energy method and the Galerkin method, formulation of truss, beam, triangular and rectangular elements, applications to the analyses of space trusses, building frames, folded plates, fluid flow and seepage problems. Applications of modern computer software.

CIVE6320 Advanced Finite Element Methods **Credit Hours: 3**

Formulation of isoperimetric elements, coordinate transformation, solids of revolution, bending of flat plates, general shell elements, dynamics, vibrations and time dependent problems, geometric and material nonlinearity.

Prerequisites: CIVE 6310 FOR LEVEL GR WITH MIN. GRADE OF D-

CIVE6330 Optimum Structural Design **Credit Hours: 3**

Optimum design methods for structural systems. Techniques considered include unconstrained minimization methods, penalty function methods, constrained search techniques, genetic algorithm and computer application.

CIVE6340 Mechanics Of Stability **Credit Hours: 3**

Differential equations. Buckling of centrally and eccentrically loaded compression members; variational methods of determining critical loads; lateral and torsional buckling of beams; introduction to dynamic stability; parametric excitations; nonconservative stability problems; buckling of plates.

CIVE6360 Dynamics Of Structures **Credit Hours: 3**

Evaluation of dynamic response of structures to arbitrary time-varying loadings; single degree-of-freedom, multi-degree-of-freedom and distributed-parameter systems; partial differential equation formulations of simple systems; mode superposition and wave propagation solutions; time history analysis and estimation of maximum response by spectral analysis; effects of nonlinearities on the structural response.

CIVE6370 Numerical Methods In Civil Engineering **Credit Hours: 3**

The solutions of linear and nonlinear equations, characteristic value equations. Applications of Monte Carlo, random walk and finite difference techniques to the solution of civil engineering problems such as seepage, temperature distribution, beam-column, footing on elastic foundation, torsion and plates with various boundary conditions. Computer applications.

CIVE6380 Modal Analysis **Credit Hours: 3**

Theory and application of modal analysis. Experiments in modal analysis. Basic measurement techniques. Fourier transform theory and techniques. Transient and steady state excitation techniques. Windowing and modal parameter estimation.

Prerequisites: CIVE 6360 FOR LEVEL GR WITH MIN. GRADE OF D-

CIVE6390 Wind Load Analysis And Design **Credit Hours: 3**

Study of wind, its cause effect and damage mechanisms. Analysis of wind forces on structures and associated structural dynamics. Examination of wind load provisions of building codes.

CIVE6430 Behavior Of Steel Structures **Credit Hours: 3**

Study of the behavior of structural steel members and systems and their significance in terms of design and the development of specifications.

CIVE6440 Behavior Of Reinforced Concrete Structures **Credit Hours: 3**

Studies of the behavior and strength of reinforced concrete members by means of reviews of the more significant experimental and analytical investigations. Emphasis is placed on the empirical nature of current design specification and their relation to the results of research.

CIVE6450 Seismic-Resistant Design **Credit Hours: 3**

Characterization of strong ground motions for design; development of design criteria for elastic and inelastic structural systems; development of linear and nonlinear design spectra; basis for code design procedures; conceptual basis for seismic isolation and energy dissipation techniques; mechanics of isolation bearings.

CIVE6460 Advanced Composite Materials In Infrastructure **Credit Hours: 3**

Introduction to fiber composites and their applications in repair and retrofit of infrastructure. Strengthening of bridges, buildings, pavements. Understanding of basic concepts involved in design of concrete members reinforced with fiber reinforced polymer.

CIVE6470 Plastic Analysis Of Structures **Credit Hours: 3**

Study of the basis of plastic theory and analysis Application of these theories to the design of structures.

CIVE6480 Prestressed Concrete Structures **Credit Hours: 3**

Structural behavior and failure modes of prestressed concrete structures; design in prestressed concrete, including long-span structures, bridges and precast systems.

Prerequisites: CIVE 5440 FOR LEVEL GR WITH MIN. GRADE OF D-

CIVE6510 Pavement Design And Analysis **Credit Hours: 3**

Understanding of fundamental concepts of various stresses in flexible and rigid pavements; traffic loading and volume considerations; climatic effects; materials characterization and variability; design procedures; performance evaluation and rehabilitation methods.

CIVE6520 Infrastructure Systems Management **Credit Hours: 3**

An integrated, systemic approach to the management of infrastructure. Analysis methods are introduced and developed recognizing the multidimensional nature of performance of facilities, resource constraints, technological innovations and institutional factors.

CIVE6550 Urban Transportation Design **Credit Hours: 3**

To provide a detailed understanding of the basic factors affecting location and design of fixed facilities for urban highways and mass transit systems. Design of Origin and Destination studies. Discussion of changing concerns regarding metropolitan transportation planning, the process of urban transportation planning; trip generation, distribution, modal split models and traffic assignments, new transportation technology and its effect on design of fixed facilities and considerations of urban goods movement in urban street design. Social, environmental and esthetic constraints on location and design.

CIVE6560 Transportation System Management And Economics **Credit Hours: 3**

To provide a detailed understanding of the economic principles that are applicable to public infrastructures. Critical analysis of conventional procedure in transportation studies; user and nonuser costs and benefits, the value of travel time, evaluations of transport investments and financing. Discussion on principles of Transportation System Management to maximize the efficiency and effectiveness of existing transportation systems. Funding sources and innovative funding of projects.

CIVE6570 Traffic Flow Theory And Simulation Models **Credit Hours: 3**

To develop a theoretical understanding of macroscopic and microscopic traffic flow characteristics. Analytic techniques to analysis demand-supply, shock waves, car following theory and application of queuing theory. Traffic simulation techniques that have potential for use in Intelligent Transportation Systems and Architecture. Exposure to freeway operations and management. Steps in the development of a simulation model. Exposure to computer simulation models.

CIVE6580 Intelligent Transportation Systems **Credit Hours: 3**

Intelligent Transportation Systems consist of advanced technologies and ideas which, in combination, can improve transportation mobility and productivity, enhance safety maximize use of existing transportation facilities, conserve energy resources and reduce environmental effects. The intent of the course is to study these technologies, their components and functions, and assess their impacts on solving transportation problems.

CIVE6590 Traffic Signal Design And Operations **Credit Hours: 3**

To provide in-depth understanding of traffic control devices in particular to signal design. Role of signalized and unsignalized intersections in traffic operations, measure of performance. Time space correlation, actuated signals and detection, signal coordination. Signal control hardware and maintenance. Arterial performance, operations and management. Computer traffic-signal control systems.

CIVE6610 Physical, Chemical, And Biological Processes **Credit Hours: 4**

Theory and model development for physical, chemical and biological process design of wastewater treatment systems.

CIVE6620 Environmental Modeling **Credit Hours: 3**

Translation of the physics of environmental problems into mathematical models for engineering analysis. Topics include mathematics of equilibrium and kinetic chemical reaction systems; reactor modeling; mathematics of mass transfer.

CIVE6630 Dispersion And Risk Modeling **Credit Hours: 3**

Treatment of atmospheric dispersion problems, development of air quality models, components of a physical model, selection and evaluation of air pollution software, evaluation of models, risk modeling, EPA models and recent topics.

CIVE6640 Environmental Engineering Chemistry **Credit Hours: 3**

Study of the chemical progression of inorganic and organic materials that significantly contribute to water pollution. The engineering significance of these materials upon treatment systems and the environment. Selected written and/or oral presentations required.

CIVE6650 Environmental Engineering Microbiology **Credit Hours: 3**

Study of the microbiology, biochemistry and microorganisms of importance to biological waste treatment operations and environmental management systems. The optimization of biological waste treatment facilities and other purification bioremediation processes. Selected written and/or oral presentations required.

CIVE6660 Advanced Treatment Processes **Credit Hours: 3**

Theory, development and design of advanced processes for the treatment of water, wastewater and sludge. Processes such as reverse osmosis, electrodialysis, centrifugation, belt filtration, dissolved air flotation and foam fractionation are studied. Selected written and/or oral presentations required.

Prerequisites: CIVE 6610 FOR LEVEL GR WITH MIN. GRADE OF D-

CIVE6680 Sediment Transport **Credit Hours: 3**

Sediment movement in streams and rivers. Topics include sediment properties, threshold of movement, suspended sediment, stable channel design, sediment waves and bed features. Erosion of channels and the near bank region.

CIVE6690 Dispersion Modeling Laboratory **Credit Hours: 1**

Use of USEPA network, use of ten computer programs from the USEPA network, use of Internet and environmental BBS, search for environmental data bases using search engines.

Prerequisites: CIVE 6630 FOR LEVEL GR WITH MIN. GRADE OF D-

CIVE6840 Applied Gis For Civil Engineering **Credit Hours: 3**

Advanced topics in Geographic Information Systems applied to civil engineering. Topics include generating transportation planning maps, environmental mapping, infrastructure mapping. Special techniques used in generating maps.

CIVE6900 Civil Engineering Problems **Credit Hours: 3**

Special assignment of civil engineering problems of various types at the graduate level.

CIVE6960 Graduate Research And Thesis - Masters **Credit Hours: 1-9**

MS student should register their adviser's section number.

CIVE6980 Graduate Research And Project - Masters **Credit Hours: 1-6**

MS student should register their adviser's section number.

CIVE7210 Advanced Soil Mechanics **Credit Hours: 3**

CIVE7220 **Adv Foundation Engineering** **Credit Hours: 3**

CIVE7240 **Design with Geosynthetics** **Credit Hours: 3**

CIVE7260 **Experimental Soil Mechanics** **Credit Hours: 3**

CIVE7300 **Adv Mechanics of Materials** **Credit Hours: 3**

CIVE7320 **Matrix Analysis of Structures** **Credit Hours: 3**

CIVE7340 **Experimental Mechanics** **Credit Hours: 3**

CIVE7410 **Timber Design** **Credit Hours: 3**

CIVE7430 **Structural Steel Design II** **Credit Hours: 3**

CIVE7440 Reinforced Concrete Design II **Credit Hours: 3**

CIVE7450 Bridge Design I **Credit Hours: 3**

Design of the three most common types of short span bridges: concrete slabs, steel stringers and prestressed concrete. Additional topics are bearings, rehabilitation and retrofit and design to minimize maintenance.

CIVE7480 Reinforced Masonry Design **Credit Hours: 3**

CIVE7510 Materials Engineering **Credit Hours: 3**

CIVE7550 Traffic Control **Credit Hours: 3**

CIVE7620 Open Channel Flow Hydraulics **Credit Hours: 3**

CIVE7630 Indoor Air Quality **Credit Hours: 3**

CIVE7640 Industrial Hygiene **Credit Hours: 3**

CIVE7650 Industrial Ventilation **Credit Hours: 3**

CIVE7660 Pollution Laboratory **Credit Hours: 1**

CIVE7670 Solid Waste Mgmt and Disposal **Credit Hours: 3**

CIVE7680 Environmental Law **Credit Hours: 3**

CIVE7710 Adv Eng Systems Modeling **Credit Hours: 3**

CIVE7900 Independent Problems **Credit Hours: 1-6**

CIVE8230 Ground Water Modeling **Credit Hours: 3**

Introduction to topics concerning groundwater and its existence, Darcy's law, derivation of flow equation for saturated and unsaturated soil, flow nets, discussion of numerical methods and use of computer programs for groundwater modeling. Includes a term project.

CIVE8240 Site Investigation **Credit Hours: 3**

A study of the availability and proper use of geotechnical and environmental investigative tools and techniques to include GIS, GPS, RS, non-destructive tests utilizing GPR, XRF and IR, destructive tests utilizing GC and MS, geotechnical testing to include SPT, vane shear, cone penetrometer and geophysical methods.

CIVE8250 Mechanics Of Unsaturated Soil **Credit Hours: 3**

Application of Soil Mechanics to unsaturated soils, physics of unsaturated soils, characterization of unsaturated soils. Relationships for flow, shear strength and volume change. Measurements for flow, shear strength and volume change. Includes journal reviews.

CIVE8260 Numerical Analysis For Geomechanics **Credit Hours: 3**

A study of numerical methods used in geotechnical engineering and their applications. Emphasis on finite element and finite difference methods for stress, displacement, consolidation, stability and seepage analysis.

Prerequisites: (CIVE 8310 FOR LEVEL GR WITH MIN. GRADE OF D- AND CIVE 8370 FOR LEVEL GR WITH MIN. GRADE OF D-)

CIVE8270 Contaminant Transport Modeling **Credit Hours: 3**

Continuum models of groundwater flow and pollution. Strategies to select domains, boundary and initial conditions to approximate reality. Inherent errors in solution schemes. Use of multidimensional analytic and numerical models to solve groundwater quality.

Prerequisites: CIVE 8230 FOR LEVEL GR WITH MIN. GRADE OF D-

CIVE8300 Continuum Mechanics **Credit Hours: 3**

A unified approach to the study of the mechanics of continuous media; analysis of tensors; kinematics of material media; analysis of deformation and stress; the mathematical statements of the laws of conservation of mass, momentum and energy and the formulation of the mechanical constitutive equations for various classes of solids and fluids.

CIVE8310 Finite Element Methods **Credit Hours: 3**

Study of direct stiffness method, introduction to the minimum potential energy method and the Galerkin method, formulation of truss, beam, triangular and rectangular elements, applications to the analyses of space trusses, building frames, folded plates, fluid flow and seepage problems. Applications of modern computer software.

CIVE8320 Advanced Finite Element Methods **Credit Hours: 3**

Formulation of isoperimetric elements, coordinate transformation, solids of revolution, bending of flat plates, general shell elements, dynamics, vibrations and time dependent problems, geometric and material nonlinearity.

Prerequisites: CIVE 8310 FOR LEVEL GR WITH MIN. GRADE OF D-

CIVE8330 Optimum Structural Design **Credit Hours: 3**

Optimum design methods for structural systems. Techniques considered include unconstrained minimization methods, penalty function methods, constrained search techniques, genetic algorithm and computer application.

CIVE8340 Mechanics Of Stability **Credit Hours: 3**

Differential equations. Buckling of centrally and eccentrically loaded compression members; variational methods of determining critical loads; lateral and torsional buckling of beams; introduction to dynamic stability; parametric excitations; nonconservative stability problems; buckling of plates.

CIVE8360 Dynamics Of Structures **Credit Hours: 3**

Evaluation of dynamic response of structures to arbitrary time-varying loadings; single degree-of-freedom, multi-degree-of-freedom and distributed-parameter systems; partial differential equation formulations of simple systems; mode superposition and wave propagation solutions; time history analysis and estimation of maximum response by spectral analysis; effects of nonlinearities on the structural response.

CIVE8370 Numerical Methods In Civil Engineering **Credit Hours: 3**

The solutions of linear and nonlinear equations, characteristic value equations. Applications of Monte Carlo, random walk and finite difference techniques to the solution of civil engineering problems such as seepage, temperature distribution, beam-column, footing on elastic foundation, torsion and plates with various boundary conditions. Computer applications.

CIVE8380 Modal Analysis **Credit Hours: 3**

Theory and application of modal analysis. Experiments in modal analysis. Basic measurement techniques. Fourier transform theory and techniques. Transient and steady state excitation techniques. Windowing and modal parameter estimation.

Prerequisites: CIVE 8360 FOR LEVEL GR WITH MIN. GRADE OF D-

CIVE8390 Wind Load Analysis And Design **Credit Hours: 3**

Study of wind, its cause effect and damage mechanisms. Analysis of wind forces on structures and associated structural dynamics. Examination of wind load provisions of building codes.

CIVE8430 Behavior Of Steel Structures **Credit Hours: 3**

Study of the behavior of structural steel members and systems and their significance in terms of design and the development of specifications.

CIVE8440 Behavior Of Reinforced Concrete Structures **Credit Hours: 3**

Studies of the behavior and strength of reinforced concrete members by means of reviews of the more significant experimental and analytical investigations. Emphasis is placed on the empirical nature of current design specification and their relation to the results of research.

CIVE8450 Seismic-Resistant Design **Credit Hours: 3**

Characterization of strong ground motions for design; development of design criteria for elastic and inelastic structural systems; development of linear and nonlinear design spectra; basis for code design procedures; conceptual basis for seismic isolation and energy dissipation techniques; mechanics of isolation bearings.

CIVE8460 Advanced Composite Materials In Infrastructure **Credit Hours: 3**

Introduction to fiber composites and their applications in repair and retrofit of infrastructure. Strengthening of bridges, buildings, pavements. Understanding of basic concepts involved in design of concrete members reinforced with fiber reinforced polymer.

CIVE8470 Plastic Analysis Of Structures **Credit Hours: 3**

Study of the basis of plastic theory and analysis Application of these theories to the design of structures.

CIVE8480 Prestressed Concrete Structures **Credit Hours: 3**

Structural behavior and failure modes of prestressed concrete structures; design in prestressed concrete, including long-span structures, bridges and precast systems.

Prerequisites: CIVE 7440 FOR LEVEL GR WITH MIN. GRADE OF D-

CIVE8510 Pavement Design And Analysis **Credit Hours: 3**

Understanding of fundamental concepts of various stresses in flexible and rigid pavements; traffic loading and volume considerations; climatic effects; materials characterization and variability; design procedures; performance evaluation and rehabilitation methods.

CIVE8520 Infrastructure Systems Management **Credit Hours: 3**

An integrated, systemic approach to the management of infrastructure. Analysis methods are introduced and developed recognizing the multidimensional nature of performance of facilities, resource constraints, technological innovations and institutional factors.

CIVE8550 Urban Transportation Design **Credit Hours: 3**

To provide a detailed understanding of the basic factors affecting location and design of fixed facilities for urban highways and mass transit systems. Design of Origin and Destination studies. Discussion of changing concerns regarding metropolitan transportation planning, the process of urban transportation planning; trip generation, distribution, modal split models and traffic assignments, new transportation technology and its effect on design of fixed facilities and considerations of urban goods movement in urban street design. Social, environmental and esthetic constraints on location and design.

CIVE8560 Transportation System Management And Economics **Credit Hours: 3**

To provide a detailed understanding of the economic principles that are applicable to public infrastructures. Critical analysis of conventional procedure in transportation studies; user and nonuser costs and benefits, the value of travel time, evaluations of transport investments and financing. Discussion on principles of Transportation System Management to maximize the efficiency and effectiveness of existing transportation systems. Funding sources and innovative funding of projects.

CIVE8570 Traffic Flow Theory And Simulation Models **Credit Hours: 3**

To develop a theoretical understanding of macroscopic and microscopic traffic flow characteristics. Analytic techniques to analysis demand-supply, shock waves, car following theory and application of queuing theory. Traffic simulation techniques that have potential for use in Intelligent Transportation Systems and Architecture. Exposure to freeway operations and management. Steps in the development of a simulation model. Exposure to computer simulation models.

CIVE8580 Intelligent Transportation Systems **Credit Hours: 3**

Intelligent Transportation Systems consist of advanced technologies and ideas which, in combination, can improve transportation mobility and productivity, enhance safety maximize use of existing transportation facilities, conserve energy resources and reduce environmental effects. The intent of the course is to study these technologies, their components and functions and assess their impacts on solving transportation problems.

CIVE8590 Traffic Signal Design And Operations **Credit Hours: 3**

To provide in-depth understanding of traffic control devices in particular to signal design. Role of signalized and unsignalized intersections in traffic operations, measure of performance. Time space correlation, actuated signals and detection, signal coordination. Signal control hardware and maintenance. Arterial performance, operations and management. Computer traffic-signal control systems.

CIVE8610 Physical, Chemical, And Biological Processes **Credit Hours: 4**

Theory and model development for physical, chemical and biological process design of wastewater treatment systems.

CIVE8620 Environmental Modeling **Credit Hours: 3**

Translation of the physics of environmental problems into mathematical models for engineering analysis. Topics include mathematics of equilibrium and kinetic chemical reaction systems; reactor modeling; mathematics of mass transfer.

CIVE8630 Dispersion And Risk Modeling **Credit Hours: 3**

Treatment of atmospheric dispersion problems, development of air quality models, components of a physical model, selection and evaluation of air pollution software, evaluation of models, risk modeling, EPA models and recent topics.

CIVE8640 Environmental Engineering Chemistry **Credit Hours: 3**

Study of the chemical progression of inorganic and organic materials that significantly contribute to water pollution. The engineering significance of these materials upon treatment systems and the environment. Selected written and/or oral presentations required.

CIVE8650 Environmental Engineering Microbiology **Credit Hours: 3**

Study of the microbiology, biochemistry and microorganisms of importance to biological waste treatment operations and environmental management systems. The optimization of biological waste treatment facilities and other purification bioremediation processes. Selected written and/or oral presentations required.

CIVE8660 Advanced Treatment Processes **Credit Hours: 3**

Theory, development and design of advanced processes for the treatment of water, wastewater and sludge. Processes such as reverse osmosis, electrodialysis, centrifugation, belt filtration, dissolved air flotation and foam fractionation are studied. Selected written and/or oral presentations required.

Prerequisites: CIVE 8610 FOR LEVEL GR WITH MIN. GRADE OF D-

CIVE8680 Sediment Transport **Credit Hours: 3**

Sediment movement in streams and rivers. Topics include sediment properties, threshold of movement, suspended sediment, stable channel design, sediment waves and bed features. Erosion of channels and the near bank region.

CIVE8690 Dispersion Modeling Laboratory **Credit Hours: 1**

Use of USEPA network, use of ten computer programs from the USEPA network, use of Internet and environmental BBS, search for environmental data bases using search engines.

Prerequisites: CIVE 8630 FOR LEVEL GR WITH MIN. GRADE OF D-

CIVE8900 Independent Problems **Credit Hours: 1-6**

Ph.D. student should register their adviser's section number.

CIVE8960 Doctoral Graduate Research & Dissertation **Credit Hours: 1-16**

Graduate research towards the completion of a Doctoral degree.

CLC1010 Classical Humanities **Credit Hours: 3**

An introduction to the civilization of the Greeks and Romans in which history, literature, mythology, art and philosophy are interrelated and interpreted. (not for major credit)

CLC2040 Ancient Near East **Credit Hours: 3**

A survey of the history and civilization of ancient Sumer, Babylonia, Assyria, Egypt, Palestine and Persia.

CLC2050 Ancient Greece **Credit Hours: 3**

A survey of the history and civilization of Hellenic and Hellenistic Greece.

CLC2060 Ancient Rome **Credit Hours: 3**

A survey of the history and civilization of Rome from its origin through the Empire.

CLC3100 Classical Mythology **Credit Hours: 3**

A survey of Greek and Roman mythology in classical literature, sculpture and art.

CLEP1000 College Level Exam Program **Credit Hours: 1-18**

CMNP585 Sensory Neuroscience **Credit Hours: 2**

Presentation and discussion of current research in six major sensory systems: visual, somatosensory, auditory, vestibular, olfactory, and gustatory.

CMNP601 Cellular Molecular Neurobiolog **Credit Hours: 4**

Introductory survey course covering important structural, functional and developmental aspects of cells and molecules relevant to the nervous system.

CMNP610 Auditory Neuroscience **Credit Hours: 2**

An introductory reading and discussion of the anatomy, physiology, chemistry, and psychology of auditory function.

CMNP611 Vestibular Neuroscience **Credit Hours: 2**

CMNP653 Neurochemistry Seminar **Credit Hours: 0-2**

This weekly seminar is based on discussion of assigned research papers in Neurochemistry. Students are graded on class participation and a written research-based paper that is also presented orally to the class.

CMNP655 Jrnl Paper Review Neuroscience **Credit Hours: 1**

CMNP660 Neuroscience Lab Rotation I **Credit Hours: 2**

Introductory research course in which first-year students are exposed to ongoing work in a neuroscience lab (first half of fall semester) to introduce the issues and methods used in these labs.

CMNP661 Neuroscience Lab Rotation II **Credit Hours: 2**

Introductory research course in which first-year students are exposed to ongoing work in a neuroscience lab (second half of fall semester) to introduce the issues and methods used in these labs.

CMNP662 Neuroscience Lab Rotation III **Credit Hours: 2**

Introductory research course in which first-year students are exposed to ongoing work in a neuroscience lab (first half of spring semester) to introduce the issues and methods used in these labs.

CMNP663 Neuroscience Lab Rotation IV **Credit Hours: 2**

Introductory research course in which first-year students are exposed to ongoing work in a neuroscience lab (second half of spring semester) to introduce the issues and methods used in these labs.

CMNP664 Neuroscience Lab Rotation V **Credit Hours: 2**

Optional introductory research course in which first-year students are exposed to ongoing work in a neuroscience lab (first half of summer semester) to introduce the issues and methods used in these labs.

CMNP665 Neuroscience Lab Rotation VI **Credit Hours: 2**

Optional introductory research course in which first-year students are exposed to ongoing work in a neuroscience lab (second half of summer semester) to introduce the issues and methods used in these labs.

CMNP673 Research in Neuroscience **Credit Hours: 0-15**

Training in neuroscience research techniques through laboratory experience. May be repeated for credit.

CMNP785 Sensory Neuroscience **Credit Hours: 2**

Presentation and discussion of current research in six major sensory systems: visual, somatosensory, auditory, vestibular, olfactory, and gustatory.

CMNP801 Cellular Molec Neurobiology **Credit Hours: 4**

Introductory survey course covering important structural, functional and developmental aspects of cells and molecules relevant to the nervous system.

CMNP805 Intro to Neuroscience Research **Credit Hours: 1**

The purpose of this course is to introduce first year Neuroscience students to the research of program faculty. Discussions are based on papers related to faculty members' research interests.

CMNP810 Auditory Neuroscience **Credit Hours: 2**

An introductory reading and discussion of the anatomy, physiology, chemistry, and psychology of auditory function.

CMNP811 Vestibular Neuroscience **Credit Hours: 2**

CMNP853 Neurochemistry Seminar **Credit Hours: 0-2**

This weekly seminar is based on discussion of assigned research papers in Neurochemistry. Students are graded on class participation and a written research-based paper that is also presented orally to the class.

CMNP855 Jrnl Paper Review Neuroscience **Credit Hours: 1**

CMNP860 Neuroscience Lab Rotations I **Credit Hours: 2**

Introductory research course in which first-year students are exposed to ongoing work in a neuroscience lab (first half of fall semester) to introduce the issues and methods used in these labs.

CMNP861 Neuroscience Lab Rotations II **Credit Hours: 2**

Introductory research course in which first-year students are exposed to ongoing work in a neuroscience lab (second half of fall semester) to introduce the issues and methods used in these labs.

CMNP862 Neuroscience Lab Rotations III **Credit Hours: 2**

Introductory research course in which first-year students are exposed to ongoing work in a neuroscience lab (first half of spring semester) to introduce the issues and methods used in these labs.

CMNP863 Neuroscience Lab Rotations IV **Credit Hours: 2**

Introductory research course in which first-year students are exposed to ongoing work in a neuroscience lab (second half of spring semester) to introduce the issues and methods used in these labs.

CMNP864 Neuroscience Lab Rotations V **Credit Hours: 2**

Optional introductory research course in which first-year students are exposed to ongoing work in a neuroscience lab (first half of summer semester) to introduce the issues and methods used in these labs.

CMNP865 Neuroscience Lab Rotations VI **Credit Hours: 2**

Optional introductory research course in which first-year students are exposed to ongoing work in a neuroscience lab (second half of summer semester) to introduce the issues and methods used in these labs.

CMNP873 Research in Neuroscience **Credit Hours: 0-15**

Training in neuroscience research techniques through laboratory experience. May be repeated for credit.

CMPT1010 Computer Fundamentals **Credit Hours: 1**

Introduction to microcomputers. Topics covered are hardware, software, computer operation, terminology and applications.

CMPT1020 Computer Concepts **Credit Hours: 4**

Introduction to computer software, hardware, and processes associated with contemporary computer systems. Topics include operating systems, user applications, e-mail, WWW, and search capabilities. Emphasis is placed on the Internet and networking.

CMPT1050 Scripting Languages **Credit Hours: 4**

Introduces scripting technology focusing on industry trends and standards. Students will demonstrate the ability to evaluate, learn and adopt new scripting languages such as JavaScript.

CMPT1100 Computer Information Applications **Credit Hours: 3**

Concepts and techniques on the application of computers to the solution of business computer information systems. Students will have hands-on experience in word processing, spreadsheet and database on microcomputers.

CMPT1110 Pc Operating Systems **Credit Hours: 3**

A+ certification aligned study of both command line and graphical user-based current PC operating systems. Topics include installation and upgrade, configuration, management, troubleshooting and network connectivity.

CMPT1120 Application Programming **Credit Hours: 4**

A currently popular programming language, such as Microsoft Visual Studio, will be used to create stand-alone applications. Topics such as object-oriented coding, logical procedures and proper documentation are stressed.

CMPT1320 Internet And The World Wide Web **Credit Hours: 1**

Internet topics including history of the Internet, IP addressing, Telnet, Gopher, FTP, WAIS and World Wide Web. Students will create a personal home page with Hyper Text.

CMPT1400 Introduction to Web Page Development **Credit Hours: 3**

Students will learn the basics of creating custom Web designs by using tables, forms, graphics and interactive features. Plan, write and format Web pages for workplace applications.

CMPT1410 Microsoft Excel Spreadsheet Application **Credit Hours: 2**

Hands-on analysis of the use of Excel spreadsheets in solving workplace problems with an emphasis on the design of templates to meet the needs of specific applications.

CMPT1420 Microsoft Access Database Applications **Credit Hours: 2**

Hands-on analysis of the use of Access in solving workplace problems with an emphasis on the entering, updating, manipulating, storing and retrieving of information.

CMPT1430 Microsoft Word **Credit Hours: 2**

MS Word will teach students word processing concepts and applications using industry standard software. Students will prepare a variety of documents and master basic software functions in an effective and efficient manner.

CMPT1440 Microsoft Powepoint Presentation **Credit Hours: 2**

Students will learn basic to advanced features of PowerPoint software from creating a presentation and adding graphics to presenting a slide show and integrating PowerPoint with other software.

CMPT1450 Microsoft Outlook **Credit Hours: 1**

Students will learn a flexible messaging and personal information management program used to send and receive e-mail and manage messages, contacts, appointments and tasks.

CMPT1470 Crystal Reports **Credit Hours: 3**

Cypstal Reprots teaches students how to create reports utilizing various data sources such as Microsoft Access, Paradpx, and others. It incorporates maps and graphs and presents data in an easy-to read format.

CMPT1500 Flash Web Animation **Credit Hours: 3**

Student will use Flash to create interactive websites. Students will learn to create animated banners, action scripts, special effects, movies, buttons and navigation.

CMPT1510 Digital Imaging **Credit Hours: 2**

This course offers a broad overview and extensive practical experience in the production of digital images. Students create digital images using scanners, video and digital cameras. Image resolution, format options, color correction, screen frequency, halftones and reproduction are also covered.

Prerequisites: CMPT 1100 FOR LEVEL UG WITH MIN. GRADE OF D-

CMPT1520 Beginning Adobe Illustrator **Credit Hours: 3**

Explores the use of computers for digital image creation using Adobe Illustrator. Concepts, techniques and applications also covered. Students create print, presentation and Web graphics.

CMPT1530 Beginning Adobe Photoshop **Credit Hours: 3**

Hands-on exploration of digital imaging using Adobe Photoshop. Topics include photo-retouching, imaging editing techniques, color painting and Web applications.

CMPT1540 Digital Video **Credit Hours: 3**

Explores use of video editing software. Students will analyze, evaluate, describe terminology. Also develop proficiency in desktop video production and create an electronic resume using popular video-editing software.

Prerequisites: CMPT 1100 FOR LEVEL UG WITH MIN. GRADE OF D-

CMPT1600 Internet Design And Publishing **Credit Hours: 3**

This course offers a broad overview and extensive practical experience in the design and production of Web pages. Students learn current Web design technology and create Web pages using Microsoft Expression Web.

CMPT1700 Podcasting, Vodcasting, and Blogging **Credit Hours: 3**

This course offers a broad overview and extensive practical experience in the design and production of web sites containing podcasts, vodcasts, and bloggs. Students will learn how to plan, record, edit, and publish.

CMPT2010 Rpg Programming **Credit Hours: 4**

Experience in the operation of current mid-range computer architecture. Fundamental programming experience in the RPG language with emphasis on logic and efficiency.

Prerequisites: CMPT 1020 FOR LEVEL UG WITH MIN. GRADE OF D-

CMPT2030 C Family Programming **Credit Hours: 4**

Students are introduced to the C family of programming languages. Students will write computer programs using the most up-to-date versions of this language family.

CMPT2110 Advanced Concepts In Programming **Credit Hours: 4**

The course covers advanced programming techniques and the concepts of object-oriented programming using a currently popular programming language (such as C++).

CMPT2210 Data Management With Sql **Credit Hours: 3**

Hands-on course utilizing a multi-user database management system. SQL will be used as a data manipulation and a data definition language.

CMPT2220 Information Systems Design And Implementation **Credit Hours: 4**

Provides students interested in an information technology career an opportunity to work on a project that will include analysis, design and implementation of a workplace application.

CMPT2320 Xml Concepts And Programming **Credit Hours: 3**

Creation of XML applications through document specification and self-defining data definition. The role of XML in business-to-business communication.

CMPT2400 Microcomputer Project **Credit Hours: 4**

Provides practical experience in applying concepts studied in previous courses to a systems design project. The project consists of student teams performing the analysis, design, software selection, testing and implementation of a microcomputer system for a business.

Prerequisites: CNET 2200 FOR LEVEL UG WITH MIN. GRADE OF D-

CMPT2410 Adobe InDesign Desktop Publishing **Credit Hours: 3**

This course will use Adobe InDesign to enable the student to learn the elements of the publishing cycle: writing, editing, typesetting, design, graphic production, page makeup and final publication. Newsletters, brochures, pamphlets and fliers will be produced.

CMPT2420 Advanced Adobe Indesign Desktop Publishing **Credit Hours: 3**

This course will use Adobe InDesign to cover advanced electronic desktop publishing concepts, procedures and applications. Students will design sophisticated desktop documents for print, internet and prepress.

CMPT2430 Advanced Microsoft Word **Credit Hours: 2**

This hands-on course will use Microsoft Word to teach advanced document production skills including generating large documents, and creating professional print, Web, and graphic features.

Prerequisites: CMPT 1430 FOR LEVEL UG WITH MIN. GRADE OF D-

CMPT2460 Advanced Microsoft Excel Spreadsheet **Credit Hours: 2**

Students will learn intermediate and advanced functions of Microsoft Excel Spreadsheets in order to utilize them effectively in workplace situations.

Prerequisites: CMPT 1410 FOR LEVEL UG WITH MIN. GRADE OF D-

CMPT2510 Intermediate Adobe Illustrator **Credit Hours: 3**

An intermediate, hands-on exploration of Adobe Illustrator for professional illustration creation and manipulation. Students will incorporate typography, image compositing, painting and image-correction techniques.

Prerequisites: CMPT 1520 FOR LEVEL UG WITH MIN. GRADE OF D-

CMPT2530 Intermediate Adobe Photoshop **Credit Hours: 3**

An intermediate, hands-on exploration of Adobe Photoshop for digital imaging. Students capture, create, manipulate and edit images for high-end output.

Prerequisites: CMPT 1530 FOR LEVEL UG WITH MIN. GRADE OF D-

CMPT2550 Advanced Digital Video **Credit Hours: 3**

This course covers advanced techniques of video editing software. Students will use professional video-editing techniques to develop short- and long-format movies for video, film, desktops, multimedia and the WWW using popular video-editing software.

Prerequisites: CMPT 1100 FOR LEVEL UG WITH MIN. GRADE OF D-

CMPT2620 Web Site Maintenance **Credit Hours: 3**

This course develops skills for students who will function as Web developers or project managers responsible for increasing Web site traffic, updating Web content and designs. Students learn planning issues related to Web design and redesign.

CMPT2630 Mous Certification Concepts **Credit Hours: 2**

Students will reinforce Word, Excel, Access and PowerPoint concepts to prepare them to take Microsoft Office User Specialist (MOUS) certification tests in these areas.

Prerequisites: (CMPT 1410 FOR LEVEL UG WITH MIN. GRADE OF D- AND CMPT 1420 FOR LEVEL UG WITH MIN. GRADE OF D- AND CMPT 1430 FOR LEVEL UG WITH MIN. GRADE OF D- AND CMPT 1440 FOR LEVEL UG WITH MIN. GRADE OF D-)

CMPT2990 Independent Study **Credit Hours: 1-4**

Students will study a computer-related subject mutually agreed upon between the student and the instructor. The format may include lecture, computer lab and/or practical experience.

CNET2100 Microsoft Operating Systems **Credit Hours: 3**

In-depth study of a contemporary network operating system. Topics include operating system installation and upgrade, configuration, management and troubleshooting.

CNET2150 Computer Hardware **Credit Hours: 3**

Knowledge of computer hardware for the purpose of acquisition, installation and maintenance at the equipment level. The curriculum is aligned with the A+ certification standards.

CNET2200 Network Technologies **Credit Hours: 4**

Examines the network technologies utilized in today's networks. Emphasis is placed on understanding hardware and software concepts and protocols referred to in technical publications and advanced network studies.

CNET2300 Network Operating Systems II **Credit Hours: 4**

This course builds on CNET 2100 by offering in-depth study of a second contemporary network operating system. Topics include operating system installation and upgrade, configuration, management and troubleshooting.

Prerequisites: CNET 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

CNET2400 Network Operating System Support **Credit Hours: 4**

Examines the support aspects of a contemporary network operating system in a local area network environment. Topics include operating system installation, upgrade, configuration, management and troubleshooting.

Prerequisites: CNET 2200 FOR LEVEL UG WITH MIN. GRADE OF D-

CNET2410 Network Services and Infrastructures **Credit Hours: 3**

This course culminates the CNET server curriculum by focusing on vital network services and supporting network infrastructure. Topics include network budgeting, design, planning and implementation, as well as enterprise-wide internetworking.

Prerequisites: CNET 2400 FOR LEVEL UG WITH MIN. GRADE OF D-

CNET2420 Enterprise Network Services **Credit Hours: 4**

This course builds on CNET 2410 by examining services available on enterprise networks. Topics include enterprise-wide directory and network services design, configuration, management and troubleshooting.

Prerequisites: CNET 2410 FOR LEVEL UG WITH MIN. GRADE OF D-

CNET2940 Network Capstone Project **Credit Hours: 2**

Practical experience in a networking environment in an educational setting or at a workplace. Conducted under faculty supervision.

Prerequisites: CNET 2200 FOR LEVEL UG WITH MIN. GRADE OF D- AND CNET 2400 FOR LEVEL UG WITH MIN. GRADE OF D-

COMM1010 Comm Principles And Practices **Credit Hours: 3**

An introductory course that provides instruction and practice in human communication including interpersonal communication, group discussion, public speaking and mass communication. (not for major credit)

COMM1ELA Comm Elective-Applied 100 Leve **Credit Hours: 0-5**

COMM1ELC Comm Elective-Conceptual 100 L **Credit Hours: 0-5**

COMM2000 Mass Communication And Society **Credit Hours: 3**

Overview of the media of mass communication, which considers social, economic and intellectual impact on American culture and democracy. Exploration of various mass media and their methods of shaping public perceptions.

COMM2100 News Writing **Credit Hours: 4**

Theory and practice of news writing as journalistic discourse. Emphasis on news style and values, story structure, types of stories. Ethics, taste and rudiments of law integrated throughout.

COMM2120 Reporting Methods **Credit Hours: 4**

Introduction to writing for publication in the student newspaper, developing skills in interviewing, listening, using primary sources, thinking critically, and mastering electronic data-collection methods. (COMM-2400 recommended)

Prerequisites: COMM 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

COMM2150 Editing And Graphics — Credit Hours: 4

Introduction to Writing, Editing, Design approach in editing newspapers, newsletters, electronic and similar publications. Fundamentals of desktop publishing, copy editing, headline writing, typography, layout, design, use of photos, illustrations.

COMM2210 Radio Production And Programming — Credit Hours: 4

Basic principles of production and programming including training and development in basic performance areas. A study of contemporary station programming theories and techniques. Includes individual weekly lab requirement.

COMM2220 Basic Television Studio Operation — Credit Hours: 4

Study and practice in the use of studio and control room equipment, including editing equipment. Discussion of the role of the director and producer in television production.

COMM2400 Information Analysis And Synthesis — Credit Hours: 3

Introductory course for all Communication majors. Identification of primary sources that match information needs, gaining access to these sources, retrieving information and using it for responsible media decision making.

COMM2600 Public Presentations **Credit Hours: 3**

Applies the principles of informative and persuasive communication in the construction, delivery, and critique of public presentations.

COMM2630 Visual Communication **Credit Hours: 4**

Application of the principles of visual communication to informing, persuading, and entertaining the public through digital photography, layout & design in print, Web design, and a multimedia presentation.

COMM2990 Independent Study **Credit Hours: 1-4**

A freshman/sophomore seminar in which the student pursues a problem of special interest in communication. A prospectus must be submitted to the faculty member with whom the student will work.

COMM2ELA Comm Elective-Applied 200 Leve **Credit Hours: 0-5**

COMM2ELC Comm Elective-Conceptual 200 L **Credit Hours: 0-5**

COMM3150 Feature Writing **Credit Hours: 4**

Theory and practice in writing in various kinds of discourse for newspapers, magazines and electronic publications and writing for specialized audiences. Developing context, analysis, background and appropriate standards of evidence for publication.

Prerequisites: COMM 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

COMM3180 Mass Communication Law **Credit Hours: 4**

Case studies and readings in libel, privacy, access and other legal issues arising from constitutional, judicial and administrative laws that affect mass communication.

Prerequisites: COMM 2000 FOR LEVEL UG WITH MIN. GRADE OF D-

COMM3270 Radio/Television Newswriting **Credit Hours: 4**

Training in the skills required in the preparation, writing and editing of television news.

COMM3280 Media Performance **Credit Hours: 3**

A study of the principles and philosophies involved with successful broadcast communication and performance techniques. Includes laboratory projects in commercials, interviewing, news and ad-lib announcing.

COMM3290 Media Management **Credit Hours: 3**

The study of electronic media systems from an operations perspective. Course includes: programming, marketing, production and ethical considerations.

Prerequisites: COMM 2000 FOR LEVEL UG WITH MIN. GRADE OF D-

COMM3610 Speech And Publicity Writing For Public Relations **Credit Hours: 3**

Applies principles of effective public relations communication to the practice of developing speeches for others and composing publicity materials.

COMM3720 Public Relations Theory **Credit Hours: 3**

Public relations principles, planning and methods in business, government, educational institutions and other organizations. Examination of law, ethics, professionalism, history, theory, strategies and practices of the profession.

Prerequisites: COMM 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

COMM3810 Group Communication **Credit Hours: 3**

Theory and practice of group communication variables and processes with an emphasis on problem-solving approaches.

COMM3820 Persuasion Theory **Credit Hours: 4**

Examination of the theory and practices used in persuasive communication in public presentations, advertising, sales and political campaigns.

COMM3830 Basic Principles Of Debate And Forensics **Credit Hours: 4**

Theory and practice in reasoned discourse; analysis, evidence, logical forms and fallacies. Problems and procedures in administering a forensic program, teaching and directing debate and individual speaking events.

COMM3840 Interpersonal Communication **Credit Hours: 4**

Review and application of interpersonal communication theory and research in a variety of one-to-one social contexts.

COMM3850 Research Methods **Credit Hours: 3**

Introduction to qualitative and quantitative methods in communication research. Focus on evaluating and interpreting reports in various forms of communication.

COMM3870 Communication Theory **Credit Hours: 3**

A review of human communication theory and research directed toward understanding and applying theory and research in various communication contexts and for various communication outcomes.

Prerequisites: COMM 2400 FOR LEVEL UG WITH MIN. GRADE OF D-

COMM3880 Professional Business Communication **Credit Hours: 3**

Developing oral and written business communication skills through practice in public speaking, interviewing, resume writing, and communication in various formats.

COMM3890 Case Studies In Reducing Workplace Conflict **Credit Hours: 3**

An examination of communication variables that may reduce the potential for workplace conflict. Students survey theoretical models, conduct interviews with professionals and write analyses of case studies of successful conflict management.

COMM3ELA Comm Elective-Applied 300 Leve **Credit Hours: 0-5**

COMM3ELC Comm Elective-Conceptual 300 L **Credit Hours: 0-5**

COMM4090 Mass Communication Ethics **Credit Hours: 4**

Investigation of problems and practical application of classical theories as well as current strategies to confront ethical crises in mass-media settings.

Prerequisites: COMM 2000 FOR LEVEL UG WITH MIN. GRADE OF D-

COMM4100 Television Journalism **Credit Hours: 4**

Developing a thorough understanding of researching, writing, and presenting television news. Includes both studio and remote productions.

Prerequisites: COMM 2220 FOR LEVEL UG WITH MIN. GRADE OF D-

COMM4110 High School Publications **Credit Hours: 3**

Problems involved in the production of high school newspapers and yearbooks including approaches to design, advertising, content, news, editorials, administration and business management.

COMM4220 Advanced Television Production **Credit Hours: 4**

Advanced principles and aesthetic considerations in the production of various television programs. Includes working with remote equipment and digital editing.

Prerequisites: COMM 2220 FOR LEVEL UG WITH MIN. GRADE OF D-

COMM4250 Mass Communication History **Credit Hours: 4**

Historical consideration of the media from colonial era to the present, with special emphasis on learning through problem-solving and critical thinking about the role of mass communication as a force in shaping national identity.

Prerequisites: COMM 2000 FOR LEVEL UG WITH MIN. GRADE OF D-

COMM4330 New Technologies **Credit Hours: 3**

The content is designed to develop a thorough understanding of the ever-emerging field of new technologies and its impact on society.

Prerequisites: COMM 2630 FOR LEVEL UG WITH MIN. GRADE OF D-

COMM4340 Visual Communication II **Credit Hours: 4**

Advanced theory, application, and interpretation of visual communication and rhetoric to inform, persuade and entertain the public through digital photography, layout and design in print, Web design, and digital multimedia.

Prerequisites: COMM 2630 FOR LEVEL UG WITH MIN. GRADE OF D-

COMM4630 Public Relations Practices **Credit Hours: 3**

Examination of practices, techniques, tools and strategies used in public relations. Research theory and techniques; strategic planning and management of public relations programs. In-depth study of one detailed project.

Prerequisites: (COMM 2000 FOR LEVEL UG WITH MIN. GRADE OF D- AND COMM 3720 FOR LEVEL UG WITH MIN. GRADE OF D-)

COMM4640 Public Relations Case Studies **Credit Hours: 3**

Analysis of successful and unsuccessful public relations efforts and programs. Emphasis on the theoretical and ethical foundations of successful public relations programming.

Prerequisites: COMM 3720 FOR LEVEL UG WITH MIN. GRADE OF D-

COMM4810 Nonverbal Communication **Credit Hours: 3**

Survey, analysis and application of research in nonverbal communication variables and phenomena.

COMM4820 Family Communication **Credit Hours: 3**

Explores variables and processes of family communication emphasizing theory, definitions of family, roles & rules, conflict, intimacy, societal influences, and effects on the individual and the family as a whole.

COMM4830 Gender, Culture & Communication **Credit Hours: 3**

Cross-listed as WGST-4350. Explores how gender and culture simultaneously shape and are shaped by communication through relationships, institutions, and society. WAC class.

COMM4900 Communication Seminar **Credit Hours: 3-4**

An in-depth examination of a communication topic, problem or media event. May be writing intensive.

COMM4910 Senior Portfolio **Credit Hours: 1**

Students develop a portfolio for post graduate work that includes an assessment of work from five Communication classes including two from both Applied and Conceptual Communication, cover letter, resume, etc. Course offered P/NC.

Prerequisites: (COMM 2000 FOR LEVEL UG WITH MIN. GRADE OF D- AND COMM 2400 FOR LEVEL UG WITH MIN. GRADE OF D-)

COMM4940 Communication Internship **Credit Hours: 1-3**

Professional training in communication relating to newspaper work, public relations, broadcasting etc. Arrangements with the appropriate communication organization must be made in consultation with the internship director prior to enrollment. Course offered P/NC.

COMM4990 Independent Study **Credit Hours: 1-4**

A seminar in which the student pursues a problem of special interest in communication. A prospectus must be submitted prior to registration to the participating faculty member.

COMM4ELA Comm Elective-Applied 400 Leve **Credit Hours: 0-5**

COMM4ELC Comm Elective-Conceptual 400 L **Credit Hours: 0-5**

COMM6210 Principles And Practices Of Visual Communication **Credit Hours: 3**

This course explores the influence of factors like color and design on human visual communication, the role of Gestalt principles, and the impact of various forms of visual communication.

COMM6220 Communication, Technology, And Society **Credit Hours: 3**

This course covers issues in communication technology including media, policy and strategic planning. Particular emphasis is given to the information revolution, communication industry development, and the marketplace for communication products.

COMM6230 Communication, Propaganda And Persuasion **Credit Hours: 3**

This seminar examines techniques of persuasion in social science research and applications and how this knowledge is used for the engineering of perception, mobilization and consent in organizations and society.

COMM6240 Communication, Ethics And The Workplace **Credit Hours: 3**

This course evaluates the impact of ethics on job performance, public perception of companies or agencies, and the ramifications of personal decision-making on the worker's job satisfaction and long-range goals.

COMM6250 Communication Conflict In Organizations **Credit Hours: 3**

Students will explore the role of communication in organizational conflict management, assess conflict scenes, design correction regimens for those scenes, and present their solutions.

COMM6260 Business, Communication And Technology **Credit Hours: 3**

The course examines how organizations use media and communication strategies. Effective tools of communication to be studied include face-to-face interaction, dessemination of information through mass media, and communication through technologies.

COMM6980 Special Topics In Communication Studies **Credit Hours: 3**

Examination of emerging issues and topics in the field of communication. May be repeated for credit in different specialized topics.

COUN1110 Fundamentals Of Human Mental Health **Credit Hours: 4**

An introduction to the field of human services, especially mental health, history and current trends in treatment and prevention of disease and the basic skills common to the field. Students will learn skills at the demonstrable level as they will later be used in the field.

COUN1210 Mental Health Skills **Credit Hours: 4**

This course is designed to enable students to master the therapeutic interpersonal skills required of mental health professionals. Successful completion of this course is a requirement for continuation into advanced courses.

Prerequisites: (COUN 1110 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (CMHS 1110 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF D-)

COUN1220 Theories In Mental Health **Credit Hours: 3**

An overview of current approaches of psychological theory. This course includes an examination of the basic issues in mental health, including ethical issues and personal implications for the mental health professional.

Prerequisites: (COUN 1110 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (CMHS 1110 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF D-)

COUN1230 Pathology In Mental Health **Credit Hours: 3**

This course deals with an introduction to the concepts of abnormal psychology with emphasis on understanding the cultural and historical bases for defining abnormality as well as modern classification systems, the biological model, treatment modalities and theoretical perspectives.

Prerequisites: PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

COUN1240 Substance Abuse Issues In Mental Health **Credit Hours: 3**

An overview and survey of addictive disorders, use and abuse, and the personal and cultural effects of chemical dependency.

Prerequisites: (COUN 1110 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (CMHS 1110 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF D-)

COUN2060 Career Exploration **Credit Hours: 3**

Designed for the university student undecided about a career. The student is assisted in self-assessment, exploration of occupations and in career decision-making skills.

COUN2120 Group And Therapeutic Approaches **Credit Hours: 4**

A study of various types of groups and activity skills used in mental health environments both inpatient and community based. Focus on design, principles, procedures and applications of various techniques.

COUN2130 Assessment And Intervention In Mental Health **Credit Hours: 4**

The various techniques and requirements of assessment and interventions used in the most important mental health environments will be explored and practiced. Special emphasis is placed on interview assessment and crisis intervention; implications for record keeping in the variety of settings are also examined.

Prerequisites: PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

COUN2220 Family Theories And Cultural Influences In Mental Health **Credit Hours: 3**

Study of basic family systems and structures and the influences of cultural patterns as they interact and impact the mental health and therapeutic needs of individual family members.

COUN2940 Mental Health Internship **Credit Hours: 4**

Students are placed in community agencies relevant to mental health and work in a role related to the function of a mental health technician under the guidance of a supervisor.

Prerequisites: COUN 1210 FOR LEVEL UG WITH MIN. GRADE OF B OR CMHS 1210 FOR LEVEL UG WITH MIN. GRADE OF B

COUN2980 Special Topics In Counselor Education **Credit Hours: 1-3**

This course is open to an undergraduate student pursuing a degree program and may be a requirement of that program.

COUN2990 Independent Study **Credit Hours: 1-3**

A course designed to provide educational opportunities in a specialized academic area under the direct supervision of a faculty member.

COUN3070 Family Counseling **Credit Hours: 3**

Overview of aspects of counseling with families. Major focus is on family as a system and a variety of interventions. Ethnic, gender and socioeconomic considerations of family systems will be stressed.

COUN3110 Case Management In Mental Health **Credit Hours: 3**

The study of and practice of using case management models and skills with clients within the mental health environment. Models appropriate for different agency types will be explored and the various modalities available will be introduced.

COUN3120 Mental Retardation And Mental Health **Credit Hours: 3**

The relationship between retardation and mental health with emphasis on the characteristics making this a population of special concern within the treatment protocols of the mental health profession.

Prerequisites: COUN 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR CMHS 1110 FOR LEVEL UG WITH MIN. GRADE OF D-

COUN3130 Advanced Interventions: Crisis And Employee Assistance Programs **Credit Hours: 3**

Advanced intervention issues including crisis management, disaster survival, rescue and emergency personnel debriefing and Employee Assistance Programs.

Prerequisites: COUN 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR CMHS 1110 FOR LEVEL UG WITH MIN. GRADE OF D-

COUN3140 Substance Abuse Prevention And Community Programming **Credit Hours: 3**

An evaluation of prevention programs and community resources available in the prevention and treatment of substance abuse.

COUN3150 Models Of Treatment For Substance Abuse **Credit Hours: 3**

A review of the various components of substance abuse and philosophies of treatment. Theories of etiology and maintenance are also addressed.

COUN3160 Charting And Reporting In The Mental Health Professions **Credit Hours: 3**

The importance of coding, charting and record keeping in various fields of mental health professions is examined. Various types of report writing formats and requirements will be learned.

Prerequisites: COUN 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR CMHS 1110 FOR LEVEL UG WITH MIN. GRADE OF D-

COUN3220 Theories in Mental Health **Credit Hours: 3**

Overview of current approaches of psychological theory. This course includes an examination of the basic issues in mental health, including ethical issues and personal implications for the mental health professional.

COUN3230 Pathology in Mental Health **Credit Hours: 3**

Introduction to the concepts of psychopathology with emphasis on understanding the cultural and historical bases for defining abnormality, modern classification systems, the biological model, treatment modalities and theoretical perspectives.

COUN3380 College Student Leadership Development I **Credit Hours: 1-3**

First semester in development of skills for student leaders through didactic experience, simulation exercises and practicum experiences. Especially designed for student government leaders and peer counselor/advisers.

COUN3390 College Student Leadership Development II **Credit Hours: 1-3**

Second semester in student leadership training. The development of skills for student leaders through didactic experience, simulation exercises and practicum experiences. Especially designed for student government leaders and peer counselor/advisers.

Prerequisites: COUN 3380 FOR LEVEL UG WITH MIN. GRADE OF D- OR CMHS 3380 FOR LEVEL UG WITH MIN. GRADE OF D-

COUN3940 Substance Abuse Internship **Credit Hours: 4**

Students are placed in community agencies working in the area of substance abuse under the guidance of a supervisor.

Prerequisites: (COUN 2940 AND COUN 4240 AND COUN 4940) OR (CMHS 2940 AND CMHS 4240 AND CMHS 4940)

COUN4080 Essentials Of Helping Relationships **Credit Hours: 3**

Emphasis upon skills, concepts and practices in the helping professions. Multicultural and ethical issues along with dealing with crisis situations will be covered.

COUN4090 Therapeutic Environments For The Aged **Credit Hours: 3**

This course focuses on therapeutic care giving for the aged in institutional settings, addressing techniques for developing activities and responding to sensory changes and social needs of individuals.

COUN4110 Consultation And Supervision In Mental Health Services **Credit Hours: 3**

Explores the roles and techniques of consultation and supervision within the mental health professions, including individual and group skills, models, strategies and legal and ethical issues.

Prerequisites: COUN 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR CMHS 1110 FOR LEVEL UG WITH MIN. GRADE OF D-

COUN4120 Dual Diagnosis: Substance Abuse And Mental Illness **Credit Hours: 3**

Issues involving clients with a dual diagnosis are explored. Specific treatment strategies for clients dually-diagnosed with substance abuse and mental illness will be learned.

Prerequisites: COUN 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR CMHS 1110 FOR LEVEL UG WITH MIN. GRADE OF D-

COUN4240 Substance Abuse Treatment Techniques **Credit Hours: 3**

An examination of ethical and legal issues in substance abuse, as well as examination of the specific skills needed by workers in substance abuse programs.

Prerequisites: (COUN 3140 FOR LEVEL UG WITH MIN. GRADE OF D- AND COUN 3150 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (CMHS 3140 FOR LEVEL UG WITH MIN. GRADE OF D- AND CMHS 3150 FOR LEVEL UG WITH MIN. GRADE OF D-)

COUN4580 Teacher As Advisor **Credit Hours: 3**

Introduction to group process, interpersonal and communication skills for teachers in the middle school. Introduction to consultation and collaboration skills for working with counselors, teachers, parents and other resource personnel.

Prerequisites: UPDV FOR MIN. SCORE OF 1

COUN4940 Advanced Internship **Credit Hours: 4**

Students are placed in community agencies relevant to mental health and work in a role related to the function of an advanced level mental health technician under the guidance of a supervisor.

Prerequisites: (COUN 2940 AND COUN 3110) OR (CMHS 2940 AND CMHS 3110)

COUN4980 Special Topics In Counselor Education **Credit Hours: 1-3**

This course is open to an undergraduate student pursuing a degree program and may be a requirement of that program.

COUN4990 Independent Study **Credit Hours: 1-3**

Individual study is designed to provide the student to work independently on professional problems under the direction of a faculty member in the department of counseling and mental health services.

COUN5010 Professional Orientation To School Counseling **Credit Hours: 4**

Introduction to school counseling; historical foundations; roles and responsibilities; legal and ethical issues; implications of sociocultural diversity, organization and administration, and future trends within the context of the school community.

COUN5020 Professional Orientation To Community Counseling **Credit Hours: 3**

An orientation to the counseling profession; ethical and legal issues, counseling process, skills and theories; counselor roles, functions and work settings; and historical foundations of counseling.

COUN5110 Career Counseling And Development **Credit Hours: 3**

Theories, resources and practices of career counseling and development are presented. Knowledge and skills for promoting career growth among a broad range of individuals across the life span is emphasized.

COUN5120 Individual And Group Assessment **Credit Hours: 3**

This course provides an in-depth understanding of psychological testing through (1) an overview of basic testing concepts, (2) an understanding of test construction, (3) familiarity with instruments and (4) an overview of using test results. History and rationale of testing are included.

COUN5130 Group Counseling **Credit Hours: 4**

Provides training and experience in group development, dynamics, theories, methods and skills of group counseling, group leadership, research and evaluation, ethical issues and other group work approaches.

COUN5140 Counseling Theories And Techniques **Credit Hours: 4**

Includes a study of basic counseling and consultation theories and helping relationships from individual, group and systemic perspectives. Explores helper and helpee characteristics, sociocultural factors and legal and ethical considerations. Includes supervised training in counseling and consulting skills.

COUN5150 Counseling Across The Life Span **Credit Hours: 3**

Theories of individual and family development across the lifespan are examined. Developmental processes of individuals and families and implications for counseling are presented from a multi-generational family perspective.

COUN5160 Cultural Diversity For Counselors And School Psychologists **Credit Hours: 3**

Addresses the cross-cultural theories, knowledge, beliefs and techniques required for providing effective services to culturally diverse populations. Examines assumptions about cultural differences which underlie counseling theories and therapies.

COUN5190 Counseling Practicum **Credit Hours: 4**

Students receive supervised, practical experiences in providing counseling services to clients. Performance of counseling skills; relationship skills; intervention techniques; documentation skills; and professional, ethical and legal conduct is expected.

COUN5250 Creating Therapeutic Environments For The Aged **Credit Hours: 3**

Explores the various aspects necessary for creating therapeutic physical and social psychological settings for older institutionalized adults. Models of care giving and programmatic skills are examined.

COUN5980 Special Topics In Counseling, Mental Health, And School Psychology **Credit Hours: 1-3**

This course is open to a graduate student pursuing a master's, specialist or doctoral degree program and may be a requirement of that program.

COUN6210 Psychopathology **Credit Hours: 4**

The study of various paradigms for conceptualizing psychopathology related to children, adolescents and adults. Includes study of specific personality theories and their application to clinical counseling.

COUN6220 Child, Adolescent, Family Therapy **Credit Hours: 3**

Specialized study of therapeutic techniques commonly emphasized in working with children, adolescents and their families. Approaches to family therapy in a multicultural context, family assessment and ethical issues will be emphasized.

Prerequisites: COUN 5140 FOR LEVEL GR WITH MIN. GRADE OF D-

COUN6230 Crisis Intervention Counseling **Credit Hours: 3**

Instruction in the theories, skills and techniques necessary to intervene into a variety of crisis situations such as suicide, violence, domestic violence, drug and alcohol abuse and family dysfunction.

Prerequisites: COUN 5140 FOR LEVEL GR WITH MIN. GRADE OF D-

COUN6240 Diagnosis And Mental Health **Credit Hours: 4**

Study of the signs, symptoms, etiology and psychodynamics of various mental and emotional disorders based on the most current edition of the Diagnostic and Statistical Manual for Mental Disorders (DSM).

COUN6470 Drugs And Mental Health Counseling **Credit Hours: 4**

Study of the psychobiological and psychophysiological effects of psychotropic medications used for the psychopharmacological treatment of mental and emotional disorder. Theoretical, efficacy and ethical concerns are reviewed.

COUN6500 Advanced Theory And Practice Of Career Counseling **Credit Hours: 3**

Advanced study in theories pertaining to the principles and practice of career counseling. Special emphasis on research, legal and ethical issues, and the role of culture in career choice and development.

COUN6920 Master's Research Project **Credit Hours: 1-3**

In this capstone experience, master's students review the literature, report implications and produce a project which can be applied in counseling-related settings. This can substitute for CMHS 6930.

COUN6930 Master's Research Seminar **Credit Hours: 2-3**

In this capstone experience, master's students review and critique the literature and report implications for research, theory and practice on counseling-related topic of interest, approved by the instructor.

COUN6940 Counseling Internship **Credit Hours: 1-8**

Supervised practical experiences in various settings while assuming a spectrum of counseling roles and functions. Emphasis is placed upon integrating ethical practice, theory and research in work settings.

Prerequisites: COUN 5190 FOR LEVEL GR WITH MIN. GRADE OF B OR CMHS 5190 FOR LEVEL GR WITH MIN. GRADE OF B

COUN6950 Workshop In Counseling, Mental Health, And School Psychology **Credit Hours: 1-6**

Workshops developed around topics of interest and concern to counselors, school psychologists or other mental health care professionals. Practical application of topics will be stressed.

COUN6960 Master's Research Thesis **Credit Hours: 1-3**

In this capstone experience, master's students complete an original piece of research, including literature review, methods, analysis and discussion. This can substitute for CMHS 6930.

COUN6990 Master's Independent Study **Credit Hours: 1-4**

Provides students the opportunity to work independently on professional problems under the direction of a faculty member in the Department of Counseling and Mental Health Services.

COUN7010 Professional Orientation To School Counseling **Credit Hours: 4**

Introduction to school counseling; historical foundations; roles and responsibilities; legal and ethical issues; implications of sociocultural diversity, organization and administration, and future trends within the context of the school community.

COUN7130 Group Counseling **Credit Hours: 4**

Provides training and experience in group development, dynamics, theories, methods and skills of group counseling, group leadership, research and evaluation, ethical issues and other group work approaches.

COUN7140 Counseling Theories And Techniques **Credit Hours: 4**

Includes a study of basic counseling and consultation theories and helping relationships from individual, group and systemic perspectives. Explores helper and helpee characteristics, sociocultural factors and legal and ethical considerations. Includes supervised training in counseling and consulting skills.

COUN7150 Counseling Across The Life Span **Credit Hours: 3**

Theories of individual and family development across the lifespan are examined. Developmental processes of individuals and families and implications for counseling are presented from a multi-generational family perspective.

COUN7160 Cultural Diversity For Counselors And School Psychologists **Credit Hours: 3**

Addresses the cross-cultural theories, knowledge, beliefs and techniques required for providing effective services to culturally diverse populations. Examines assumptions about cultural differences which underlie counseling theories and therapies.

COUN7210 Psychopathology **Credit Hours: 4**

The study of various paradigms for conceptualizing psychopathology related to children, adolescents and adults. Includes study of specific personality theories and their application to clinical counseling.

COUN7220 Child, Adolescent, Family Therapy **Credit Hours: 3**

Specialized study of therapeutic techniques commonly emphasized in working with children, adolescents and their families. Approaches to family therapy in a multicultural context, family assessment and ethical issues will be emphasized.

Prerequisites: COUN 5140 FOR LEVEL GR WITH MIN. GRADE OF D-

COUN7230 Crisis Intervention Counseling **Credit Hours: 3**

Instruction in the theories, skills and techniques necessary to intervene into a variety of crisis situations such as suicide, violence, domestic violence, drug and alcohol abuse and family dysfunction.

Prerequisites: COUN 5140 FOR LEVEL GR WITH MIN. GRADE OF D-

COUN7240 Diagnosis And Mental Health **Credit Hours: 4**

Study of the signs, symptoms, etiology and psychodynamics of various mental and emotional disorders based on the most current edition of the Diagnostic and Statistical Manual for Mental Disorders (DSM).

COUN7510 Supervision In Counseling And School Psychology **Credit Hours: 3**

Training in supervision models, methods, roles, ethical issues, research and evaluation. Advanced training in consultation.

COUN7520 Education And Leadership In Mental Health Professions **Credit Hours: 3**

Orient students to the roles and tasks of educators and leaders in mental health professions, curricular issues of programs, professional and ethical issues and current status and future trends in higher education among mental health professions.

COUN7530 Advanced Theories Of Counseling And Consultation **Credit Hours: 4**

Advanced preparation in theory pertaining to the principles and practice of individual counseling, group work and consultation.

COUN7540 Advanced Personality Assessment **Credit Hours: 4**

Administration, scoring and interpretation of selected advanced personality assessment instruments. Special emphasis will be given to the MMPI-2 and the MCMI-III, CPI and report writing.

Prerequisites: COUN 5120 FOR LEVEL GR WITH MIN. GRADE OF D-

COUN7930 Doctoral Research Seminar **Credit Hours: 3**

Advanced preparation in research problems, design and implementation of quantitative and qualitative research and methodology in the fields of counseling and supervision.

COUN8410 Advanced Practicum In Individual And Group Therapy **Credit Hours: 4**

Students receive supervised, practical experiences in providing counseling in individual and group modes of services. Advanced therapy skills will be emphasized.

COUN8420 Advanced Practicum In Family Therapy **Credit Hours: 4**

This course is designed to provide specialized opportunity under live supervision to develop specialized skills in family therapy. The student will work in co-therapy with a family experiencing difficulties.

COUN8440 Advanced Theory And Practice Of Group Counseling **Credit Hours: 3**

Advanced training and experience in development, dynamics, theories, methods and skills of group counseling and therapy, leadership, research and evaluation and ethical issues as applicable to normal and abnormal populations.

COUN8450 Couples And Family Therapy **Credit Hours: 3**

Theories and practice of couples and family counseling are explored. Foundations of systems theories and their application to couples and family therapy are presented.

Prerequisites: (COUN 5140 FOR LEVEL GR WITH MIN. GRADE OF D- AND COUN 5150 FOR LEVEL GR WITH MIN. GRADE OF D-)

COUN8460 Substance Abuse Counseling **Credit Hours: 3**

Review of treatment approaches, techniques and programs for counseling individuals and families experiencing substance-related problems.

COUN8470 Drugs And Mental Health Counseling **Credit Hours: 4**

Study of the psychobiological and psychophysiological effects of psychotropic medications used for the psychopharmacological treatment of mental and emotional disorder. Theoretical, efficacy and ethical concerns are reviewed.

COUN8480 Advanced Training In Professional, Legal, And Ethical Issues **Credit Hours: 3**

Advanced training in contemporary professional, legal and ethical issues that regulate or affect the work of counselors, psychologists and other mental health professionals.

COUN8490 Gender Issues In Counseling And Mental Health Services **Credit Hours: 3**

Examines the effect of gender role and related dynamics upon the psychological functioning of men and women and considers how these issues can be explored in counseling based upon an interactive model of gender roles emphasizing the learned nature of these characteristics.

COUN8500 Advanced Theory And Practice Of Career Counseling **Credit Hours: 3**

Advanced study in theories pertaining to the principles and practice of career counseling. Special emphasis on research, legal and ethical issues, and the role of culture in career choice and development.

COUN8930 Advanced Doctoral Seminar **Credit Hours: 3**

This seminar will consider problems and provide advanced study. Open only to advanced graduate students.

COUN8940 Counseling Internship **Credit Hours: 1-8**

Supervised practical experiences in various settings while assuming a spectrum of counseling roles and functions. Emphasis is placed upon integrating ethical practice, theory and research in work settings.

Prerequisites: COUN 5190 FOR LEVEL GR WITH MIN. GRADE OF B OR CMHS 5190 FOR LEVEL GR WITH MIN. GRADE OF B

COUN8950 Workshop In Counseling, Mental Health, And School Psychology **Credit Hours: 1-6**

Workshops developed around topics of interest and concern to counselors, school psychologists, or other mental health care professionals. Practical application of topics will be stressed.

COUN8960 Doctoral Research Dissertation **Credit Hours: 1-12**

Dissertation credit may not total less than 10 semester hours and no greater than 32 hours. A doctoral student may register for such credit in more than one semester.

COUN8980 Special Topics In Counseling, Mental Health, And School Psychology **Credit Hours: 1-3**

This course is open to a graduate student pursuing a master's, specialist or doctoral degree program and may be a requirement of that program.

COUN8990 Doctoral Independent Study **Credit Hours: 1-4**

Provides students the opportunity to work independently on professional problems under the direction of a faculty member in the Department of Counseling and Mental Health Services.

CRIM1010 Criminal Justice **Credit Hours: 3**

The overall history, philosophy and functioning of the criminal justice system in the U.S. The integrated roles of law enforcement, the courts and corrections will be analyzed and discussed.

CRIM1040 HUMAN RELATIONS AND DIVERSITY IN CRIMINAL JUSTICE **Credit Hours: 3**

This class will focus on human relations and cultural diversity faced by the criminal justice system, including the police, courts, corrections, and community organizations, and the course will explore general principles in effective human relations, the importance of diversity, and their application in the field of criminal justice.

CRIM1110 Penology **Credit Hours: 3**

The study of jails, prisons and other types of specialized correctional institutions. The philosophy of incarceration along with the administration, staffing and operations of these facilities will be reviewed.

CRIM1240 Policing **Credit Hours: 3**

Introduction to law enforcement practices and agencies in the United States, including the history, philosophy and operation of federal, state and local enforcement agencies.

CRIM2010 Court Case Processing **Credit Hours: 3**

A survey of federal, state and local courts, including structure, organization, processes and probation.

CRIM2150 Applied Psychology And Criminology For Criminal Justice Personnel **Credit Hours: 3**

This course will focus on the social and psychological explanations of offenders' behaviors. The needs of victims and behaviors of criminal justice professionals will also be addressed.

Prerequisites: CRIM 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

CRIM2200 Criminal Law **Credit Hours: 3**

The statutes of Ohio relating to crime and the elements necessary for establishing and providing proof of crimes are studied.

Prerequisites: CRIM 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

CRIM2210 Criminal Investigation I **Credit Hours: 3**

Introduction to the processes, theories and principles of criminal investigation. Methods of gathering information, report writing, interview/interrogation strategies, surveillance, search warrant information, affidavit preparation and execution are studied.

Prerequisites: CRIM 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

CRIM2220 Laws Of Evidence **Credit Hours: 3**

A thorough study of the evidence rules with specific emphasis on the application of these rules in preparing and presenting evidence.

Prerequisites: CRIM 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

CRIM2230 Constitutional Law **Credit Hours: 3**

A comprehensive study and analysis of the Bill of Rights of the U.S. Constitution and its effect on the administration of justice.

CRIM2250 Juvenile Justice **Credit Hours: 3**

To analyze the causes of juvenile delinquency and the extent of the problem in the U.S. Also, to discuss the inter-workings of the juvenile justice system in response to the delinquency problem, in conjunction with delinquency prevention programs.

CRIM2950 Field Observation **Credit Hours: 1-6**

An examination of criminal justice through placement in the field to observe practices and behavior. Regular class meetings and writing about the experience are also required.

CRIM2990 Independent Study **Credit Hours: 1-6**

Supervised independent study.

CRIM3110 Hate Crimes **Credit Hours: 3**

The course examines the genesis, development, theory and practice of hate crimes and how society has and can respond to hate crimes.

CRIM3180 The Law Of Corrections And Punishment **Credit Hours: 3**

An examination of the law that governs punishment, institutional and community-based corrections and the rights and liabilities of corrections personnel.

CRIM3220 Crime Mapping And Criminal Profiling **Credit Hours: 3**

The course content develops an understanding of the uses of information technologies and psychological profiling in defining criminal behavior as well as the geographic consideration.

CRIM3230 White Collar Crime **Credit Hours: 3**

A historical overview of the evolution of white-collar crime in American Society as well as an understanding of the nature, causes and consequences of different forms of white-collar crime.

CRIM3240 Victimology **Credit Hours: 3**

This course examines the history of victimology and includes topics such as the characteristics of crime victims and specific types of victimization such as hate crimes and sexual assault.

Prerequisites: CRIM 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

CRIM3260 Domestic And International Terrorism **Credit Hours: 3**

The history and evolution of terrorism in the United States and other countries, including the weapons, ideology and people involved in terrorist events and counterterrorist methods plus deterrents.

CRIM3270 Organized Crime: History, Theory, And Contemporary Reality **Credit Hours: 3**

This course will examine the origins and functioning of organized crime and criminal organizations from a criminal justice perspective.

CRIM3280 Juvenile Gang Culture And Organization **Credit Hours: 3**

An examination of the behavioral, socioeconomic and cultural dimensions of juvenile gang activity in the United States plus prevention, intervention and law enforcement strategies.

CRIM3290 Criminal Investigation II **Credit Hours: 3**

An introduction to the crime scene, including methods of searching, photography, sketching and gathering of physical evidence. Fingerprint analysis. Methods utilized in drug investigations and development of information sources are studied.

Prerequisites: CRIM 2210 FOR LEVEL UG WITH MIN. GRADE OF D-

CRIM3420 Criminal Justice Leadership **Credit Hours: 3**

An introduction to principles governing the organization, structure and administration of law enforcement organizations.

CRIM4100 Criminal Justice Research Methods **Credit Hours: 3**

This course provides students with an understanding of criminal justice research, the concepts and logic of research designs and widely used statistical procedures.

CRIM4200 Ethics In Criminal Justice **Credit Hours: 3**

This course is designed to provide students with an opportunity to integrate ethics in their understanding of criminal justice.

CRIM4250 Comparative Criminal Justice Systems **Credit Hours: 3**

Examination of how different counties around the world have organized their law enforcement courts and corrections agencies into a uniquely structured system of criminal justice based on cultural and legal differences.

CRIM4300 Theories Of Criminal Justice **Credit Hours: 3**

A critical study and appreciation of the theories of criminal justice, including micro and macro theories.

CRIM4400 Criminal Justice Field Studies **Credit Hours: 1-3**

An examination of criminal justice operations in metropolitan areas through student participation in applied research and field observations related to program evaluation, policy analysis, etc..

CRIM4450 Administration Of Police Services **Credit Hours: 3**

The application of management principles to municipal police departments, emphasizing the resources, constraints and strategies of police managers.

CRIM4490 Current Topics In Criminal Justice **Credit Hours: 3**

Examination of selected current issues in criminology/criminal justice that impact our knowledge and understanding of the field.

CRIM4520 Police And Society **Credit Hours: 3**

An examination of the role of the police in contemporary America, emphasizing the ambivalence of the self-image of the police and the social and political forces that compete to redefine police function.

CRIM4590 Administration Of Criminal Justice **Credit Hours: 3**

General systems approach to criminal justice from an organizational and legal perspective with emphasis on the interaction of the major components-police, prosecutors, courts and corrections.

CRIM4940 Criminal Justice Internships **Credit Hours: 3-12**

Field placement experience within a criminal justice agency to enhance the student's practical knowledge of the field in conjunction with career planning opportunities.

CRIM4990 Independent Study In Criminal Justice **Credit Hours: 1-3**

Individual course of study in a selected topic pertaining to Criminal Justice chosen by the student, with the consent of the instructor.

CRIM5370 Disproportionate Confinement Of Minority Youth **Credit Hours: 3**

The course examines the issue of disproportionate minority confinement of youth in the juvenile and criminal justice systems.

CRIM5400 Criminal Justice Field Studies **Credit Hours: 1-3**

An examination of criminal justice operations in metropolitan areas through classroom study and field observations.

CRIM6000 Advanced Theories: Criminal Justice **Credit Hours: 3**

This course critically examines contributions made b a variety of theorists to an understanding of crime/deviance and reactions to it.

CRIM6100 Metropolitan Problems And The Criminal Justice System **Credit Hours: 3**

Explores the diverse populations and problems encountered by criminal justice and juvenile systems, including major social control systems and policies, victimology, mental health issues, discrimination, and comparative analyses.

CRIM6200 Data Analysis In Criminal Justice **Credit Hours: 3**

This course provides students with a basic understanding of fundamental data analysis techniques utilized in criminal justice research.

CRIM6300 Advanced Studies In Ethics And Criminal Justice **Credit Hours: 3**

This course is designed to provide students with the opportunity to integrate ethics in an understanding of criminal justice.

CRIM6310 Juvenile Justice In The Metropolitan Community **Credit Hours: 3**

Criminal justice theories of delinquency are studied and compared with a paradigmatic foundation of current criminal justice processes.

CRIM6320 Women, Crime And Criminal Justice **Credit Hours: 3**

This course explores women as offenders, victims and professionals in criminal justice.

CRIM6330 Advanced Studies In Victimology **Credit Hours: 3**

This course will address crime victims' issues and will challenge students to consider how the criminal justice system can improve its response to victims.

CRIM6340 Advanced Studies In Mental Illness, Crime And Criminal Justice System **Credit Hours: 3**

This course will examine the historical processes that have led to an influx of persons with mental illness and substance abuse into the metropolitan criminal justice system.

CRIM6350 Advanced Comparative Criminal Justice **Credit Hours: 3**

This course examines how different countries around the globe have organized their criminal justice agencies into uniquely structured systems of criminal justice. Cultural and legal differences influencing justice are also examined.

CRIM6360 Genocide & Crimes Against Humanity In International Justice **Credit Hours: 3**

This course traces the genesis and evolution of genocide and crimes against humanity as distinct categories of international criminality.

CRIM6400 Graduate Criminal Justice Research Methodology **Credit Hours: 3**

This course is designed to provide students with an understanding of criminal justice research.

CRIM6420 Adv Criminal Procedure **Credit Hours: 3**

This course examines the role of criminal law and procedure in the criminal justice and juvenile systems and prosecution, defense, and court procedures and decision-making issues.

CRIM6430 Admin of Police Services **Credit Hours: 3**

CRIM6500 Corrections In The Metropolitan Community **Credit Hours: 3**

This course will review the theoretical and historical roots of corrections. Students will examine metropolitan corrections problems and practices, particularly as they exist in Toledo, Lucas County and other metropolitan areas.

CRIM6550 The Criminal Justice System And Inequality **Credit Hours: 3**

This course examines critical theories and applications of law in reference to a variety of identities, groups and communities designated as "minority."

CRIM6570 Civil And Criminal Liability In Criminal Justice **Credit Hours: 3**

This course examines the law and social science literature concerning the civil and criminal liability that attends working in the criminal justice field.

CRIM6590 Administration Of Criminal Justice **Credit Hours: 3**

A research-oriented course into the relationship of the major structures of criminal justice-police, prosecutor, courts and corrections with emphasis on the development of performance evaluation criteria.

CRIM6610 Corrections Policy And Administration **Credit Hours: 3**

Study of the political, managerial and legal factors in the corrections system.

CRIM6620 Police And Society **Credit Hours: 3**

An examination of the role of the police in contemporary America, emphasizing the ambivalence of the self-image of the police and the social and political forces that compete to redefine the police function.

CRIM6940 Criminal Justice Graduate Internship **Credit Hours: 1-3**

Field placement experience in an approved criminal justice agency to enhance the knowledge of the student.

CRIM6950 Policy Projects In Criminal Justice **Credit Hours: 3**

This course provides a forum to facilitate the development of individual scholarly criminal justice projects.

CRIM6960 Thesis **Credit Hours: 1-6**

This course involves research leading to a written thesis. Both the topic of the research and the final thesis must be defended and approved by the student's thesis committee.

CRIM6980 Special Topics In Criminal Justice **Credit Hours: 3**

Content will vary as instructors present a single concentration on developments, problems and controversies in criminal justice.

CRIM6990 Independent Study In Criminal Justice **Credit Hours: 1-3**

Directed study in criminal justice under the supervision of a criminal justice faculty member.

CRIM8420 Adv Criminal Procedure **Credit Hours: 3**

CRIM8430 Admin of Police Services **Credit Hours: 3**

CRXM1000 Credit By Exam **Credit Hours: 0-21**

CSET1100 Introduction To Computer Science And Engineering Technology **Credit Hours: 3**

A first course in computer hardware and software for CSET majors. Single and multi-user operating systems, command-line processing, program planning and creation and simple Internet tools are covered.

Corequisites: EET2420

CSET1200 Gui Programming And Visual Basic **Credit Hours: 3**

Introduction to Windows-based programming for engineering technology applications. Topics include Windows Application Program Interface (API), message processing, Windows Procedures, using Windows resources, modal and modeless dialog boxes and the graphics Device Interface.

Prerequisites: CSET 1100 FOR LEVEL UG WITH MIN. GRADE OF D-

CSET1500 Survey Of Computer Electronics **Credit Hours: 3**

Designed to explore the field of computers. Topics include circuit components, Ohm's Law, DC and AC circuits, power supplies, transistor amplifiers, integrated circuits, and an introduction to computer hardware.

CSET2100 Small Computer Systems **Credit Hours: 4**

CSET2200 Pc And Industrial Networks **Credit Hours: 4**

Current concepts and technologies used with personal computers and PLCs in both industrial (factory-floor) and commercial data networks. Topics include PC networking hardware and software, PLC hardware and programming and PLC networking alternatives.

Prerequisites: CSET 2100 FOR LEVEL UG WITH MIN. GRADE OF D- OR EET 2230 FOR LEVEL UG WITH MIN. GRADE OF D-

CSET3100 Advanced Web Site Design **Credit Hours: 3**

HTML forms, creation of static and animated web graphics, Dynamic Fonts, SMIL (Synchronized Multimedia Integration Language) as it relates to G2, Realtext, Realpix and XML. The course also covers Frames, META Tags, Optimizing Speed, Cookies, Imagemapping (from both sides), HTML, tables and Shockwave.

Prerequisites: CSET 1100 FOR LEVEL UG WITH MIN. GRADE OF D-

CSET3150 Advanced Programming **Credit Hours: 4**

Advanced programming in C++ language using UNIX workstations in a networked environment. Topics include advanced C++ syntax, structures, and object oriented programming. Programming assignments focus on engineering technology applications.

Prerequisites: EET 2230 FOR LEVEL UG WITH MIN. GRADE OF D-

CSET3200 Client/Server Computing **Credit Hours: 3**

Covers client/server architecture and programming techniques. Major topics include two-tier and three-tier client server architectures, programming considerations, cleanlayering, advanced graphical user interface controls, database processing, transaction processing and monitoring.

CSET3250 Client-Side Scripting **Credit Hours: 3**

Introduction to the Document Object Model (DOM), JavaScript and VBScript scripting languages, cascading style sheets, browser recognition, browser-specific content, data validation and layers.

Prerequisites: CSET 3100 FOR LEVEL UG WITH MIN. GRADE OF D-

CSET3300 Database-Driven Web Sites **Credit Hours: 4**

Creation of dynamic Web applications that interact with a database using client-side scripts, server-side scripts and compiled server programs. Includes database fundamentals, scripting language fundamentals and server considerations.

Prerequisites: CSET 3150 FOR LEVEL UG WITH MIN. GRADE OF D-

CSET3400 Unix System Administration **Credit Hours: 3**

Commands and methods to install and manage a UNIX system. System administration topics include configuration, user and file management, backup procedures, peripheral devices, performance tuning and troubleshooting.

CSET3600 Software Engineering and Human Interfacing **Credit Hours: 3**

An introduction to software engineering processes for technology students. Includes: user requirements, software specification, design approaches, human-computer interfacing, software tools, validation, modification, maintenance, documentation, lifecycle models, and intellectual property considerations.

Prerequisites: CSET 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR EET 3150 FOR LEVEL UG WITH MIN. GRADE OF D-

CSET4100 SERVER-SIDE PROGRAMMING **Credit Hours: 3**

Covers Common Gateway Interface (CGI) programming on the Internet using the most popular scripting languages. Topics include client-side programs, server-side programs, distributed database creation and searching.

Prerequisites: CSET 3150 FOR LEVEL UG WITH MIN. GRADE OF D-

CSET4150 Web Server Administration **Credit Hours: 3**

Installation and configuration of the web server operating systems (e.g., UNIX, Windows NT), installation and administration of web daemon (e.g., Apache, Microsoft IIS). Site management, including file and directory hierarchy, web log analysis, installation and configuration of various utilities for gopher, ftp, text ending and email.

Prerequisites: CSET 2200 FOR LEVEL UG WITH MIN. GRADE OF D-

CSET4200 Vlsi Technology **Credit Hours: 4**

Introduction to CMOS technology and circuits, MOS transistor switches and CMOS logic. Practical aspects of silicon manufacturing technology including wafer processing, layout design rules and process parameterization. Electrical and physical design of logic gates, clocking schemes, I/O structures and structures design strategies.

Prerequisites: ENGT 1050 FOR LEVEL UG WITH MIN. GRADE OF D-

CSET4250 Applied Programming Languages **Credit Hours: 3**

How to select the most appropriate language for a specific engineering technology application. Topics include comparison of programming languages by evolution, formal specifications, structures, features, application domains, programming paradigms, implementation of syntax, semantics and program run-time behavior.

Prerequisites: CSET 4100 FOR LEVEL UG WITH MIN. GRADE OF D-

CSET4650 Field Programmable Logic Devices **Credit Hours: 4**

This course covers the implementation of digital circuits using Field Programmable Logic Devices, with emphasis on Field Programmable Gate Arrays. Students learn to download their designs on Xilinx FPGA's using schematic capture and VHDL code.

Prerequisites: EET 3350 FOR LEVEL UG WITH MIN. GRADE OF D-

CSET4750 Computer Networks And Data Communication — Credit Hours: 4

Computer network architectures and their application to industry needs. Major topics include vocabulary, hardware, design concepts, current issues, trends, hardware, multi-user operating systems, network protocols, local and wide area networks, intranet and internet communications, analog and digital data transmissions.

Prerequisites: CSET 2200 FOR LEVEL UG WITH MIN. GRADE OF D-

CSET4850 Network Security Fundamentals — Credit Hours: 4

Theory and practice of network security. Topics include firewalls, Windows, UNIX and TCP/IP network security. Security auditing, attacks, viruses, intrusion detection and threat analysis will also be covered.

CTE2010 Occupation Competency Exam - Technology — Credit Hours: 1-12

Written examination covering technology. NOTE: Students must have completed 30 semester hours at UT before the examination credit can be applied toward the bachelor of career and technical education degree.

CTE2020 Occupation Competency Exam - Performance — Credit Hours: 1-12

Performance examination covering the occupation to be taught. NOTE: Students must have 30 semester hours at UT before examination credit can be applied towards the bachelor of career and technical education degree.

CTE2990 Independent Field Experience **Credit Hours: 1-4**

The student will contract with the faculty member assigned to set up an independent field experience that will enable the student to meet personal career objectives.

CTE3010 Teaching Occupational Skills **Credit Hours: 3**

The development of pedagogical skills designed to assist the beginning teacher with basic classroom techniques and strategies.

CTE3020 Teaching Occupational Knowledge **Credit Hours: 3**

The development of career and technical teaching concepts, designed to assist teachers with the presentation of occupational knowledge.

Prerequisites: CTE 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

CTE3030 Methods Of Teaching Career And Technical Education I **Credit Hours: 2**

The development and application of career and technical teaching methods and strategies in an actual classroom/laboratory situation or under a simulated classroom setting .

CTE3040 Methods Of Teaching Career And Technical Education II **Credit Hours: 2**

The continued development and application of career and technical teaching methods and strategies in an actual classroom/laboratory situation or under a simulated classroom setting.

CTE3060 Occupational Test Development **Credit Hours: 3**

Study and construction of psychomotor, cognitive, affective and perceptual evaluation instruments for use in laboratory and related technology classes.

CTE3080 Strategies For Teaching Technical Theory **Credit Hours: 3**

An analysis of occupational skills to identify mathematics, science and communication competencies and apply reflective analysis to teaching affective, cognitive and psychomotor skills using a results oriented teaching model.

CTE3100 Curriculum Construction Career And Technical Education **Credit Hours: 3**

Development of knowledge and skill in competency based education to include occupational analysis, selection of course content, course of study and instructional guide development and credentialing students. Required for certification.

CTE3120 Construction & Utilization Of Learning Activities Packed **Credit Hours: 3**

This course provides the career and technical teacher with the skills to develop and utilize individualized competency based learning activity packets from a previously developed curriculum.

CTE3160 Updating Occupational Skills And Knowledges **Credit Hours: 1-6**

This course provides the student with an opportunity to upgrade occupational proficiency and technical knowledge through business or industrial experiences or supplemental training for the purpose of improving instruction.

CTE3910 Seminar For Career And Technical Teachers **Credit Hours: 3**

The study of current developments in specific areas of instruction with the development of course materials as assigned.

CTE4020 Occupational Safety & Liability **Credit Hours: 3**

The study of occupational health and safety hazards. Regulations applicable to school, business and industry will be examined. Strategies to minimize exposure to and prevent injuries will be developed.

CTE4040 Laboratory Organization And Management **Credit Hours: 3**

Designed for laboratory instructors to increase their operating efficiency and effectiveness. Focus is on arranging the facility and controlling materials, supplies, learning activities and maintenance through various system approaches.

CTE4060 Foundations Of Career And Technical Education **Credit Hours: 3**

A study of social issues, historical events and philosophies that provide a basis for the development of career and technical education. Principles and their implications are also reviewed.

CTE4080 Principles Of School-To-work Transition **Credit Hours: 3**

Designed for educators and employers to increase their knowledge and skill to build partnerships between schools and business, industry and labor. Examines transition concepts, components, implementation strategies and models.

CTE4100 Organization, Administration & Regulation Of Career And Technical Education **Credit Hours: 3**

Study of the organization and administration of career and technical education at the national, state and local levels, noting relationships existing between the agencies.

CTE4120 Supervision Of Career And Technical Education **Credit Hours: 3**

Development of supervisory skills in career and technical education. Stresses human relations, team building, basic management and leadership skills in program inauguration and operations.

CTE4140 Cooperative Education **Credit Hours: 2**

Designed to present the basic fundamentals of establishing and operating a cooperative occupational program.

CTE4160 Curriculum Development & Teaching Co-Operative Education **Credit Hours: 3**

A study of cooperative education curriculum and instructional methods, including the coordination of classroom-related instruction with on-the-job experience based on the commonalties of a variety of occupations.

CTE4180 Promotion, Recruitment & Retention In Career And Technical Education **Credit Hours: 3**

A study of career and technical education in the community, and promotion, recruitment and retention strategies, including school publics, theories of community power structure and the career and technical school in a democratic society.

CTE4220 Adviser Training - Youth Leadership Development **Credit Hours: 3**

Designed for teachers and supervisors to increase their skills and knowledge of youth leadership development. Focus is on advising a student career and technical organization and includes both establishing and maintaining functions.

CTE4570 Teaching Adult Learners In Career And Technical Education **Credit Hours: 3**

A study of the unique learning and teaching characteristics associated with adult learners, adult learning theory, learner characteristics, physical effects of aging and strategies consistent with adult learning styles.

CTE4910 Directed Research In Career And Technical Education **Credit Hours: 1-3**

Investigations in such fields as community surveys to determine needs for career and technical education, industrial surveys, follow-up studies of career and technical graduates, developing content of shop-related technology courses.

CTE4930 Supervised Teaching **Credit Hours: 3-8**

A planned field experience held in public school classrooms under the direction of University supervisors. Practicing teacher observed planning, presenting and demonstrating teaching skills and managing the laboratory and classroom..

CTE4940 Practicum-Internship In Career And Technical Education **Credit Hours: 1-3**

Observation and supervised experiences will be offered in a variety of appropriate settings, or students will be assigned to work as interns in a school setting under the joint supervision of school and university personnel.

CTE4950 Workshop In Career And Technical Education **Credit Hours: 1-5**

Workshops developed around topics of interest and concern for preservice and inservice teachers and other education personnel. Practical applications of workshop topics are emphasized.

CTE4980 Problems In Career And Technical Education **Credit Hours: 1-5**

A course developed around topics of interest and concern to inservice teachers. Stresses solution and resolution of educational problems occurring within selected districts.

CTE4990 Individual Study In Career And Technical Education For Undergraduate Students **Credit Hours: 1-3**

Individual study is designed to provide the opportunity to work individually on professional problems under the direction of the faculty in career and technical education.

CTE5020 Occupational Safety And Liability **Credit Hours: 3**

The study of occupational health and safety hazards. Regulations applicable to school, business and industry will be examined. Strategies to minimize exposure to and prevent injuries will be developed.

CTE5040 Laboratory Organization And Management **Credit Hours: 3**

Designed for laboratory instructors to increase their operating efficiency and effectiveness. Focus is on arranging the facility and controlling materials, supplies, learning activities and maintenance through various system approaches.

CTE5060 Foundations Of Career And Technical Education **Credit Hours: 3**

A study of social issues, historical events and philosophies that provide a basis for the development of career and technical education. Principles and their implications are also reviewed.

CTE5080 Principles Of School-To-work Transition **Credit Hours: 3**

Design for educators and employers to increase their knowledge and skill to build partnerships between schools and business, industry and labor. Examines transition concepts, components, implementation strategies and models.

CTE5100 Organization, Administration & Regulations Of Career And Technical Education **Credit Hours: 3**

Study of the organization and administration of career and technical education at the national, state and local levels, noting relationships existing between the agencies.

CTE5120 Supervision Of Career And Technical Education **Credit Hours: 3**

Development of supervisory skills in career and technical education. Stresses human relations, team building, basic management and leadership skills in program inauguration and operations.

CTE5140 Cooperative Education **Credit Hours: 2**

Designed to present the basic fundamentals of establishing and operating a cooperative occupational program.

CTE5160 Curriculum Development & Teaching **Credit Hours: 3**

A study of cooperative education curriculum and instructional methods, including the coordination of classroom-related instruction with on-the-job experience based on the commonalties of a variety of occupations.

CTE5180 Promotion, Recruitment & Retention **Credit Hours: 3**

A study of career and technical education in the community, and promotion, recruitment and retention strategies, including school publics, theories of community power structure and the career and technical school in a democratic society.

CTE5220 Adviser Training For Youth Leaders **Credit Hours: 3**

Designed for teachers and supervisors to increase their skills and knowledge of youth leadership development. Focus is on advising a student career and technical organization and includes both establishing and maintaining functions.

CTE5570 Teaching Adult Learners **Credit Hours: 3**

A study of the unique learning and teaching characteristics associated with adult learners, adult learning theory, learner characteristics, physical effects of aging and strategies consistent with adult learning styles.

CTE5810 Staff Evaluation And Development **Credit Hours: 3**

An analysis of the processes and current instruments available for evaluation of programs and personnel, and an appraisal of the professional development needs of individuals in educational settings.

CTE5830 Curriculum Principles And Models **Credit Hours: 3**

Curriculum principles and models are examined. The characteristics of curricula are established and inferences are drawn for the planning, implementation and evaluation phases of curriculum development.

CTE5940 Practicum-Internship In Career And Technical Education **Credit Hours: 1-3**

Observation and supervised experiences will be offered in a variety of appropriate settings, or students will be assigned to work as interns in a school setting under the joint supervision of school and university personnel.

CTE5950 Workshop In Career And Technical Education **Credit Hours: 1-5**

Workshops developed around topics of interest and concern for preservice and inservice teachers and other education personnel. Practical applications of workshop topics will be emphasized.

CTE5980 Problems In Career And Technical Education **Credit Hours: 1-5**

A course developed around topics of interest and concern to inservice teachers and administrators. Stresses solution and resolution of educational problems occurring within selected districts.

CTE5990 Individual Study In Career And Technical Education **Credit Hours: 1-3**

Individual study is designed to provide the opportunity to work individually on professional problems under the direction of the faculty in career and technical education.

CTE6900 Research In Career And Technical Education **Credit Hours: 1-3**

Investigations in such fields as community surveys to determine needs for career and technical education, industrial surveys, follow-up studies of vocational graduates, developing content of shop-related technology courses.

CTE6920 Master's Research Project In Career And Technical Education **Credit Hours: 1-3**

Open to a graduate student who elects the completion of a research project in fulfilling the research requirement of the master's degree.

CTE6960 Master's Thesis In Career And Technical Education **Credit Hours: 1-3**

Open to a graduate student who elects the completion of a master's thesis in fulfilling the research requirement of the master's degree.

CTE7810 Staff Evaluation And Development **Credit Hours: 3**

An analysis of the processes and current instruments available for evaluation of programs and personnel, and an appraisal of the professional development needs of individuals in educational settings.

CTE7830 Curriculum Principles And Models **Credit Hours: 3**

Curriculum principles and models are examined. The characteristics of curricula are established and inferences are drawn for the planning, implementation and evaluation phases of curriculum development.

CTE7940 Practicum-Internship In Career And Technical Education **Credit Hours: 1-3**

Observation and supervised experiences will be offered in a variety of appropriate settings, or students will be assigned to work as interns in a school setting under the joint supervision of school and university personnel.

CTE7950 Workshop In Career And Technical Education **Credit Hours: 1-5**

Workshops developed around topics of interest and concern for preservice and inservice teachers and other education personnel. Practical applications of workshop topics will be emphasized.

CTE7980 Problems In Career And Technical Education **Credit Hours: 1-5**

A course developed around topics of interest and concern to inservice teachers and administrators. Stresses solution and resolution of educational problems occurring within selected districts.

CTE7990 Individual Study In Career And Technical Education **Credit Hours: 1-3**

Individual study is designed to provide the opportunity to work individually on professional problems under the direction of the faculty in career and technical education.

CVMD899 Research CV/Metabolic Diseases **Credit Hours: 1-15**

DST2020 Disability In The United States **Credit Hours: 3**

An overview of the emergence of disability rights in the U.S. with an emphasis on the independent living movement, disability history, culture and representation in mass media. (Not for credit in the minor).

DST2980 SPECIAL TOPICS IN DISABILITY STUDIES **Credit Hours: 3**

Special topics in Disability Studies. Topics vary by instructor; may be repeated for credit.

DST3020 Definitions Of Disability **Credit Hours: 3**

An interdisciplinary exploration of the definitions, models and paradigms of disability, including medical, social, phenomenological, rehabilitative and independent living constructions of disability.

Prerequisites: ENGL 1110 FOR LEVEL UG WITH MIN. GRADE OF D-

DST3030 Issues In Disability Studies **Credit Hours: 3**

An interdisciplinary exploration of the history and culture of disability, including the issues of stigmatizing and stereotyping, communication barriers and breakthroughs, educational segregation and mainstreaming and the experience of "passing."

Prerequisites: ENGL 1110 FOR LEVEL UG WITH MIN. GRADE OF D-

DST3980 SPECIAL TOPICS IN DISABILITY STUDIES **Credit Hours: 3**

Special topics in Disability Studies. Topics vary by instructor, may be repeated for credit.

DST4890 Disability Studies Research And Methodologies **Credit Hours: 3**

An interdisciplinary exploration and review of research issues and methodologies suited to the study of disability.

Prerequisites: DST 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

DST4940 Internship In Disability Studies **Credit Hours: 3**

This course is a service learning model internship with on-campus and/or community agencies addressing disability studies issues. Sites must be approved by the instructor.

Prerequisites: DST 4890 FOR LEVEL UG WITH MIN. GRADE OF D-

DST4980 Special Topics in Disability Studies **Credit Hours: 3**

This course allows Disability Studies minors to take disability studies-related courses for DST credit.

EBUS3090 E-Commerce And The Networked Economy **Credit Hours: 3**

This course is an introduction to the networked economy, e-commerce and business transformation. It covers the technological trends, business opportunities, competitive threats, marketing responses and public policy issues concerning e-commerce.

EBUS3180 Web Design For Business Communication **Credit Hours: 3**

A study of Web site design and management process for effective business communication, including authoring software, graphic tools, scripting techniques, java applets and related technical, legal ethical and managerial issues.

EBUS4040 E-Commerce Intelligence Management **Credit Hours: 3**

A study of business intelligence management in an e-commerce environment, including the use of data mining and warehousing tools for market analysis and business decision supports.

Prerequisites: EBUS 3090 FOR LEVEL UG WITH MIN. GRADE OF D-

EBUS4150 E-Commerce Business Models And Project Management **Credit Hours: 3**

A hands-on course involving case studies of successful e-commerce business models and a team-based project to develop e-commerce plan for established and start-up businesses.

Prerequisites: EBUS 3090 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON1010 Introduction To Economic Issues **Credit Hours: 3**

Basic concepts and theory applications to major economic problems and controversies. Designed primarily to meet requirements of students not planning to take upper level economics courses. (not for major credit)

ECON1150 Principles Of Macroeconomics **Credit Hours: 3**

Explaining the level and the growth of economic activity, its fluctuations and ways of achieving greater stability, including the roles of money, banking and international finance.

ECON1200 Principles Of Microeconomics **Credit Hours: 3**

Theories of consumer behavior; determination of input and output; prices and quantities in factor and product markets; analysis of international trade and policy; applications include labor markets and income distribution.

ECON2400 The American Economy In The Twentieth Century **Credit Hours: 3**

American economic growth in the recent past. Evolution of governmental roles, development of labor markets with respect to race and sex, effects of wars and depressions. Status of American competitiveness.

ECON2810 Introduction to Econometrics **Credit Hours: 3**

Included is the study of hypothesis testing, single and multiple regression, correlation analysis, time series and index numbers, and non-parametric statistics.

Prerequisites: MATH 2600 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 2630 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 3610 FOR LEVEL UG WITH MIN. GRADE OF D- OR BUAD 2060 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON3030 Consumer Economics **Credit Hours: 3**

Economic role of the consumer, theory of choice-making - rational purchasing of food, housing, health care, transportation, insurance, credit, budgeting, investing and tax returns.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON3050 Economics Of Gender **Credit Hours: 3**

Analysis of labor market outcomes and income distribution characteristics resulting from gender differences; gender-related economic outcomes: the "feminization of poverty," persistent male-female wage differential, expanding proportion of female-headed households.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON3070 Economics And Law **Credit Hours: 3**

Methodologies of Law and Economics; Legal institutions; Economic Theory of Property; Property Rights; Contract Theory; Economic Theory of Torts and Tort Law, Common Law Process; Economics of Crime and Punishment.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON3080 Economics Of Crime **Credit Hours: 3**

Study of crime as an economic activity; costs of crime to the community; economic approach to crime reduction.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON3120 Topics In Monetary And Financial Economics **Credit Hours: 3**

Current issues in money, banking and finance; interest rate theory; international money and banking; monetary policy and modeling monetary economies.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON3150 Intermediate Macroeconomic Theory **Credit Hours: 3**

National income accounting; theory of income determination; causal relationships; analysis of consumption, investment, government and foreign demand functions; integration of theories of income, output, money and interest.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON3200 Intermediate Micro-Economic Theory **Credit Hours: 3**

Consumer theory, utility and indifference curve analysis, theory of the firm, industry pricing in perfect and imperfect competition and distribution theory.

Prerequisites: ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON3240 Environmental Economics And Policy **Credit Hours: 3**

Economic analysis of the causes of enironmental problems; Examination of various economic policies for addressing current environmental issues such as pollution control policies and optimal use of resources.

ECON3250 Economics Of Sports **Credit Hours: 3**

This course will survey the theoretic and applied economic issues within the world of professional and amateur sports, focusing on industrial organization, labor economics and public finance.

Prerequisites: ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON3410 World Economic History **Credit Hours: 3**

Study of economic growth throughout the world, particularly in Europe, Asia, Africa and Latin America. Analysis of economic institutions, technological change, industrialization and living standards.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON3500 Comparative Economic Systems **Credit Hours: 3**

Theory and ideology of market, socialist and mixed economic systems. Case study of the economies of U.S., Russia, China and India.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON3600 Urban Economics **Credit Hours: 3**

Analysis bearing on intermetropolitan and intrametropolitan growth processes.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON3900 Undergraduate Seminar **Credit Hours: 1-4**

Small group study of special topics initiated either by student or a faculty member.

ECON3910 Honors Research **Credit Hours: 1-4**

Study of special topics initiated either by student or a faculty member.

ECON3920 Honors Reading **Credit Hours: 1-4**

Study of special topics initiated either by student or a faculty member.

ECON3980 Current Economic Issues **Credit Hours: 3**

Course content varies as changes in the interaction between economic topics and writing assignments occur.

ECON4050 Population Economics **Credit Hours: 3**

Interaction of economic changes and demographic variables; topics include birth rates, women's employment, marriage and divorce, aging and mortality, migration and overpopulation.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON4120 Monetary Theory **Credit Hours: 3**

Modern theories of financial markets, money and the theory of interest rates, money's role in general equilibrium and growth models and money's ability to cause inflation.

Prerequisites: ECON 2120 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 3120 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 3150 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON4130 Monetary And Fiscal Policy **Credit Hours: 3**

Changes in the quantity of money and alternative government spending, taxation and debt policies, interrelations of fiscal and monetary policies in stabilization programs.

Prerequisites: ECON 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 4120 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON4150 Advanced Macroeconomic Theory **Credit Hours: 3**

Theories of consumption and investment. Empirical estimates. Cycle and growth theory, multiplier-accelerator analysis and growth models. The theory and instruments of macroeconomic policy. Dynamic Macroeconomic Theory.

Prerequisites: ECON 3150 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON4200 Advanced Microeconomic Theory **Credit Hours: 3**

Advanced topics in microeconomic theory, consumer behavior, the firm and market structure, distribution theory, equilibrium conditions, welfare economics.

Prerequisites: ECON 3200 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON4240 Advanced Environmental Economics **Credit Hours: 3**

The economics of the environment and natural resources using applied welfare theory, benefit-cost analyses, and nonmarket valuation. Examination of economic instruments, such as marketable permits, for solving environmental problems.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON4250 Labor Economics **Credit Hours: 3**

Labor force characteristics, wage determination, hours and condition of work, unemployment, labor union structure and growth, collective bargaining and modern labor legislation.

Prerequisites: ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON4300 Mathematical Economics **Credit Hours: 3**

Development and applications of the mathematical tools used by economists. Differential and integral calculus, linear algebra, transcendental functions and series.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON4410 American Economic History **Credit Hours: 3**

Exploration of economic growth in America from pre-Columbian times to the present day. Analysis of economic institutions, technological change, industrialization and standards of living.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON4510 International Economics I **Credit Hours: 3**

Theory of international trade; commercial policy; costs and benefits, economic integration; trade and economic growth and balance of payments problems.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON4550 Economic Development **Credit Hours: 3**

Economic problems and policies in less-developed countries, including such topics as schooling, population growth, urbanization, landholding, income distribution, capital formation and development strategies.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON4620 Regional Economics **Credit Hours: 3**

Examination of regional income estimates and social accounts, regional multipliers, diverse location theories, supplemented with techniques of regional analysis.

Prerequisites: ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON4660 Public Finance Economics **Credit Hours: 3**

An analysis of the government sector in the economy, government expenditures, taxation and borrowing and their effects on employment, price levels and growth.

Prerequisites: ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON4750 Health Economics **Credit Hours: 3**

Economic analysis of health and health services. Topics currently include medical and allied manpower, hospitals, drugs and cost-benefit analysis of selected health programs.

Prerequisites: ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON4810 Econometrics Models And Methods I **Credit Hours: 3**

An introduction to econometric methods and their use in quantitative analysis of economic theories. Diagnostics for problems typically encountered are detailed along with techniques for correcting these problems.

Prerequisites: ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D- OR (ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- AND ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 2630 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- AND ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- AND ECON 2640 FOR LEVEL UG WITH MIN. GRADE OF D-)

ECON4820 Econometrics Models And Methods II **Credit Hours: 3**

An introduction to forecasting methods for economic time-series including Bayesian methods. Both theory and application of forecasting models and methods are covered.

Prerequisites: ECON 4810 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON4910 Research **Credit Hours: 1-4**

ECON4920 Readings **Credit Hours: 1-4**

ECON4960 Senior Honors Thesis **Credit Hours: 1-4**

ECON5050 Population Economics **Credit Hours: 3**

Interaction of economic changes and demographic variables; topics include birth rates, women's employment, marriage and divorce, aging and mortality, migration and overpopulation.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON5120 Monetary Theory **Credit Hours: 3**

Modern theories of financial markets, money and the theory of interest rates, money's role in general equilibrium and growth models and money's ability to cause inflation.

Prerequisites: ECON 2120 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 3120 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 3150 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON5130 Monetary And Fiscal Policy **Credit Hours: 3**

Changes in the quantity of money and alternative government spending, taxation and debt policies, interrelations of fiscal and monetary policies in stabilization programs.

Prerequisites: ECON 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 4120 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON5150 Advanced Macroeconomic Theory **Credit Hours: 3**

Theories of consumption and investment. Empirical estimates. Cycle and growth theory, multiplier-accelerator analysis and growth models. The theory and instruments of macroeconomic policy. Dynamic Macroeconomic Theory.

Prerequisites: ECON 3150 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON5200 Advanced Microeconomic Theory **Credit Hours: 3**

Advanced topics in microeconomic theory, consumer behavior, the firm and market structure, distribution theory, equilibrium conditions, welfare economics.

Prerequisites: ECON 3200 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON5240 Environmental And Natural Resource Economics **Credit Hours: 3**

The economics of the environment and natural resources. Examination of economic instruments for solving environmental problems. Analyzed policies include direct regulation, user charges, taxes on polluting products and marketable permits.

Prerequisites: ECON 3200 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON5250 Labor Economics **Credit Hours: 3**

Labor force characteristics, wage determination, hours and condition of work, unemployment, labor union structure and growth, collective bargaining and modern labor legislation.

Prerequisites: ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON5300 Mathematical Economics **Credit Hours: 3**

Development and applications of the mathematical tools used by economists. Differential and integral calculus, linear algebra, transcendental functions and series.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON5410 American Economic History **Credit Hours: 3**

Exploration of economic growth in America from pre-Columbian times to the present day. Analysis of economic institutions, technological change, industrialization and standards of living.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1880 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON5510 International Economics I **Credit Hours: 3**

Theory of international trade; commercial policy; costs and benefits, economic integration; trade and economic growth and balance of payments problems.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON5550 Economic Development **Credit Hours: 3**

Economic problems and policies in less-developed countries, including such topics as schooling, population growth, urbanization, landholding, income distribution, capital formation and development strategies.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON5620 Regional Economics **Credit Hours: 3**

Examination of regional income estimates and social accounts, regional multipliers, diverse location theories, supplemented with techniques of regional analysis.

Prerequisites: ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON5660 Public Finance Economics **Credit Hours: 3**

An analysis of the government sector in the economy, government expenditures, taxation and borrowing and their effects on employment, price levels and growth.

Prerequisites: ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON5750 Health Economics **Credit Hours: 3**

Economic analysis of health and health services. Topics currently include medical and allied manpower, hospitals, drugs and cost-benefit analysis of selected health programs.

Prerequisites: ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON5810 Econometrics Models And Methods I **Credit Hours: 3**

An introduction to econometric methods and their use in quantitative analysis of economic theories. Diagnostics for problems typically encountered are detailed along with techniques for correcting these problems.

Prerequisites: (ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- AND ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 2630 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- AND ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D- AND ECON 2640 FOR LEVEL UG WITH MIN. GRADE OF D-)

ECON5820 Econometrics Models And Methods II **Credit Hours: 3**

An introduction to forecasting methods for economic time-series including Bayesian methods. Both theory and application of forecasting models and methods are covered.

Prerequisites: ECON 5810 FOR LEVEL GR WITH MIN. GRADE OF D-

ECON5980 Current Economic Problems **Credit Hours: 3**

Course content changes from time to time as important economic problems arise.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

ECON6150 **Seminar in Macroeconomics** **Credit Hours: 4**

ECON6200 **Seminar in Microeconomics** **Credit Hours: 4**

ECON6810 **Sem: Appl Econometrics I** **Credit Hours: 2**

ECON6820 **Sem: Appl Econometrics II** **Credit Hours: 2**

ECON6830 Sem: Appl Econometrics III — Credit Hours: 2

ECON6900 Graduate Research — Credit Hours: 1-7

ECON6960 Thesis — Credit Hours: 1-8

ECON6990 Graduate Readings — Credit Hours: 1-7

EDAS4100 Supervisory Skill Development **Credit Hours: 3**

A study of supervisory skills for education and allied professions. The focus is on the supervisor and how she engages in activities to develop personal growth and development of staff members.

EDAS4260 Leadership For Supervisors **Credit Hours: 3**

An examination of different leadership styles within the organization is the focal point of this course. Participants will conduct research related to directive and non-directive supervisory skills.

EDAS4280 Organizational Development **Credit Hours: 3**

The course explores the concepts of organizations and people who work in organizations. Participants will be involved in exercises and procedures of organizational diagnosis, evaluation and development.

EDAS4290 Labor Relations **Credit Hours: 3**

The course examines methods and procedures for improving labor relations in organizations. Participants will analyze a variety of models and issues that confront labor relations in education and allied professions.

EDAS4940 Administrative Field Experience **Credit Hours: 3-6**

Working in a guided reflective practice environment, the student will apply knowledge gained in previous coursework to working situations in positions in the private sector.

EDAS5950 Workshop In Educational Administration **Credit Hours: 3**

Topical workshops, based on practical application of skills and knowledge, are intended for in-service educational professionals. Credit may be applied to doctoral degrees upon approval of the committee.

EDAS5980 Special Topics In Educational Administration **Credit Hours: 3**

Courses, based on issues, topics and concerns of educational administrators for the real world. Credit may be applied to degree programs upon approval of the adviser or committee.

EDAS6000 The Individual In Organizations **Credit Hours: 3**

An overview of the individual in educational administration, i.e., as strategic leader, organizational leader, instructional leader and policy/community leader. Opportunities for personal assessment are provided as students explore critical educational issues.

EDAS6010 Supervision For Improved Instruction **Credit Hours: 3**

An examination of those principles of supervision which promote improved instruction. Emphasis is on teacher performance evaluation, curriculum management and strategies for staff development to improve staff performance.

EDAS6020 Instructional Leadership **Credit Hours: 3**

An in-depth analysis of instructional leadership to improve teacher classroom performance. Attention will focus on instructional analysis, strategies for providing feedback and writing professional growth plans.

EDAS6030 Developing Effective Learning Environments **Credit Hours: 3**

An exploration of group dynamics/processes. Development of effective action plans to improve school climate/culture and the learning environment is explored using problem-based learning.

EDAS6110 Legal Aspects Of School Administration **Credit Hours: 3**

This course provides students an opportunity to analyze major topics and issues through which law influences education. Participants will examine the basic legal structure for education.

EDAS6150 The Administrative Experience **Credit Hours: 3**

A study of administrative leadership for modern schools. Emphasis is on blending current theory and practice and examining the interaction among the organization and the internal and external environment.

EDAS6200 Continuous Improvement Of Schools **Credit Hours: 3**

Course addresses current Pre K-16 national and regional reform agendas, relating them to systemic changes in policies, governance and articulation of learner outcomes in local settings.

EDAS6210 Leadership In Diverse Settings **Credit Hours: 3**

Issues of multicultural, cross-cultural, race, gender, ethnicity, inter-agency cooperation in school settings are examined in diverse settings - urban, suburban and rural, noting problems, concerns and common issues for leaders.

EDAS6220 Administration Of Special Programs **Credit Hours: 3**

This course examines the administration of special programs that operate at the district and school level. These include special education, Chapter I, vocational education, guidance and athletic programs.

EDAS6230 Community And Schools **Credit Hours: 3**

The unique role of school systems in the democratic social structure is examined through a theoretical critique of strategies that increase citizen involvement in and build support for schools.

EDAS6240 Developing Learning Organizations In Educational Settings **Credit Hours: 3**

Course introduces the theories, techniques and practices of planned organizational learning. Students examine the philosophical, theoretical and practical differences of organizational development as interventionist, consultative and collaborative processes.

EDAS6320 School Business Management **Credit Hours: 3**

The purpose of the course is to involve students in an analysis of the role and functions of school business management. Participants will analyze data in each topical area of school business management.

EDAS6330 Collective Bargaining And Dispute Resolution **Credit Hours: 3**

The purpose of the course is to examine the issues that arise before, during and after the collective bargaining process in the public sector, including resolving labor disputes and grievances.

EDAS6350 Computers In Educational Administration Decision Making **Credit Hours: 3**

This course allows the development for increased decision making based on local, state and national retrievable data concerning learning, achievement, efficiency and effectiveness of resource allocations.

EDAS6360 Personnel Management And Contract Administration In Education **Credit Hours: 3**

Course provides insight into the purposes, policies and processes of personnel administration and contract administration in public education, including recruitment, hiring, induction, evaluation, compensation and development.

EDAS6380 Planning Educational Facilities For Learning **Credit Hours: 3**

This course examines the issues surrounding planning, building and maintaining educational facilities appropriate for maximizing learning. Included is an examination of legal, health and safety requirements.

EDAS6420 Micropolitics Of School Communities **Credit Hours: 3**

Course focus is on the day to day politics of school work that increase the complexities of educating. Using case studies and problem-based learning, students will practice skills that support democratic practices in school communities.

EDAS6430 Legal Aspects Of Educational Administration **Credit Hours: 3**

This course provides students a background in legislation and court decisions that affect the administration of public schools. Students will investigate legal problem areas in schools.

EDAS6440 Equity Issues In Educational Finance And Economics **Credit Hours: 3**

Analysis of educational finance and economic issues pertinent to school districts. Analysis of various funding models at the local, state and national level are studied employing various measures of equity.

EDAS6900 Master's Seminar In Educational Administration And Supervision **Credit Hours: 3**

Examiniation and reflection on the practice of research in Educational Leadership.

EDAS6920 Master's Project In Educational Administration **Credit Hours: 1-3**

Open to graduate students who elect the completion of a research project in fulfilling the research requirements of the master's program.

EDAS6960 Master's Thesis In Educational Administration **Credit Hours: 1-3**

Open to graduate students who elect the completion of a research thesis in fulfilling the research requirements of the master's program.

EDAS6990 Individual Study In Educational Administration - Master's **Credit Hours: 1-3**

Open to graduate students who wish to pursue individual study on professional problems in EDAS under the direction of an EDAS faculty member.

EDAS7920 Specialist Project In Educational Administration **Credit Hours: 1-3**

Open to graduate students to fulfill the completion of a research project in fulfilling the research requirements of the specialist program.

EDAS7950 Workshop In Educational Administration **Credit Hours: 3**

Topical workshops, based on practical application of skills and knowledge, are intended for in-service educational professionals. Credit may be applied to doctoral degrees upon approval of the committee.

EDAS7980 Special Topics In Educational Administration **Credit Hours: 3**

Courses, based on issues, topics and concerns of educational administrators for the real world. Credit may be applied to degree programs upon approval of the adviser or committee.

EDAS7990 Independent Study In Education Administration **Credit Hours: 1-3**

Individual study on professional problems in EDAS under the direction of a EDAS faculty member.

EDAS8000 The Individual In Organizations **Credit Hours: 3**

An overview of the individual in educational administration, i.e., as strategic leader, organizational leader, instructional leader and policy/community leader. Opportunities for personal assessment are provided as students explore critical educational issues.

EDAS8010 Supervision For Improved Instruction **Credit Hours: 3**

An examination of those principles of supervision which promote improved instruction. Emphasis is on teacher performance evaluation, curriculum management and strategies for staff development to improve staff performance.

EDAS8020 Instructional Leadership **Credit Hours: 3**

An in-depth analysis of instructional leadership to improve teacher classroom performance. Attention will focus on instructional analysis, strategies for providing feedback and writing professional growth plans.

EDAS8030 Developing Effective Learning Environments **Credit Hours: 3**

An exploration of group dynamics/processes. Development of effective action plans to improve school climate/culture and the learning environment is explored using problem-based learning.

EDAS8110 Legal Aspects Of School Administration **Credit Hours: 3**

This course provides students an opportunity to analyze major topics and issues through which law influences education. Participants will examine the basic legal structure for education.

EDAS8150 The Administrative Experience **Credit Hours: 3**

A study of administrative leadership for modern schools. Emphasis is on blending current theory and practice and examining the interaction among the organization and the internal and external environment.

EDAS8190 Integrated Experiences In Education Administration **Credit Hours: 3**

Working in a guided reflective practice environment, the student will apply knowledge gained in previous coursework to working in school building operations.

EDAS8200 Continuous Improvement Of Schools **Credit Hours: 3**

Course addresses current Pre K-16 national and regional reform agendas, relating them to systemic changes in policies, governance and articulation of learner outcomes in local settings.

EDAS8210 Leadership In Diverse Settings **Credit Hours: 3**

Issues of multicultural, cross-cultural, race, gender, ethnicity, inter-agency cooperation in school settings are examined in diverse settings - urban, suburban and rural, noting problems, concerns and common issues for leaders.

EDAS8220 Administration Of Special Programs **Credit Hours: 3**

This course examines the administration of special programs that operate at the district and school level. These include special education, Chapter I, vocational education, guidance and athletic programs.

EDAS8230 Community And Schools **Credit Hours: 3**

The unique role of school systems in the democratic social structure is examined through a theoretical critique of strategies that increase citizen involvement in and build support for schools.

EDAS8240 Developing Learning Organizations In Educational Settings **Credit Hours: 3**

Course introduces the theories, techniques and practices of planned organizational learning. Students examine the philosophical, theoretical and practical differences of organizational development as interventionist, consultative and collaborative processes.

EDAS8300 Integrate Experiences: Policies In Action **Credit Hours: 3**

This course analyses policies employed by schools and school districts in providing for education of students and services to the school community. On-site fieldwork is required.

EDAS8310 School District Leadership **Credit Hours: 3**

Analysis of duties, roles and responsibilities of local school district leadership. Specific competencies of building school support, planning, curriculum development, personnel, legal, financial and planning are covered.

EDAS8320 School Business Management **Credit Hours: 3**

The purpose of the course is to involve students in an analysis of the role and functions of school business management. Participants will analyze data in each topical area of school business management.

EDAS8330 Collective Bargaining And Dispute Resolution **Credit Hours: 3**

The purpose of the course is to examine the issues that arise before, during and after the collective bargaining process in the public sector, including resolving labor disputes and grievances.

EDAS8350 Computers In Educational Administration Decision Making **Credit Hours: 3**

This course allows the development for increased decision making based on local, state and national retrievable data concerning learning, achievement, efficiency and effectiveness of resource allocations.

EDAS8360 Personnel Management And Contract Administration In Education **Credit Hours: 3**

Course provides insight into the purposes, policies and processes of personnel administration and contract administration in public education, including recruitment, hiring, induction, evaluation, compensation and development.

EDAS8380 Planning Educational Facilities For Learning **Credit Hours: 3**

This course examines the issues surrounding planning, building and maintaining educational facilities appropriate for maximizing learning. Included is an examination of legal, health and safety requirements.

EDAS8420 Micropolitics Of School Communities **Credit Hours: 3**

Course focus is on the day to day politics of school work that increase the complexities of educating. Using case studies and problem-based learning, students will practice skills that support democratic practices in school communities.

EDAS8430 Legal Aspects Of Educational Administration **Credit Hours: 3**

This course provides students a background in legislation and court decisions that affect the administration of public schools. Students will investigate legal problem areas in schools.

EDAS8440 Equity Issues In Educational Finance And Economics **Credit Hours: 3**

Analysis of educational finance and economic issues pertinent to school districts. Analysis of various funding models at the local, state and national level are studied employing various measures of equity.

EDAS8600 Leadership And Organizational Theory **Credit Hours: 3**

An analysis of leadership and organizational theory as influences on current thinking about and approaches to educational administration. Emphasis is on understanding dominant themes that impact administrative theory.

EDAS8610 Organizational Behavior **Credit Hours: 3**

This course integrates the educational and management theories and knowledge bases on leadership, power, motivation and change to understand the internal and external dynamics of people in educational organizations.

EDAS8620 Politics And Policy Analysis And Development **Credit Hours: 3**

This course examines the issues involved in policy formation and analysis along with the political process of public education. Local, intermediate, state and federal levels are considered.

EDAS8640 Leading Systems Change **Credit Hours: 3**

Course explores processes and practices used by educators to redesign preK-12 educational systems to improve outcomes for students. Content examines processes of moving espoused organizational values to actionable knowledge. Organizational Development recommended.

EDAS8650 Interdisciplinary Perspectives In Educational Administration **Credit Hours: 3**

Seminar focused on interdisciplinary examination of critical issues in educational administration. Multiple theoretical lenses from sociology, political science, economics and science are used to address educational issues.

EDAS8660 Critical Analysis Of Inquiry In Schools **Credit Hours: 3**

Addresses the knowledge base school leaders must have to evaluate, use and initiate educational research in school settings. Students use action research to monitor implementation of researched ideas in schools. Quant. I and/or Qual. I (E) recommended.

EDAS8930 Doctoral Seminar In Educational Administration And Supervision **Credit Hours: 3**

The course examines research findings and research methodology in Educational Administration and Supervision as they are pertinent to development of dissertation proposals. Dissertation proposal development is encouraged.

EDAS8940 Educational Administration Internship **Credit Hours: 3**

An advanced field/seminar experience for doctoral students with fieldwork at the school system level. Fieldwork employs application of graduate coursework under supervision by the school system and the university.

EDAS8960 Doctoral Dissertation In Educational Administration And Supervision **Credit Hours: 1-12**

Production of an original, scholarly product in the area Educational Administration and Supervision. Dissertation credit may total not less than 12 semester hours.

EDP1550 Adaptive Learning In College **Credit Hours: 3**

Examines a variety of cognitive, affective and social factors associated with academic performance in college. Major emphasis is placed on applications to learning and college success.

EDP3110 Learning And Individual Differences **Credit Hours: 3**

Focuses on selected research findings and theoretical principles on learning and individual differences. Considers relationships of this body of information to learning and performance in a variety of contexts.

EDP3120 Psychology Of Coping And Adaptation **Credit Hours: 3**

Reviews and analyzes principles, research findings, coping models, as well as personal and situational factors associated with coping and adaptational processes in a variety of life circumstances.

EDP3200 Applied Psychology For Teachers **Credit Hours: 3**

Examination of the ways in which psychological principles can be applied to the planning and implementation of meaningful instruction in elementary and secondary classrooms.

EDP3210 Child Development For Early Childhood Educators **Credit Hours: 3**

Students in early childhood education will be introduced to emotional, social and cognitive factors in child development (birth to age eight) and examine how teachers can create optimal environments for students.

EDP3230 Human Development For P-12 Educators **Credit Hours: 3**

This course will examine concepts in the physical, cognitive, social, emotional and personality development of children and adolescents. It will provide a necessary background for future teachers to deal effectively with children and youth and to better understand the issues and problems they face. Integrated filed and clinical experiences will provide contexts for these concepts as they are exemplified in the lives of young people.

Prerequisites: EDP 3200 FOR LEVEL UG WITH MIN. GRADE OF D-

EDP3240 Child And Adolescent Development For Middle Grades Educators **Credit Hours: 3**

Students will consider the ways in which an understanding of development can be used to guide teacher behavior. Biological, social and psychological factors will be considered.

Prerequisites: UPDV FOR MIN. SCORE OF 1

EDP3250 Adolescent Development And Learning — Credit Hours: 3

The purpose of this course is to provide pre-service teachers with an understanding of the psychological principles of adolescent development and learning as well as the application of these principles to classroom instruction, assessment, and management. Students develop ways of thinking about teaching and learning in order to make informed decisions concerning various aspects of student learning and instruction. The course focuses on learning theories, cognitive development, personal and social development, achievement motivation, and diversity and their application.

Prerequisites: UPDV FOR MIN. SCORE OF 1

EDP3280 Foundations Of Teaching And Learning — Credit Hours: 3

This course will focus on major conceptions of learning as applied to education, including basic principles of conditioning, information processing and social learning. Concepts such as designing instructional events, classroom management, student assessment and evaluation will be explored.

EDP3290 Life Span Development — Credit Hours: 3

This course will examine concepts delineating the physical (including genetic influences), cognitive, social and personality development across the life span. The course is designed to provide a necessary background in the concepts of development as they pertain to a life span orientation for students in special education. An emphasis will be placed on the application of developmental data issues and problems extant in working with special populations.

EDP4120 Alternative Approaches To Discipline — Credit Hours: 3

Reviews a variety of models, constructs and methodologies for addressing behavior and discipline problems, especially within school and family settings. Emphases are placed on individual and group approaches to discipline.

EDP4210 Child Behavior And Development **Credit Hours: 3**

Examines the physical, cognitive, social, emotional and personality development of children. Provides helping professionals with background to identify and solve problems related to child growth and development.

EDP4220 Adolescent Behavior And Development **Credit Hours: 3**

Examines the physical, cognitive, social, emotional and personality development of adolescents. Provides helping professionals with background to identify and solve problems related to adolescent growth and development.

EDP4230 Adult Development **Credit Hours: 3**

An overview of life-span development analyzing cognitive, physical, personality and social development from early adulthood through the later years.

EDP4330 Behavior Management **Credit Hours: 3**

Theoretical and practical study of behavioral and cognitive approaches to behavior management. Students will design, develop, implement and evaluate management plans for themselves and others.

EDP4990 Independent Study In Educational Psychology **Credit Hours: 1-3**

]Directed study of a current topic in educational psychology. The student meets with the instructor at arranged intervals without formal classes.

EDP5110 Basic Educational Psychology **Credit Hours: 3**

A graduate level introduction to the field of educational psychology. Instruction will cover fundamentals of learning, motivation, cognition, individual differences and instructional applications as well as a research-oriented approach to answering scientific questions.

EDP5120 Alternative Approaches To Discipline **Credit Hours: 3**

Reviews a variety of models, constructs and methodologies for addressing behavior and discipline problems, especially within school and family settings. Emphases are placed on individual and group approaches to discipline.

EDP5210 Child Behavior And Development **Credit Hours: 3**

Current theory and research on physical, cognitive, social, emotional and personality development are examined and used as the basis for identifying and solving problems related to child growth and development.

EDP5220 Adolescent Behavior And Development **Credit Hours: 3**

Current theory and research on physical, cognitive, social, emotional and personality development are examined and used as the basis for identifying and solving problems related to adolescent growth and development.

EDP5230 Adult Development **Credit Hours: 3**

Emphasizes classical and modern theories of adulthood from a critical perspective, as well as applications of research on cognitive, physical, personality and social development from early adulthood through old age.

EDP5310 Issues And Innovations In Learning And Instruction **Credit Hours: 3**

Reviews emergent theory, principles and research findings on cognition and learning and applies these concepts to developing instructional experiences and conditions for optimizing classroom learning and performance.

EDP5320 Instructional Psychology **Credit Hours: 3**

Theory and research in psychology that contributes to effective instruction. Topics include varieties and conditions of learning, information processing, learning analysis, constructivism, mastery learning, cooperative learning, norm & criterion-referenced measurement.

EDP5330 Behavior Management **Credit Hours: 3**

Theory and research related to behavioral and cognitive approaches to behavior management. Students will carry out research-based behavior management projects requiring behavioral analyses, observation, program design, development and evaluation.

EDP5950 Workshop In Educational Psychology **Credit Hours: 3**

Each workshop is developed around a topic of interest and concern to in-service teachers and other educational personnel. Practical application of workshop topics will be emphasized.

EDP6130 Human Coping In Adulthood **Credit Hours: 3**

Considers models, research methodologies and constructs on coping in relation to a range of circumstances during the adult years. Emphasis is placed on coping behavior within an ecological context.

EDP6140 Motivation Theory And Application **Credit Hours: 3**

Graduate-level study of conceptions of motivation in various settings. Emphasis is on understanding major concepts and principles, as well on application to such settings as classroom, counseling and industry.

Prerequisites: EDP 5110 FOR LEVEL GR WITH MIN. GRADE OF D- OR EDP 5210 FOR LEVEL GR WITH MIN. GRADE OF D- OR EDP 5220 FOR LEVEL GR WITH MIN. GRADE OF D- OR EDP 5230 FOR LEVEL GR WITH MIN. GRADE OF D- OR EDP 7110 FOR LEVEL GR WITH MIN. GRADE OF D- OR EDP 7230 FOR LEVEL GR WITH MIN. GRADE OF D-

EDP6150 CULTURAL PERSPECTIVES IN LEARNING AND DEVELOPMENT **Credit Hours: 3**

This course aims to develop a broader understanding of the role of culture in psychological processes and the implications of such psychological understanding for a culturally diverse society.

EDP6190 Seminar In Educational Psychology **Credit Hours: 3**

The collaborative study of a specific topic in educational psychology by a group of advanced students under the direction of one or more professors.

EDP6240 Theories Of Development **Credit Hours: 3**

Analysis and evaluation of theories of development with emphasis on the philosophical and psychological evolutionary history of the theories and their usefulness for individuals in the helping professions.

Prerequisites: EDP 5210 FOR LEVEL GR WITH MIN. GRADE OF D- OR EDP 5220 FOR LEVEL GR WITH MIN. GRADE OF D-

EDP6250 Social Development **Credit Hours: 3**

Critical examination of theory and research on social behaviors such as attachment, aggression and prosocial behavior, including their causes, how they affect the person and how they change with age.

Prerequisites: EDP 5210 FOR LEVEL GR WITH MIN. GRADE OF D- OR EDP 5220 FOR LEVEL GR WITH MIN. GRADE OF D-

EDP6260 Research Methods In Child And Adolescent Development **Credit Hours: 3**

Builds upon basic understanding of development through direct experiences in child study. This course provides individual/small group experiences in the design, implementation and written/oral presentation of original research.

Prerequisites: EDP 5210 FOR LEVEL GR WITH MIN. GRADE OF D- OR EDP 5220 FOR LEVEL GR WITH MIN. GRADE OF D-

EDP6270 Parenting: Theory And Research **Credit Hours: 3**

Analysis and evaluation of the research on parenting across a variety of sociocultural contexts.

Prerequisites: EDP 5320 FOR LEVEL GR WITH MIN. GRADE OF D-

EDP6340 Theories Of Learning **Credit Hours: 3**

Intensive inquiry into the study of learning with particular emphasis on more recent theories. Theory application in a wide variety of settings will also be stressed.

EDP6350 Advanced Topics In Cognition And Instruction **Credit Hours: 3**

Theory and research on cognition related to learning/instruction, to include study of expertise, knowledge learned from experience, analysis of ill-structured domains, tacit knowledge, and knowledge representation.

Prerequisites: (EDP 5110 FOR LEVEL GR WITH MIN. GRADE OF D- AND EDP 5320 FOR LEVEL GR WITH MIN. GRADE OF D-) OR (EDP 7110 FOR LEVEL GR WITH MIN. GRADE OF D- AND EDP 7320 FOR LEVEL GR WITH MIN. GRADE OF D-)

EDP6360 Thinking And Reasoning In School Contexts **Credit Hours: 3**

Analysis of theory and research about thinking and reasoning in school subjects and school learning.

Prerequisites: EDP 5210 FOR LEVEL GR WITH MIN. GRADE OF D- OR EDP 5220 FOR LEVEL GR WITH MIN. GRADE OF D-

EDP6960 Master's Thesis In Educational Psychology **Credit Hours: 1-3**

A formal, independent study culminating in a written discourse that advances our understanding of educational psychology.

EDP6980 Master's Project In Educational Psychology **Credit Hours: 1-3**

A formal, independent project applying principles of educational psychology to solve a particular problem and culminating in a written discourse.

EDP6990 Independent Study In Educational Psychology **Credit Hours: 1-3**

Directed study of a current topic in educational psychology. The student meets with the instructor at arranged intervals without formal classes.

EDP7110 Basic Educational Psychology **Credit Hours: 3**

A graduate level introduction to the field of educational psychology. Instruction will cover fundamentals of learning, motivation, cognition, individual differences and instructional applications as well as a research-oriented approach to answering scientific questions.

EDP7230 Adult Development **Credit Hours: 3**

Emphasizes classical and modern theories of adulthood from a critical perspective, as well as applications of research on cognitive, physical, personality and social development from early adulthood through old age.

EDP7310 Issues And Innovations In Learning And Instruction **Credit Hours: 3**

Reviews emergent theory, principles and research findings on cognition and learning and applies these concepts to developing instructional experiences and conditions for optimizing classroom learning and performance.

EDP7320 Instructional Psychology **Credit Hours: 3**

Theory and research in psychology that contributes to effective instruction. Topics include varieties and conditions of learning, information processing, learning analysis, constructivism, mastery learning, cooperative learning, norm & criterion-referenced measurement.

EDP7330 Behavior Management **Credit Hours: 3**

Theory and research related to behavioral and cognitive approaches to behavior management. Students will carry out research-based behavior management projects requiring behavioral analyses, observation, program design, development and evaluation.

EDP7950 Workshop In Educational Psychology **Credit Hours: 3**

Each workshop is developed around a topic of interest and concern to in-service teachers and other educational personnel. Practical application of workshop topics will be emphasized.

EDP8130 Human Coping In Adulthood **Credit Hours: 3**

Considers models, research methodologies and constructs on coping in relation to a range of circumstances during the adult years. Emphasis is placed on coping behavior within an ecological context.

EDP8140 Motivation Theory And Application **Credit Hours: 3**

Graduate-level study of conceptions of motivation in various settings. Emphasis is on understanding major concepts and principles, as well on application to such settings as classroom, counseling and industry.

Prerequisites: EDP 5110 FOR LEVEL GR WITH MIN. GRADE OF D- OR EDP 5210 FOR LEVEL GR WITH MIN. GRADE OF D- OR EDP 5220 FOR LEVEL GR WITH MIN. GRADE OF D- OR EDP 5230 FOR LEVEL GR WITH MIN. GRADE OF D- OR EDP 7110 FOR LEVEL GR WITH MIN. GRADE OF D- OR EDP 7230 FOR LEVEL GR WITH MIN. GRADE OF D-

EDP8150 CULTURAL PERSPECTIVES IN LEARNING AND DEVELOPMENT **Credit Hours: 3**

This course aims to develop a broader understanding of the role of culture in psychological processes and the implications of such psychological understanding for a culturally diverse society.

EDP8180 Interdisciplinary Seminar In Foundations Of Education **Credit Hours: 1**

The proseminar will enable doctoral students to improve their understanding of the research process. Students will learn to ask research questions, choose alternative methodologies and interpret the validity of conclusions.

EDP8190 Seminar In Educational Psychology **Credit Hours: 3**

The collaborative study of a specific topic in educational psychology by a group of advanced students under the direction of one or more professors.

EDP8240 Theories Of Development **Credit Hours: 3**

Analysis and evaluation of theories of development with emphasis on the philosophical and psychological evolutionary history of the theories and their usefulness for individuals in the helping professions.

Prerequisites: EDP 5210 FOR LEVEL GR WITH MIN. GRADE OF D- OR EDP 5220 FOR LEVEL GR WITH MIN. GRADE OF D-

EDP8250 Social Development **Credit Hours: 3**

Critical examination of theory and research on social behaviors such as attachment, aggression and prosocial behavior, including their causes, how they affect the person and how they change with age.

Prerequisites: EDP 5210 FOR LEVEL GR WITH MIN. GRADE OF D- OR EDP 5220 FOR LEVEL GR WITH MIN. GRADE OF D-

EDP8260 Research Methods In Child And Adolescent Development **Credit Hours: 3**

Builds upon basic understanding of development through direct experiences in child study. This course provides individual/small group experiences in the design, implementation and written/oral presentation of original research.

Prerequisites: EDP 5210 FOR LEVEL GR WITH MIN. GRADE OF D- OR EDP 5220 FOR LEVEL GR WITH MIN. GRADE OF D-

EDP8270 Parenting: Theory And Research **Credit Hours: 3**

Analysis and evaluation of the research on parenting across a variety of sociocultural contexts.

EDP8340 Theories Of Learning **Credit Hours: 3**

Intensive inquiry into the study of learning with particular emphasis on more recent theories. Theory application in a wide variety of settings will also be stressed.

EDP8350 Advanced Topics In Cognition And Instruction **Credit Hours: 3**

Theory and research on cognition related to learning/instruction, to include study of expertise, knowledge learned from experience, analysis of ill-structured domains, tacit knowledge, and knowledge representation.

Prerequisites: (EDP 5110 FOR LEVEL GR WITH MIN. GRADE OF D- AND EDP 5320 FOR LEVEL GR WITH MIN. GRADE OF D-) OR (EDP 7110 FOR LEVEL GR WITH MIN. GRADE OF D- AND EDP 7320 FOR LEVEL GR WITH MIN. GRADE OF D-)

EDP8360 Thinking And Reasoning In School Contexts **Credit Hours: 3**

Analysis of theory and research about thinking and reasoning in school subjects and school learning.

Prerequisites: EDP 5210 FOR LEVEL GR WITH MIN. GRADE OF D- OR EDP 5220 FOR LEVEL GR WITH MIN. GRADE OF D-

EDP8960 Dissertation Research In Educational Psychology **Credit Hours: 1-12**

A formal, independent study culminating in a written discourse that advances our understanding of educational psychology.

EDP8990 Independent Study In Educational Psychology **Credit Hours: 1-6**

Directed study of a current topic in educational psychology. The student meets with the instructor at arranged intervals without formal classes.

Course Descriptions 2009-2010

EDU1000 Orientation To Education **Credit Hours: 1**

Academic and student development course offering an introduction to College and University community. Offers strategies for successful transition to University environment by examining University resources, procedures, academic programs and advising.

EDU1700 Introduction to Education **Credit Hours: 3**

Exploration of purposes of schools in society, focusing on professionalism, standards & accountability, education for democracy, legal & organizational issues, diversity, and curriculum & instruction, as well as knowledge and dispositions required to be an effective teacher.

EECS1000 Orientation To Eecs **Credit Hours: 1**

Orientation to the facilities and procedures available to the student in the University, college and department. Introduction to the fields of Electrical Engineering and Computer Science and Engineering; group project design experience.

EECS1010 ELECTRICAL ENGINEERING AND COMPUTER SCIENCE FIRST YEAR DESIGN **Credit Hours: 3**

Orientation to the University, college and departmental facilities, procedures and methodologies available to the student for the academic journey. Introduction to engineering design to EECS freshmen with emphasis on a semester long team-based design project.

EECS1020 Introduction To Modern Computing **Credit Hours: 3**

This course provides an introduction to various fundamental areas in Computer Science: hardware, software, computer programming, communications, application programs, theoretical limitations of computers and artificial intelligence. The course features a series of computer projects and use of the Internet.

EECS1050 Introduction To Computing In C/C++ **Credit Hours: 2**

Covers the concept and properties of an algorithm, analysis and decomposition of computational problems, use of modern programming practices and application of the C/C++ language to problem solving.

EECS1100 Digital Logic Design **Credit Hours: 4**

Number representation and Boolean Algebra. Combinational circuit analysis and design. K-map and tabulation methods. Multiplexers, decoders, adders/subtracters and PLD devices. Sequential circuit analysis and design. Registers, counters and recognizers.

EECS1530 Introduction To Programming **Credit Hours: 3**

Covers the concept and properties of an algorithm, analysis and decomposition of computational problems, use of modern programming practices. Introduction to arrays and classes. Uses the C++ language.

EECS1560 Introduction To Object Oriented Programming **Credit Hours: 3**

Introduces the basics of progranning using the Java language. Covers number types, objects, methods, control structures, vectors, files, and inheritance. Utilizes the Java platform to develop GUI interfaces.

EECS1570 Linear Data Structures **Credit Hours: 3**

This course looks at stacks, queues, and lists as well as the order of algorithms used to access and modify these structures. In addition recursion, hashing, sorting, and set representation are examined in depth.

Prerequisites: EECS 1560 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS1580 Nonlinear Data Structures **Credit Hours: 3**

The data structures introduced in EECS 1570 are extended to include trees (binary, balanced, and n-ary), graphs, and advanced sorting techniques. In addition, the C++ language is used as the main vehicle and is introduced in the couse. Students are expected to have a strong background in Java prior to this course.

Prerequisites: EECS 1570 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS1590 Discrete Structures **Credit Hours: 3**

An introduction to the discrete structures used in computer science to develop software including proof techniques, Boolean logic, graphs, trees, recurrence relations and functions.

Prerequisites: PHIL 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS2000 Eecs Professional Development **Credit Hours: 1**

Preparation for entry to the professions of Electrical Engineering and Computer Science and Engineering, including ethics and social responsibilities, employment practices, continuing education and professional registration. One hour lecture.

EECS2100 Computer Organization And Assembly Language **Credit Hours: 4**

Design of CPU, memory, I/O and arithmetic units. Assembly language programming: symbolic coding, macros and program segmentation. Use of interactive debuggers, utility programs and system I/O facilities.

Prerequisites: (EECS 1100 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 1530 FOR LEVEL UG WITH MIN. GRADE OF D-) OR EECS 1560 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS2300 Electric Circuits **Credit Hours: 4**

An introduction to electrical circuit components and laws, including ideal op-amps, DC circuit analysis, AC circuit analysis, transient analysis of RL and RC circuits and computer-aided circuit analysis.

Prerequisites: PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

EECS2340 Electric Circuits For Nonmajors **Credit Hours: 3**

For students not majoring in EECS. An introduction to electrical circuit components and laws, resistive circuit analysis, AC circuit analysis, phasers, three-phase circuits and computer-aided circuit analysis.

Prerequisites: PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS2550 Operating Systems And Systems Programming **Credit Hours: 3**

Examines the external and internal characteristics of computer operating systems and related software. Details of at least one operating system and comparison with other operating systems. An introduction to systems level programming.

Prerequisites: (EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 1530 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 1580 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS3100 Microsystems Design **Credit Hours: 4**

Microprocessor systems design: basic computer system, CPU, embedded assembly programming, memory and peripheral interfaces, I/O techniques, interrupt structures, DMA, memory management, hierarchies and caches.

Prerequisites: (EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3400 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS3150 Data Communications **Credit Hours: 3**

Analog and digital data transmission, transmission media, Modulation techniques. Data encoding, asynchronous and synchronous transmissions, USART, RS232-C, RS-449 standards. Data link configuration and control, error control, multiplexing and demultiplexing.

Prerequisites: (EECS 1100 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3400 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS3200 Signals And Systems **Credit Hours: 4**

Signals and system representation. Convolution and impulse response. Fourier series, Fourier transform and Laplace transform. State variable analysis of continuous and discrete systems. Digital computer simulation using MATLAB.

Prerequisites: (EECS 1530 FOR LEVEL UG WITH MIN. GRADE OF D- OR EECS 1560 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 2890 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 2300 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS3300 Probabilistic Methods In Engineering **Credit Hours: 3**

Techniques for modeling and analysis of random phenomena in EECS, including communication, control and computer systems. Distribution, density and characteristic functions. Computer generation. Functions of random variables.

Prerequisites: EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS3400 Electronics I **Credit Hours: 4**

Large-signal and incremental characteristics of the pn diode, BJT, MOSFET and JFET. Large- signal analysis and computer simulation of devices and digital circuits. Logic gate implementation. Laboratory experiments and projects.

Prerequisites: EECS 2300 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS3420 Electronics II **Credit Hours: 3**

Analog transistor, diode and integrated circuit analysis and design. Incremental analysis techniques, frequency response and feedback techniques.

Prerequisites: (EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3400 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS3440 Electronics Laboratory **Credit Hours: 1**

Laboratory experiments and projects in the testing and design of analog and mixed-signal electronic circuits.

Prerequisites: EECS 3420 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS3450 Electrical And Electronic Devices **Credit Hours: 3**

For students not majoring in EECS. An introduction to electrical engineering devices and techniques with an emphasis on applications. Topics include solid-state devices, amplifiers, digital logic circuits, transformers and AC and DC machines.

Prerequisites: EECS 2340 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS3460 Electrical Energy Conversion **Credit Hours: 3**

Traditional and renewable electrical energy sources, principles of electromechanical energy conversion, magnetic circuits and transformers, steady state performance of synchronous machines, dc machines, single phase and three phase induction motors.

Prerequisites: EECS 3700 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

EECS3480 Energy Conversion Laboratory **Credit Hours: 1**

Laboratory studies of power transformers, synchronous machines, DC machines, single and three phase induction motors.

Prerequisites: EECS 3460 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS3500 FORMAL LANGUAGES AND AUTOMATA **Credit Hours: 3**

Examines formal models of computing (automata and grammars), computability and undecidability and language translation systems.

Prerequisites: EECS 1550 FOR LEVEL UG WITH MIN. GRADE OF D- OR EECS 1590 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS3550 Software Engineering **Credit Hours: 3**

An introduction to the Software Engineering process. Includes: the software lifecycle, user requirements, human-computer interaction, functional specification, software design, software tools, testing and modification. A major term project is assigned.

Prerequisites: (EECS 1550 FOR LEVEL UG WITH MIN. GRADE OF D- AND ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (EECS 1580 FOR LEVEL UG WITH MIN. GRADE OF D- AND ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS3700 Electromagnetics **Credit Hours: 4**

Analysis of static electric and magnetic fields and steady currents, Faraday's law and time-varying fields. Maxwell's equations, propagation of electromagnetic waves in free space, lossy media and conductors. Transmission line theory.

Prerequisites: (MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 2300 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (MATH 3820 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 2300 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS3940 Co-Op Experience **Credit Hours: 1**

Approved co-op work experience. Course may be repeated.

Prerequisites: EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS3950 Co-Op Experience **Credit Hours: 1**

Approved co-op work experience beyond third required co-op experience. Course may be repeated.

Prerequisites: EECS 3940 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4000 Senior Design Project **Credit Hours: 4**

Student teams select and research a design project and propose a design which is implemented, tested and evaluated. Progress reports, a written final report and an oral presentation are required. One hour lecture, one-hour recitation, 5 hours lab.

Prerequisites: EECS 3100 FOR LEVEL UG WITH MIN. GRADE OF D- OR EECS 3420 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4110 Simulation Of Computer Systems **Credit Hours: 4**

Workload model, hardware and software monitors. Modeling and simulation of central server model with multiple disks, cyclic models, multiprogrammed interactive virtual memory model, product form solution. Case studies.

Prerequisites: (EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D- AND MIME 4000 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS4130 Digital Design **Credit Hours: 4**

The design of digital systems, design methodologies, hardware description language such as VHDL: behavioral-, data flow- and structural-level description of digital systems. Implementation technologies including PLDs and FPGAs.

Prerequisites: EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4140 Fault-Tolerant Digital Systems **Credit Hours: 3**

Faults testing in combinational and sequential circuits. Design techniques for fault tolerance in digital systems. Evaluation techniques. Fault masking and self-checking systems.

Prerequisites: (EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D- AND MIME 4000 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS4150 Automotive Electronics **Credit Hours: 4**

Introduction to automotive electronic subsystems. Design of various electronic control units and in-vehicle networks. Laboratory multidisciplinary team projects in the design of control units, using state-of-the-art microcontrollers. Project presentation and discussion.

Prerequisites: EECS 3100 FOR LEVEL UG WITH MIN. GRADE OF D- OR EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D- OR EECS 4170 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4160 Advanced Microsystems Design **Credit Hours: 4**

Design of microcomputers at the system level. Buses for varying types of microcomputers in real-time and parallel processing. Software and hardware requirements for interprocessor communications. IEEE 488 and CAMAC standards buses.

Prerequisites: EECS 3100 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4170 Real-Time Embedded Systems Design **Credit Hours: 3**

Programming applications in a real-time environment. C language is used to program various microcontroller functions, including timers, A/D and D/A converters, RS-232 communication and CAN networking.

Prerequisites: EECS 3100 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4180 Computer Networks **Credit Hours: 4**

ISO/OSI layer models of computer networks. Review of the first two layers. Discussion of network, transport, session, presentation and application layers. Study of LANs and standards. Internetworking, routers and bridges.

Prerequisites: EECS 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4200 Feedback Control Systems **Credit Hours: 3**

Feedback methods for the control of dynamic systems. Topics include characteristics and performance of feedback systems, state variable analysis, stability, root locus and frequency response methods and computer simulation.

Prerequisites: EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D- OR EECS 3220 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4220 Programmable Logic Controllers **Credit Hours: 3**

An introduction to programmable logic controllers (PLCs), process control algorithms, interfacing of sensors and other I/O devices, simulation and networking.

Prerequisites: (EECS 1100 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS4240 Power Systems Operation **Credit Hours: 3**

Single line diagrams and per unit calculations, network matrices and Y-bus, load flow techniques, large system loss formula, real and reactive power dispatch, power system relays and protection.

Prerequisites: EECS 3460 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4250 Robotics **Credit Hours: 4**

The concepts, theory and application of robotics. Topics include: arm geometry, kinematics and transformation matrices, motion kinematics, dynamics of industrial robots, trajectory planning and execution and control robotic systems.

Prerequisites: EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4260 Control Systems Design **Credit Hours: 3**

A general study of computer-aided design of control systems. Topics include: stability, compensation, pole placement, nonlinear systems and digital systems.

Prerequisites: EECS 4200 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4290 Electrical Machines Modeling And Control **Credit Hours: 3**

Coupled rotating coils, primitive machines, machine winding transformations, state space modeling of dc, synchronous and three phase induction machines. Control schemes for dc, synchronous and three phase induction machines.

Prerequisites: EECS 3460 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4320 Industrial Imaging Systems **Credit Hours: 3**

Systems (cameras and other components) and techniques for machine vision (surface imaging). Nondestructive evaluation (internal inspection) of industrial materials and products, using ultrasound and radiographic systems. Contemporary applications.

Prerequisites: (PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3400 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS4330 Image Analysis And Computer Vision **Credit Hours: 3**

Imaging geometry, image filtering, segmentation techniques, image representation and description, stereo vision and depth measurements, texture analysis, dynamic vision and motion analysis, matching and recognition.

Prerequisites: EECS 3300 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4340 Imaging Architectures And Hardware **Credit Hours: 3**

Video work station components and display hardware; pyramid, pipeline, cellular logic and artificial neural net architectures for vision and image processing; real-time imaging; systolic implementation of image processing algorithms; current advances.

Prerequisites: (EECS 3100 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 4330 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS4360 Communication Systems **Credit Hours: 3**

Fourier transform applications in signal analysis and communication. Signals spectra, filtering, AM and FM modulation, noise and optimum receiver, sampling theorem, multiplexing, PCM, introduction to digital modulators and demodulators.

Prerequisites: EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4370 Information Theory And Coding **Credit Hours: 3**

Coding concepts, Huffman code, entropy analysis, channel and mutual information, channel capacity and Shannon's theorem, algebraic coding theory and application to blockcode and cyclic code, introduction to convolutional code.

Prerequisites: EECS 3300 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4380 Digital Signal Processing **Credit Hours: 3**

Discrete Fourier Transform (DFT), discrete convolution and correlation, Fast Fourier Transform (FFT) and its applications, design of IIR and FIR digital filters, multirate/channel digital systems, decimation and interpolation.

Prerequisites: EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4390 Wireless And Mobile Networks **Credit Hours: 3**

Mobile radio propagation; the cellular concept; multiple radio access; multiple division techniques; channel allocation; mobile communication systems; existing wireless systems; network protocols; AD HOC and sensor networks; wireless LANS and PANS; recent advances.

Prerequisites: (EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3300 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D- AND MIME 4000 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS4400 Solid State Electronics **Credit Hours: 3**

A comprehensive treatment of the theory and operation of physical electronic devices emphasizing electrical transport in metals and semiconductors and various models of BJT's and FET's.

Prerequisites: (EECS 3400 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 3070 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS4410 Electro-Optics **Credit Hours: 3**

Introduction to laser physics, optics, optical waveguides, optical communication systems and electro-optics. Design of light processing and communication systems will be considered with emphasis on optics and optical communication.

Prerequisites: EECS 3700 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4420 Microwave Electronics **Credit Hours: 3**

Analysis and design of active and passive microwave components and systems. Theory and design of transmission lines, solid state and electron beam devices will be considered.

Prerequisites: (EECS 3700 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3420 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS4430 Microwave Laboratory **Credit Hours: 1**

Laboratory introduction to microwave and millimeter wave hardware and high frequency measurement techniques.

Corequisites: EECS4420

EECS4440 Antenna Theory And Design **Credit Hours: 3**

Introduction to antenna theory and design emphasizing engineering aspects of antenna systems. Dipole, loop and biconical antennas, arrays, broadband and aperture antennas will be considered.

Prerequisites: EECS 3700 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4450 Electromagnetics Laboratory **Credit Hours: 2**

A general laboratory that provides experiences in several areas of electromagnetics and includes a special student project.

Prerequisites: EECS 3700 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4460 Power System Analysis **Credit Hours: 3**

Power system symmetrical components, fault analysis, transient stability analysis, transmission system modeling, distribution networks.

Prerequisites: EECS 3460 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4470 Electronic Design **Credit Hours: 3**

Principles and techniques of analog active circuit design. Selected design problems are given and circuits using standard parts are designed and laboratory tested. A design notebook is kept.

Prerequisites: (EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3420 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS4480 Electronic Energy Processing I **Credit Hours: 3**

Electronic power switching circuits. Half-wave and full-wave rectification. Characteristics of power semiconductors. Phase-controlled rectifiers and inverters. Isolated and non-isolated dc-dc converters.

Prerequisites: (EECS 3400 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3460 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS4490 Electronic Energy Processing II **Credit Hours: 3**

Resonant dc-dc converters. DC-AC inverters and harmonic analysis. Variable-speed motor drives. Laboratory design and analysis of various electronic energy processing circuits.

Prerequisites: EECS 4480 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4500 Programming Language Paradigms **Credit Hours: 3**

Fundamental concepts of modern programming languages. Differences and similarities between procedural, functional, object-oriented and rule-based languages are examined as well as their impact on the programming process.

Prerequisites: (EECS 1550 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3500 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (EECS 1580 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3500 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS4510 Translation Systems **Credit Hours: 4**

Design of translation systems including compilers and interpreters, grammars and parsing methods, error detection and correction schemes and optimization techniques.

Prerequisites: (EECS 3500 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 1550 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS4520 Advanced Systems Programming **Credit Hours: 4**

Pertinent concepts of systems programming. Topics covered include: synchronization, distributed programming models, kernel design, peripheral handling, file systems and security history and methods.

Prerequisites: EECS 2550 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4530 Computer Graphics I **Credit Hours: 4**

An introduction to typical computer graphics systems and their operation. Interactive techniques will be introduced as well as representations and projections of three-dimensional images. Exercises using graphics equipment are assigned.

Prerequisites: EECS 1050 FOR LEVEL UG WITH MIN. GRADE OF D- OR EECS 1530 FOR LEVEL UG WITH MIN. GRADE OF D- OR EECS 1560 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4540 Computer Graphics II **Credit Hours: 4**

Examines current topics related to realistic and representative 3D computer graphics. Topics include curve and surface geometry, solid modeling, ray tracing, radiosity and real-time computer graphics.

Prerequisites: (EECS 1550 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 4530 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (EECS 1580 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 4530 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS4550 Creating Multimedia Software **Credit Hours: 4**

An audio-visual experience in the design and production of multimedia products. Investigates computer-human interfaces, performance measurement and analysis, storage/retrieval of data, compression/decompression techniques.

Prerequisites: (EECS 1550 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 2550 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (EECS 1580 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 2550 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS4560 Database Systems I **Credit Hours: 3**

The following topics are covered: relational database modeling, query languages, design issues and implementation issues of databases. An appropriate database language is introduced and used to demonstrate principles.

Prerequisites: EECS 1550 FOR LEVEL UG WITH MIN. GRADE OF D- OR EECS 1580 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4570 Database Systems II **Credit Hours: 3**

The emphasis of this course is on database recovery techniques, integrity constraints and concurrency control. The similarities and differences between distributed, networked, client/server and object-oriented database systems are also investigated.

Prerequisites: EECS 4560 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4610 Digital Vlsi Design I: Basic Subsystems **Credit Hours: 4**

CMOS process technologies, CMOS logic families, custom and semi-custom design. Subsystem design of adders, counters and multipliers. System design methods and VLSI design tools.

Prerequisites: EECS 3400 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4620 Digital Vlsi Design II: Memory And Structured Logic **Credit Hours: 3**

Memory categories, functions, architectures, cells and peripheral circuitry in CMOS/BiCMOS. Overview and technology trends in SRAMs, DRAMs, EPROMs, EEPROMs, FPGAs...Class exercises in selected small system circuit and layout design.

EECS4630 Physical Design Of Vlsi Circuits **Credit Hours: 4**

VLSI design process automation and tools, mask level design, compaction, module placement, routing area partitioning, loose routing, channel routing and P/G and clock routing.

Prerequisites: EECS 4610 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4710 Advanced Electro-Magnetics **Credit Hours: 3**

Advanced topics in electromagnetic wave propagation in metals and dielectric waveguides, free space propagation in lossless and lossy media and good conductors, antennas and wave scattering will be considered.

Prerequisites: EECS 3700 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4740 Artificial Intelligence **Credit Hours: 3**

This course explores the topic of intelligent software agents with a emphasis on hands-on design of adaptive problem-solving agents for environments of increasing complexity ranging from single-agent computer games to complex real-world mult-agent environments.

EECS4750 Machine Learning **Credit Hours: 3**

This course emphasizes learning algorithms and theory including concept, decision tree, neural network, comprtational, Bayesian, evolutionary, and reinforcement learning.

Prerequisites: (MIME 4000 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 2890 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS4760 Computer Security **Credit Hours: 3**

Survey of computer security concepts: ethics and responsibility, OS, vulnerabilities and intrusion detection, viruses and worms, defensive strategies including secret/public key cryptosystems, firewalls and decoys.

Prerequisites: EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 2550 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4770 Computer Hacking and forensic Analysis **Credit Hours: 3**

Hacking ethics, beneficial vs. malicious hacking, unconventional (extreme) programming techniques, casing networks and operating systems, exposing system vulnerabilities through penetration, collecting and analyzing digital evidence, forensic tools, case studies.

Prerequisites: EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4780 Quantum Computing **Credit Hours: 3**

Fundamentals of the quantum computing paradigm, data representation, quantum gates, quantum algorithms utilizing entanglement, teleportation, and superdense coding. Applications to cryptography, searching and simulation.

EECS4810 Introduction To Nanotechnology **Credit Hours: 3**

An introductory treatment of the theory and operation of ph;ysical electronic devices, emphasizing electrical transport semiconductors and MOSFET's and application to nanotechnology.

Prerequisites: EECS 2300 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4820 Nanotechnology And Microfabrication **Credit Hours: 3**

A comprehensive treatment of the theory and techniques associated with semiconductor nanotechnology and microfabrication of biomedical devices, sensors, MEMS, and microsystems.

Prerequisites: EECS 3420 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS4980 Special Topics In EECS **Credit Hours: 1-4**

Pilot offerings of new courses involving emerging topics of interest are introduced using this number. One credit per lecture/recitation hour and/or 2.5 lab hours per week.

EECS4990 Independent Study In Eecs **Credit Hours: 1-4**

Selected topics in electrical engineering or computer science and engineering. The instructor will specify the scope of the investigation and will meet regularly with the student(s). The study is expected to require an average of 3 hours student effort per week per credit.

EECS5110 Simulation Of Computer Systems **Credit Hours: 4**

Workload model, hardware and software monitors. Modeling and simulation of central server model with multiple disks, cyclic models, multiprogrammed interactive virtual memory model, product form solution. Case studies.

Prerequisites: (EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D- AND MIME 4000 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS5130 Digital Design **Credit Hours: 4**

The design of digital systems, design methodologies, hardware description language such as VHDL, behavioral-, dataflow- and structural-level description of digital systems. Implementation technologies including PLDs and FPGAs.

Prerequisites: EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5140 Fault-Tolerant Digital Systems **Credit Hours: 3**

Faults testing in combinational and sequential circuits. Design techniques for fault tolerance in digital systems. Evaluation techniques. Fault masking and self checking systems.

Prerequisites: EECS 1100 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5150 Automotive Electronics **Credit Hours: 4**

Introduction of automotive electronics and its various subsystems. Sensors and actuators, design of engine control unit, body control unit and vehicle control unit. Display and multiplexing systems.

Prerequisites: (EECS 3100 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 4170 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS5160 Advanced Microcomputer Systems **Credit Hours: 4**

Design of microcomputers at the system level. Buses for varying types of microcomputers in real-time and parallel processing. Software and hardware requirements for interprocessor communications. IEEE 488 and CAMAC standards buses.

Prerequisites: EECS 3100 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5170 Real-Time Embedded Systems Design **Credit Hours: 3**

Programming applications in a real-time environment. Applications programs in a multitasking environment. Examples from process control, robotics, signal analysis and multiwindow software.

Prerequisites: (EECS 2550 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS5180 Computer Networks **Credit Hours: 4**

ISO/OSI layer models of computer networks. Review of the first two layers. Discussion of network, transport, session, presentation and application layers. Study of LANS and standards. Internetworking routers and bridges.

EECS5220 Programmable Logic Controllers **Credit Hours: 3**

Programmable Logic Controllers (PLCs), programming, sensors, process control algorithms, interfacing of sensors and other I/O devices, simulation and networking.

Prerequisites: (EECS 1100 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS5240 Power Systems Operation **Credit Hours: 3**

Single Line Diagrams & Per Unit calculations, Network Matrices & Ybus for systems with uncoupled lines, Load Flow Techniques, Large system Loss Formula using Zbus, Real and Reactive Power Dispatch programming, Power systems relays & protection schemes.

Prerequisites: EECS 3460 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5250 Robotics **Credit Hours: 4**

The concepts, theory and application of robotics. Topics include: arm geometry, kinematics and transformation matrices, motion kinematics, dynamics of industrial robots, trajectory planning and execution and control of robotic systems.

Prerequisites: EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5260 Control Systems Design **Credit Hours: 3**

A general study of computer-aided design of control systems. Topics include: stability, compensation, pole placement, nonlinear systems and digital systems.

Prerequisites: EECS 4200 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5290 Electric Machines Modeling And Control **Credit Hours: 3**

Coupled rotating coils, Primitive machines, machine winding transformations, State space modeling of dc, synchronous and 3-phase induction machines. Control schemes for dc motors, synchronous machines and 3-phase induction motors.

Prerequisites: EECS 3460 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5320 Industrial Imaging Systems **Credit Hours: 3**

Systems (cameras and other components) and techniques for machine vision (surface imaging). Nondestructive evaluation (internal inspection) of industrial materials and products, using ultrasound and radiographic systems. Contemporary applications.

Prerequisites: (PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3400 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS5330 Image Analysis And Computer Vision **Credit Hours: 3**

Imaging geometry, image filtering, segmentation techniques, image representation and description, stereovision and depth measurements, texture analysis, dynamic vision and motion analysis, matching and recognition.

Prerequisites: (EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3300 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS5340 Imaging Architectures And Hardware **Credit Hours: 3**

Study of the hardware and parallel implementation of various image processing and vision algorithms. Topics include components of a video work station; video display hardware; pyramid, pipeline, cellular logic and artificial neural net architectures for vision and image processing; real-time imaging; systolic implementations of image processing algorithms; current advances.

Prerequisites: (EECS 3100 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 4330 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS5360 Communication Systems **Credit Hours: 3**

Fourier transform applications in signal analysis and communication. Signals spectra, Filtering, AM and FM modulations, Noise and optimum receiver, Sampling theorem, Multiplexing, PCM Introduction to digital modulators and demodulators.

Prerequisites: EECS 3300 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5370 Information Theory And Coding **Credit Hours: 3**

Coding concepts, Huffman code, Entropy analysis, Channel and mutual information, Channel capacity and Shannon's theorems, Algebraic coding theory and application to block code and cyclic code, Introduction to convolutional code.

Prerequisites: EECS 3300 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5380 Digital Signal Processing **Credit Hours: 3**

Discrete Fourier Transform (DFT), Discrete convolution and correlation, Fast Fourier Transform (FFT) and its applications. Design of IIR and FIR digital filters, Multi-rate/channel digital systems, Decimation and Interpolation.

Prerequisites: EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5390 Wireless And Mobile Networks **Credit Hours: 3**

Mobile radio propagation; traffic engineering; cellular concept; multiple radio access; multiple division techniques; channel allocation; mobile communication systems; existing wireless systems; network protocols; Ad Hoc and sensor networks; wireless LANS and PANS; recent advances.

EECS5400 Solid State Electronics **Credit Hours: 3**

A comprehensive treatment of the theory and operation of physical electronic devices emphasizing electrical transport in metals and semiconductors and various models of BJT's and FET's.

Prerequisites: (EECS 3400 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 3070 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS5410 Electro-Optics **Credit Hours: 3**

Laser physics, optics, optical waveguides, optical communication systems and electro-optics. Design of light processing and communication systems will be considered with emphasis on optics and optical communication.

Prerequisites: EECS 3700 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5420 Microwave Electronics **Credit Hours: 3**

Analysis and design of active and passive microwave components and systems. Theory and design of transmission lines, solid state and electron beam devices.

Prerequisites: (EECS 3700 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3420 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS5430 Microwave Lab **Credit Hours: 1**

EECS5440 Antenna Theory And Design **Credit Hours: 3**

Introduction to antenna theory and design emphasizing engineering aspects of antenna systems. Dipole, loop and biconical antennas, arrays, broadband and aperture antennas will be considered.

Prerequisites: EECS 3700 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5460 Power Systems Analysis **Credit Hours: 3**

Fault analysis, Transient Stability Analysis, Transmission System modeling, Distribution Networks.

Prerequisites: EECS 3460 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5470 Electronic Design **Credit Hours: 3**

Principles and techniques of analog active circuit design. Selected design problems are given; working circuits using standard parts are designed and laboratory tested. A design notebook is kept.

Prerequisites: (EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3420 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS5480 Electronic Energy Processing I **Credit Hours: 3**

Basic electronic power switching circuits. Half-wave and full-wave rectification. Characteristics of power semiconductors. Phase-controlled reactifiers and inverters. Isolated and non-isolated dc-dc converters.

Prerequisites: (EECS 3400 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3460 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS5490 Electronic Energy Processing II **Credit Hours: 3**

Resonant dc-dc converters. DC-AC inverters and harmonic analysis. Variable-speed motor drives. Laboratory design and analysis of various electronic energy processing circuits.

Prerequisites: EECS 5480 FOR LEVEL GR WITH MIN. GRADE OF D-

EECS5500 Programming Language Paradigms **Credit Hours: 3**

The course investigates the fundamentals of modern programming languages. Differences and similarities between procedural, functional, object-oriented and rule-based languages are examined along with their impact on the programming process.

Prerequisites: (EECS 1550 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3500 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS5510 Translation Systems **Credit Hours: 4**

The course includes: the design of translation systems including compilers and interpreters, grammars and parsing methods, error detection and correction schemes and optimization techniques.

Prerequisites: (EECS 3500 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 1550 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS5520 Advanced Systems Programming **Credit Hours: 4**

This course examines pertinent concepts of systems programming. Topics covered include: synchronization, distributed programming models, kernel design, peripheral handling, file systems and security history and methods.

Prerequisites: EECS 2550 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5530 Computer Graphics I **Credit Hours: 4**

An introduction to typical computer graphics systems and their operation. Interactive techniques will be introduced as well as representations and projections of three-dimensional images. Exercises using graphics equipment are assigned.

Prerequisites: (EECS 1050 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 1500 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS5540 Computer Graphics II **Credit Hours: 4**

Examines current topics related to realistic and representative 3D computer graphics. Topics include curve and surface geometry, solid modeling, raytracing, radiosity and real-time computer graphics.

Prerequisites: (EECS 4530 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 1550 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS5550 Creating Multimedia Software **Credit Hours: 4**

An audio-visual experience in the design and production of multimedia products. Investigates computer-human interfaces, performance measurement and analysis, storage/retrieval of data and compression/decompression techniques.

Prerequisites: (EECS 2550 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 1550 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS5560 Database Systems I **Credit Hours: 3**

The following topics are covered: relational database modeling, query languages, design issues and implementation issued of databases. An appropriate database language is introduced and used to demonstrate principles.

Prerequisites: EECS 1550 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5570 Database Systems II **Credit Hours: 3**

The emphasis of this course is on database recovery techniques, integrity constraints and concurrency control. The similarities and differences between distributed, networked, client/server and object-oriented database systems are also investigated.

Prerequisites: EECS 5560 FOR LEVEL GR WITH MIN. GRADE OF D-

EECS5580 Survey Of Artificial Intelligence **Credit Hours: 4**

This course covers, more in breadth than in depth, the areas that artificial intelligence currently encompasses. Topics examined: history, reasoning, search techniques, knowledge representation, uncertainty and learning.

Prerequisites: EECS 1550 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5610 Digital Vlsi Design I: Basic Subsystems **Credit Hours: 4**

CMOS process technologies. CMOS logic families. Custom and semicustom design. Subsystem design; adders, counters, multipliers. System design methods. VLSI design tools.

Prerequisites: EECS 3400 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5620 Digital Vlsi Design II: Memory And Structured Logic **Credit Hours: 3**

Memory categories, functions, architectures, cells and peripheral circuitry in CMOS/BiCMOS. Overview and technology trends in SRAMs, DRAMs, EPROMs, EEPROMs, FPGAs. Class exercises in selected small system circuit and layout design.

Prerequisites: EECS 5610 FOR LEVEL GR WITH MIN. GRADE OF D-

EECS5630 Physical Design Of Vlsi Circuits **Credit Hours: 4**

VLSI design process automation and tools. Mask level design. Compaction. Module placement. Routing area partitioning. Loose routing, channel routing, P/G and clock routing.

EECS5740 Artificial Intelligence **Credit Hours: 3**

This course explores the topic of intelligent software agents with a emphasis on hands-on design of adaptive problem-solving agents for environments of increasing complexity ranging from single-agent computer games to complex real-world mult-agent environments.

EECS5750 Machine Learning **Credit Hours: 3**

This course emphasizes learning algorithms and theory including concept, decision tree, neural network, comprtational, Bayesian, evolutionary, and reinforcement learning.

Prerequisites: (MIME 4000 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 2890 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS5760 Computer Security **Credit Hours: 3**

Survey of computer security concepts: ethics and responsibility, OS vulnerabilities and intrusion detection, viruses and worms, defensive strategies including secret/public key cryptosystems, firewalls and decoys.

Prerequisites: EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 2550 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5780 Quantum Computing **Credit Hours: 3**

Fundamentals of the quantum computing paradigm, data representation, quantum gates, quantum algorithms utilizing entanglement, teleportation, and superdense coding. Application to cryptography, searching and simulation.

Prerequisites: EECS 1580 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 1590 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS5920 Projects **Credit Hours: 1-6**

Independent research project with intensive investigation into an area of practical interest to the student and the instructor.

EECS5930 Electrical Engineering & Computer Science Seminar **Credit Hours: 1**

All graduate students are expected to attend the seminars and to prepare a report summarizing their experiences, questions and the impact of the seminar series. Students will also present their thesis and dissertation results.

EECS6110 Advanced Computer Architecture **Credit Hours: 3**

Architectural development in computer systems and scability. Processors and arithmetic algorithms. Memory hierarchy, shared memory and cache architecture. Pipeline, superscaler and vector organization.

Prerequisites: EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS6120 Computer Systems Performance And Reliability **Credit Hours: 4**

Relative importance of performance and reliability. Fault-tolerance in computer systems. Techniques for reliability modeling and analysis. Markov and semi-Markov models. Queuing network models of computer systems. Performability modeling and analysis.

Prerequisites: (EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D- AND MIME 4000 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS6130 Parallel Computing **Credit Hours: 4**

Survey of computer architectures and languages that support parallelism. Analysis of algorithms for inherent parallelism. Issues surrounding the granularity of the parallelism. Mapping of parallel program structures to architectural topologies.

Prerequisites: EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS6140 Logic Synthesis And Optimization **Credit Hours: 3**

Architectural synthesis, scheduling algorithms, resource sharing and binding, multiple-level combinational logic optimization and sequential logic optimization.

Prerequisites: EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS6150 Advanced Computer Networks **Credit Hours: 3**

High speed LANs and MANs. Performance analysis of Ethernet, token ring, token bus, FDDI, FDDI-II and DQDB protocols. WANS and their routing protocols. Flow control techniques in WANs.

Prerequisites: EECS 4180 FOR LEVEL UG WITH MIN. GRADE OF D- OR EECS 5180 FOR LEVEL GR WITH MIN. GRADE OF D-

EECS6160 B-Isdn And Atm Networks **Credit Hours: 3**

ATM overview and B-ISDN networks. ATM adaptation layer and ATM LANs. Issues in traffic management. Admission control and policing. Flow control, priority control and self-learning strategies.

Prerequisites: EECS 4180 FOR LEVEL UG WITH MIN. GRADE OF D- OR EECS 5180 FOR LEVEL GR WITH MIN. GRADE OF D-

EECS6170 Petri Nets And Software Reliability **Credit Hours: 3**

Petri Net structure, graphs and analysis. Modeling with Petri Nets. Software reliability modeling using Petri Nets and Markov chains. Comparison of software reliability models.

Prerequisites: (MIME 4000 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 1550 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS6200 Digital Control Systems **Credit Hours: 3**

Analysis and design of digital control systems by classical and state methods. Topics include: stability, pole placement, polynomial manipulation, quadratic optimal control and introduction to digital control system implementation.

Prerequisites: EECS 4200 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS6210 Adaptive Control Systems **Credit Hours: 3**

Schemes of adaptive control systems, MIT rule for Model Reference Adaptive Control, self Tuning regulator systems, Recursive Least Squares for system identification, Minimum Variance, PID and other controller design techniques for STR systems.

Prerequisites: EECS 6200 FOR LEVEL GR WITH MIN. GRADE OF D-

EECS6220 Nonlinear Control Systems **Credit Hours: 3**

The multiple input describing function. Random signals in nonlinear systems. The phase plane, equilibrium points, limit cycles and linearization methods. Liapunov stability theorems. Optimum switching systems. Selected applications.

Prerequisites: (EECS 4200 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3300 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS6230 Optimal Control Theory **Credit Hours: 3**

Optimization of dynamic systems by the calculus of variations and Pontryagin's Maximum Principle. Solution of optimal control problems using direct and indirect computational methods. Applications include constrained state and/or control parameters.

Prerequisites: EECS 4200 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS6240 Optimal Control II **Credit Hours: 3**

EECS6300 Random Signals And Optimal Filters **Credit Hours: 3**

Description and properties of random signals and their processing by optimal filters. Correlation and power spectra. GRP. Narrowband noise. Signal detection (matched filter) and estimation (Wiener and Kalman filters).

Prerequisites: (EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3300 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS6310 Digital Image Processing **Credit Hours: 3**

Image digitization, image transforms, image enhancement, spatial and frequency domain filtering, image restoration techniques, inverse filtering, least square filtering, image interpolation and motion estimation, video filtering, superresolution.

Prerequisites: EECS 4380 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS6320 Data Compression For Multimedia Communication **Credit Hours: 3**

Multimedia information representation, Huffman, run length and arithmetic coding, predictive, transform, pyramid coding; vector quantization and subband coding; wavelet-based coding, data packetization, error resilience coding, mutimedia compression standards, JPEG, MPEG coding.

EECS6340 Modern Communications Engineering I **Credit Hours: 3**

Introduction to detection and estimation and applications to the bandpass signals, Bibary and M-ary digital modulation techniques, Error-control convolutional coding, Trellis Coded Modulation (TCM), Spread Spectrum (SS) communication techniques.

Prerequisites: EECS 4360 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS6350 Modern Communications Engineering II **Credit Hours: 3**

Digital transmission over Gaussian/non-Faussian channels, Satellite systems (GEO and LEO) and multiple accesses, Cellular and satellite communication network, Mobile/wireless Personal communication services (PCS) and its networking.

Prerequisites: EECS 6340 FOR LEVEL GR WITH MIN. GRADE OF D-

EECS6360 Knowledge Based Systems **Credit Hours: 3**

Knowledge representation, dealing with uncertainty in knowledge-based systems. Machine learning techniques for rule extraction.

Prerequisites: EECS 4580 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS6370 Pattern Recognition And Neural Networks **Credit Hours: 3**

Bayes decision theory, parameter estimation and supervised learning, nonparametric techniques, linear discriminant functions, pattern recognition with neural networks, feed-forward networks, Hopfield and Kohonen networks, unsupervised learning and clustering.

Prerequisites: MATH 4680 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS6380 Advanced Computational Methods **Credit Hours: 3**

MATLAB is used to solve mathematical engineering. Reviews fundamental structural code elements, followed by case study solutions that illustrate MATLAB functionality. Individual/group projects reinforce understanding principles and methodologies.

EECS6390 Modeling And Performance Evaluation Of Communication Networks **Credit Hours: 3**

Communication network model-based performance evaluation methodology. Principles of stochastic processes in communication networks. Modeling and analysis of LANs, MANs, and WANs. Single class networks and Jackson networks. Multimedia network analysis.

EECS6400 Electromagnetic Fields And Waves **Credit Hours: 3**

An advanced study of electrostatic and magnetostatic fields and associated boundary-value problems. Time varying fields, wave propagation, wave scattering and electromagnetic radiation will be considered.

EECS6450 Dynamic Analysis Of Switching Converters **Credit Hours: 3**

Cyclic steady-state analysis of the switching power converter using switching functions. Dynamic modeling of the switching converter as a discrete-time system and as a switching-period-averaged system.

Prerequisites: EECS 5490 FOR LEVEL GR WITH MIN. GRADE OF D-

EECS6500 Computation, Computability And Complexity **Credit Hours: 3**

Covers: context-free languages and pushdown automata and their relationship with computer language implementation. Turing machines and U-recursive functions are examined. Uncomputability, the halting problem, computational complexity and NP-completeness are covered.

Prerequisites: EECS 3500 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS6520 Operating Systems Design **Credit Hours: 4**

This course investigates past and present trends in the design and implementation of operating systems. The unique requirements of real-time, highly reliable and distributed systems are addressed.

Prerequisites: EECS 2550 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS6530 Concurrent Programming **Credit Hours: 3**

This course studies theoretical and practical issues in concurrent programming. Topics include: mutual exclusion, the producer-consumer problem, the dining philosophers problem, semaphores, monitors, threads and the Ada model for multi-tasking.

Prerequisites: EECS 2550 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS6550 Software Specification And Design **Credit Hours: 3**

This course covers the software development steps of specification, requirements analysis and design in depth. Computer-human interfaces are also discussed.

EECS6560 Topics In Software And Human Engineering **Credit Hours: 3**

This course investigates issues in software engineering and human aspects of software engineering. Topics user interfaces, programming practices, documentation, programming environments, applications, empirical methods and physical aspects.

Prerequisites: EECS 6550 FOR LEVEL GR WITH MIN. GRADE OF D-

EECS6600 Analog Integrated Circuits **Credit Hours: 3**

Review of SPICE-based device models and analysis techniques. Bias and small signal design techniques in modern, low-voltage CMOS/BiCMOS. Op-amps, comparators and PLLs are emphasized; other topics as time permits.

EECS6620 Digital Vlsi Cmos/Bicmos Circuit Design **Credit Hours: 3**

Design styles; static, dynamic, T-gate intensive; optimization of speed and robustness of selected CMOS/BiCMOS examples using SPICE-high fan in/fan out, I/O buffers, other Hi-C loads, sense amps, programming drivers, other examples as time permits.

EECS6640 Vlsi Channel Routing **Credit Hours: 4**

Wiring models. Lower bounds on routing quakity metrics. Theory of locally optimal braking of cyclic vertical constraints. Genetic, neural and other advanced channel routing algorithms.

EECS6660 Field Programmable Gate Arrays **Credit Hours: 3**

Introduction to FPGA's. Programming technology. Logic block architectures. Routing architectures. FPGA based VLSI design. Design tools.

Prerequisites: EECS 5610 FOR LEVEL GR WITH MIN. GRADE OF D-

EECS6810 Solid State Electronics With Bioengineering Applications **Credit Hours: 3**

A comprehensive treatment of the theory and operation of physical electronic devices emphasizing electrical transport in metals and semiconductors, various models of BJT's and FET's and applications to biochemical and biomechanical sensing will be considered.

EECS6820 Microelectronic And Micromechanical Fabrication **Credit Hours: 3**

A comprehensive treatment of the theory, principles and techniques associated with microfabrication of electronic circuits and biosensors.

EECS6900 Independent Research **Credit Hours: 1-6**

Selected topics from current EE and CSE research with intensive investigation into recent literature in an area of mutual interest to the student and the instructor.

EECS6960 Master's Graduate Research And Thesis **Credit Hours: 1-9**

Graduate research towards the completion of a Master's degree.

EECS6980 Special Topics In Electrical Engineering & Computer Science **Credit Hours: 1-5**

Selected topics in the field of Electrical Engineering and Computer Science in areas of special interest to the class and the professor.

EECS6990 Independent Study **Credit Hours: 1-3**

In depth study of a selected topic of mutual interest to the student and the instructor.

EECS7110 **Simulation of Computer Systems** **Credit Hours: 4**

EECS7130 **Digital Design** **Credit Hours: 4**

EECS7140 **Fault - Tolerant Digital Systems** **Credit Hours: 3**

EECS7150 **Automotive Electronics** **Credit Hours: 4**

EECS7160 Advanced Microcomputer Systems **Credit Hours: 4**

EECS7170 Realtime Embedded System Designs **Credit Hours: 3**

EECS7180 Computer Networks **Credit Hours: 4**

EECS7220 Programmable Logic Controllers **Credit Hours: 3**

EECS7240 Power Systems Operation **Credit Hours: 3**

EECS7250 Robotics **Credit Hours: 4**

EECS7260 Control Systems Design **Credit Hours: 3**

Prerequisites: EECS 4200 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS7290 Elect Machn Modelng and Contrl **Credit Hours: 3**

EECS7320 **Industrial Imaging Systems** **Credit Hours: 3**

EECS7330 **Image Analysis and Comptr Visn** **Credit Hours: 3**

EECS7340 **Imaging Architect and Hardware** **Credit Hours: 3**

EECS7360 **Communication Systems** **Credit Hours: 3**

EECS7370 **Information Theory and Coding** **Credit Hours: 3**

EECS7380 **Digital Signal Processing** **Credit Hours: 3**

EECS7400 **Solid State Electronics** **Credit Hours: 3**

EECS7460 **Power Systems Analysis** **Credit Hours: 3**

EECS7470 Electronic Design **Credit Hours: 3**

EECS7480 Electronic Energy Processing I **Credit Hours: 3**

EECS7490 Elect Energy Processing II **Credit Hours: 3**

EECS7500 Programming Language Paradigms **Credit Hours: 3**

EECS7510 Translation Systems **Credit Hours: 4**

EECS7520 Advanced Systems Programming **Credit Hours: 4**

EECS7530 Computer Graphics I **Credit Hours: 4**

EECS7540 Computer Graphics II **Credit Hours: 4**

EECS7550 Creating Multimedia Software **Credit Hours: 4**

EECS7560 Database Systems I **Credit Hours: 3**

Prerequisites: EECS 1550 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS7570 Database Systems II **Credit Hours: 3**

EECS7580 Survey Artificial Intelligence **Credit Hours: 4**

EECS7610 **Digital VLSI Des I: Bsc Subsys** **Credit Hours: 4**

EECS7620 **Dig VLSI Des II: Mem-Struc Lgc** **Credit Hours: 3**

EECS7630 **Physical Dsgn-VLSI Circuits** **Credit Hours: 4**

EECS7920 **Projects** **Credit Hours: 1-6**

EECS8110 Advanced Computer Architecture **Credit Hours: 3**

Architectural development in computer systems and scability. Processors and arithmetic algorithms. Memory hierarchy, shared memory and cache architecture. Pipeline, superscaler and vector organization.

Prerequisites: EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS8120 Computer Systems Performance And Reliability **Credit Hours: 4**

Relative importance of performance and reliability. Fault-tolerance in computer systems. Techniques for reliability modeling and analysis. Markov and semi-Markov models. Queuing network models of computer systems. Performability modeling and analysis.

Prerequisites: (EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D- AND MIME 4000 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS8130 Parallel Computing **Credit Hours: 4**

Survey of computer architectures and languages that support parallelism. Analysis of algorithms for inherent parallelism. Issues surrounding the granularity of the parallelism. Mapping of parallel program structures to architectural topologies.

Prerequisites: EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS8140 Logic Synthesis And Optimization **Credit Hours: 3**

Architectural synthesis, scheduling algorithms, resource sharing and binding, multiple-level combinational logic optimization and sequential logic optimization.

Prerequisites: EECS 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS8150 Advanced Computer Networks **Credit Hours: 3**

High speed LANs and MANs. Performance analysis of Ethernet, token ring, token bus, FDDI, FDDI-II and DQDB protocols. WANS and their routing protocols. Flow control techniques in WANs.

Prerequisites: EECS 4180 FOR LEVEL UG WITH MIN. GRADE OF D- OR EECS 5180 FOR LEVEL GR WITH MIN. GRADE OF D-

EECS8160 B-Isdn And Atm Networks **Credit Hours: 3**

ATM overview and B-ISDN networks. ATM adaptation layer and ATM LANs. Issues in traffic management. Admission control and policing. Flow control, priority control and self-learning strategies.

Prerequisites: EECS 4180 FOR LEVEL UG WITH MIN. GRADE OF D- OR EECS 5180 FOR LEVEL GR WITH MIN. GRADE OF D-

EECS8170 Petri Nets And Software Reliability **Credit Hours: 3**

Petri Net structure, graphs and analysis. Modeling with Petri Nets. Software reliability modeling using Petri Nets and Markov chains. Comparison of software reliability models.

Prerequisites: (MIME 4000 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 1550 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS8200 Digital Control Systems **Credit Hours: 3**

Analysis and design of digital control systems by classical and state methods. Topics include: stability, pole placement, polynomial manipulation, quadratic optimal control and introduction to digital control system implementation.

Prerequisites: EECS 4200 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS8210 Adaptive Control Systems **Credit Hours: 3**

Schemes of adaptive control systems, MIT rule for Model Reference Adaptive Control, self Tuning regulator systems, Recursive Least Squares for system identification, Minimum Variance, PID and other controller design techniques for STR systems.

Prerequisites: EECS 6200 FOR LEVEL GR WITH MIN. GRADE OF D-

EECS8220 Nonlinear Control Systems **Credit Hours: 3**

The multiple input describing function. Random signals in nonlinear systems. The phase plane, equilibrium points, limit cycles and linearization methods. Liapunov stability theorems. Optimum switching systems. Selected applications.

Prerequisites: (EECS 4200 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3300 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS8230 Optimal Control Theory **Credit Hours: 3**

Optimization of dynamic systems by the calculus of variations and Pontryagin's Maximum Principle. Solution of optimal control problems using direct and indirect computational methods. Applications include constrained state and/or control parameters.

Prerequisites: EECS 4200 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS8240 Optimal Control II **Credit Hours: 3**

EECS8300 Random Signals And Optimal Filters **Credit Hours: 3**

Description and properties of random signals and their processing by optimal filters. Correlation and power spectra. GRP. Narrowband noise. Signal detection (matched filter) and estimation (Wiener and Kalman filters).

Prerequisites: (EECS 3200 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 3300 FOR LEVEL UG WITH MIN. GRADE OF D-)

EECS8310 Digital Image Processing **Credit Hours: 3**

Image digitization, image transforms, image enhancement, spatial and frequency domain filtering, image restoration techniques, inverse filtering, least square filtering, image interpolation and motion estimation, video filtering, superresolution.

Prerequisites: EECS 4380 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS8320 Data Compression For Multimedia Communication **Credit Hours: 3**

Multimedia information representation, Huffman, run length and arithmetic coding, predictive, transform, pyramid coding; vector quantization and subband coding; wavelet-based coding, data packetization, error resilience coding, mutimedia compression standards, JPEG, MPEG coding.

EECS8340 Modern Communications Engineering I **Credit Hours: 3**

Introduction to detection and estimation and applications to the bandpass signals, Bibary and M-ary digital modulation techniques, Error-control convolutional coding, Trellis Coded Modulation (TCM), Spread Spectrum (SS) communication techniques.

Prerequisites: EECS 4360 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS8350 Modern Communications Engineering II **Credit Hours: 3**

Digital transmission over Gaussian/non-Faussian channels, Satellite systems (GEO and LEO) and multiple accesses, Cellular and satellite communication network, Mobile/wireless Personal communication services (PCS) and its networking.

Prerequisites: EECS 6340 FOR LEVEL GR WITH MIN. GRADE OF D-

EECS8360 Knowledge Based Systems **Credit Hours: 3**

Knowledge representation, dealing with uncertainty in knowledge-based systems. Machine learning techniques for rule extraction.

Prerequisites: EECS 4580 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS8370 Pattern Recognition And Neural Networks **Credit Hours: 3**

Bayes decision theory, parameter estimation and supervised learning, nonparametric techniques, linear discriminant functions, pattern recognition with neural networks, feed-forward networks, Hopfield and Kohonen networks, unsupervised learning and clustering.

Prerequisites: MATH 4680 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS8390 Modeling And Performance Evaluation Of Communication Networks **Credit Hours: 3**

Communication network model-based performance evaluation methodology. Principles of stochastic processes in communication networks. Modeling and analysis of LANs, MANs, and WANs. Single class networks and Jackson networks. Multimedia network analysis.

EECS8400 Electromagnetic Fields And Waves **Credit Hours: 3**

An advanced study of electrostatic and magnetostatic fields and associated boundary-value problems. Time varying fields, wave propagation, wave scattering and electromagnetic radiation will be considered.

EECS8450 Dynamic Analysis Of Switching Converters **Credit Hours: 3**

Cyclic steady-state analysis of the switching power converter using switching functions. Dynamic modeling of the switching converter as a discrete-time system and as a switching-period-averaged system.

Prerequisites: EECS 5490 FOR LEVEL GR WITH MIN. GRADE OF D-

EECS8500 Computation, Computability And Complexity **Credit Hours: 3**

Covers: context-free languages and pushdown automata and their relationship with computer language implementation. Turing machines and U-recursive functions are examined. Uncomputability, the halting problem, computational complexity and NP-completeness are covered.

Prerequisites: EECS 3500 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS8520 Operating Systems Design **Credit Hours: 4**

This course investigates past and present trends in the design and implementation of operating systems. The unique requirements of real-time, highly reliable and distributed systems are addressed.

Prerequisites: EECS 2550 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS8530 Concurrent Programming **Credit Hours: 3**

This course studies theoretical and practical issues in concurrent programming. Topics include: mutual exclusion, the producer-consumer problem, the dining philosophers problem, semaphores, monitors, threads and the Ada model for multi-tasking.

Prerequisites: EECS 2550 FOR LEVEL UG WITH MIN. GRADE OF D-

EECS8550 Software Specification And Design **Credit Hours: 3**

This course covers the software development steps of specification, requirements analysis and design in depth. Computer-human interfaces are also discussed.

EECS8560 Topics In Software And Human Engineering **Credit Hours: 3**

This course investigates issues in software engineering and human aspects of software engineering. Topics user interfaces, programming practices, documentation, programming environments, applications, empirical methods and physical aspects.

Prerequisites: EECS 8550 FOR LEVEL GR WITH MIN. GRADE OF D-

EECS8600 Analog Integrated Circuits **Credit Hours: 3**

Review of SPICE-based device models and analysis techniques. Bias and small signal design techniques in modern, low-voltage CMOS/BiCMOS. Op-amps, comparators and PLLs are emphasized; other topics as time permits.

EECS8620 Digital Vlsi Cmos/Bicmos Circuit Design **Credit Hours: 3**

Design styles; static, dynamic, T-gate intensive; optimization of speed and robustness of selected CMOS/BiCMOS examples using SPICE-high fan in/fan out, I/O buffers, other Hi-C loads, sense amps, programming drivers, other examples as time permits.

EECS8640 Vlsi Channel Routing **Credit Hours: 4**

Wiring models. Lower bounds on routing quakity metrics. Theory of locally optimal braking of cyclic vertical constraints. Genetic, neural and other advanced channel routing algorithms.

EECS8660 Field Programmable Gate Arrays **Credit Hours: 3**

Introduction to FPGA's. Programming technology. Logic block architectures. Routing architectures. FPGA based VLSI design. Design tools.

Prerequisites: EECS 7610 FOR LEVEL GR WITH MIN. GRADE OF D-

EECS8810 Solid State Electronics With Bioengineering Applications **Credit Hours: 3**

A comprehensive treatment of the theory and operation of physical electronic devices emphasizing electrical transport in metals and semiconductors, various models of BJT's and FET's and applications to biochemical and biomechanical sensing will be considered.

EECS8820 Microelectronic And Micromechanical Fabrication **Credit Hours: 3**

A comprehensive treatment of the theory, principles and techniques associated with microfabrication of electronic circuits and biosensors.

EECS8900 Independent Research **Credit Hours: 1-6**

Selected topics from current EE and CSE research with intensive investigation into recent literature in an area of mutual interest to the student and the instructor.

EECS8960 Dissertation **Credit Hours: 1-15**

Graduate research towards completion of a doctoral degree.

EECS8980 Current Topics In Electrical Engineering & Computer Science **Credit Hours: 1-5**

Current topics in the field of Electrical Engineering and Computer Science in areas of special interest to the class and the professor. Students will be expected to complete a written project based on a review of the research literature of the area covered in this course.

EECS8990 Independent Study **Credit Hours: 1-3**

In depth study of a selected topic of mutual interest to the student and the instructor.

EEES1010 Physical Geology **Credit Hours: 3**

Introduction to classification and origins of rocks and minerals, surficial processes and landscape development, groundwater and other natural resources, geologic structures, earthquakes and the earth's interior, plate tectonics and geologic time. No credit if EEES2100 is taken. Natural sciences core course.

EEES1020 Introductory Geology Laboratory **Credit Hours: 1**

Identification of rocks and minerals. Study of the Earth's surface features and geologic structures through the use of topographic maps and aerial photographs.

EEES1030 Historical Geology **Credit Hours: 3**

Study of rock and fossil records to discover their tabulation of physical and biological earth history. Three hours lecture, laboratory (GEOL 1040) is optional. Offered as writing intensive.

EEES1050 Geological Hazards And The Environment **Credit Hours: 3**

Introduction to risk mitigation involving hazardous geological processes and materials: volcanic eruptions, earthquakes, floods, ground subsidence and collapse, radon, asbestos and others.

EEES1130 Down To Earth: Environmental Science **Credit Hours: 3**

Evaluation of environmental controversies using ecology, economics and human values. Issues range from global change, overpopulation, food production, pollution, disease, endangered species, to unique habitats including rainforests and coral reefs. (not for credit in the major)[Fall, Spring]. Natural Sciences core course.

EEES1140 Environmental Problems Laboratory **Credit Hours: 1**

Basic scientific methods are used to conduct laboratory and field studies relevant to contemporary environmental problems.

EEES1150 Marine Biology **Credit Hours: 3**

An exploration of life in the world's oceans, emphasizing how marine organisms thrive in broadly diverse environments. Topics include the major ocean habitats, and ecological relationships among associated flora/fauna.

EEES1160 Plants And Society **Credit Hours: 3**

This course centers on the importance of plants to our planet. Includes an introduction to botany and discussion of plants that provide food, materials, spices, medicines, drugs and poisons. (not for major credit)

EEES1170 Microbes And Society **Credit Hours: 3**

This course describes how microbes impact everyday life in areas including food safety, agriculture and bioterrorism. Natural Sciences core course.

EEES2010 Introduction To Environmental Studies **Credit Hours: 3**

Introduction to issues currently affecting environmental quality. Fundamental scientific concepts relating to those issues and ethical, economic, legal and political considerations that affect the resolution of environmental problems.

EEES2100 Fundamentals Of Geology **Credit Hours: 4**

Consideration of earth materials and the dynamic external and internal processes active on earth; the physical and biological history of the earth. Intended for science majors.

Prerequisites: CHEM 1090 FOR LEVEL UG WITH MIN. GRADE OF D- OR CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES2150 Biodiversity **Credit Hours: 4**

Examination of the diversity of life on earth and its evolution, systematics and behavior; the structure of ecosystems and concepts of population and community ecology.

EEES2160 Biodiversity Laboratory **Credit Hours: 1**

Laboratory exercises designed to complement the material covered in EEES 2150.

Corequisites: EEES2150

EEES2200 Climate Change **Credit Hours: 3**

An overview of the understanding of climate change and role of human activities, including atmospheric processes, greenhouse effect, carbon cycling, physical evidence, impacts, and proposed global actions in response.

EEES2210 Mineralogy **Credit Hours: 4**

Crystallization and stability of minerals in the geologic environment. Systematic classification and identification of silicate and non-silicate minerals.

Prerequisites: (EEES 1010 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (EEES 2100 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D-)

EEES2220 Megascopic Petrology **Credit Hours: 3**

Megascopic identification and classification of igneous, sedimentary and metamorphic rocks. Rock origins, including plate tectonic settings, are also discussed. Two hours lecture, two hours laboratory.

Prerequisites: EEES 2210 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES2230 Earth History: Historical Geology and Paleontology **Credit Hours: 3**

The morphology and paleoecology of fossil taxa, significant strata, and tectonic events important to the interpretation of paleoenvironments and Earth history are stressed. Field trip(s) required.

Prerequisites: EEES 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES2400 Oceanography And Water Resources **Credit Hours: 3**

Physical, chemical, geological and biological nature of oceans and ocean basins. Ocean resources, circulation, climate and the hydrologic cycle. Fresh water resources and resource management.

EEES2500 Computer Applications In Environmental Sciences **Credit Hours: 1**

Desktop computers used by scientists: word processing, spreadsheets, databases, e-mail and world-Wide Web, table digitizer, processing GPS and data logger files, contour and mapping software.

Prerequisites: EEES 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR EEES 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES2980 Special Topics **Credit Hours: 1-4**

A lower division undergraduate course covering some aspect of environmental sciences not covered in the formal course offerings of the department. Students may repeat the course for different topics.

EEES2990 Independent Study **Credit Hours: 1-4**

Student selects an appropriate approved subject for individualized study and prepares a report or gives equivalent evidence of mastery of the selected subject.

EEES3000 Geology Of National Parks **Credit Hours: 3**

Study of regional geology of the U.S., focusing on national parks and monuments with the aim of furthering the student's geological knowledge and encouraging visitation as a tourist.

Prerequisites: EEES 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR EEES 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES3050 General Ecology **Credit Hours: 3**

The structure, function and regulation of populations, communities and ecosystems, emphasizing human activities and their ecological consequences.

Prerequisites: (EEES 2150 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1090 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (EEES 2150 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (BIOL 2150 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1090 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (BIOL 2150 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D-)

EEES3060 General Ecology Laboratory **Credit Hours: 1**

Laboratory and field exercises demonstrating ecological principles.

Corequisites: EEES3050

EEES3100 Surficial Processes **Credit Hours: 3**

Description and study of the earth's surface features from the point of view of their origin, including landforms created by volcanism, tectonics and erosional/depositional processes. Field trip required.

Prerequisites: EEES 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR EEES 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES3200 Stratigraphy And Sedimentology **Credit Hours: 3**

Introduction to depositional processes and environments of sediments; stratigraphic relationships of sedimentary rock.

Prerequisites: EEES 2220 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES3210 EARTH MATERIALS I: MINERALOGY/PETROLOGY **Credit Hours: 3**

Mineralogy: Rock-forming mineral characteristics, identification and geologic environments of formation. Igneous and Metamorphic Petrology: Igneous and metamorphic rock characteristics, origins, classification and interpretation of conditions of formation.

Prerequisites: EEES 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES3220 EARTH MATERIALS II SEDIMENTARY PETROLOGY, AND STRATIGRAPHY-WAC **Credit Hours: 3**

Megascopic description of sediments and sedimentary rocks, including their characteristics, classification and diagenesis; introduction to depositional processes and environments of sediments, and stratigraphic relationships of sedimentary rocks.

Prerequisites: EEES 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES3250 Engineering Geology **Credit Hours: 3**

Application of geologic principles to engineering practices (dams, tunnels, drainage, foundations and water supply). Labs stress rock and mineral identification, quality control tests in engineering design and construction using rock.

Prerequisites: MATH 1750 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1850 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1920 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES3310 FIELD METHODS: STRUCTURAL GEOLOGY AND MAPPING **Credit Hours: 3**

Rock deformation and its expression on maps; applying geometrical and trigonometric principles to solve problems involving dipping strata; stereonet applications, interpreting geological maps, constructing cross sections, geological GIS applications.

Prerequisites: EEES 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES3320 Structural Geology **Credit Hours: 3**

Descriptive analysis of rock structures, with emphasis on relationship to regional tectonics; term paper or field trip required.

Prerequisites: EEES 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR EEES 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES3900 Literature And Communications In The Environmental Sciences **Credit Hours: 3**

Survey and analysis of environmental issues featuring guest experts from a variety of environment-related occupations, readings from the environmental literature and student reports.

EEES4000 Invertebrate Paleontology **Credit Hours: 3**

Biologic and stratigraphic significant taxa of invertebrate fossils, principles of taxonomy, morphology and paleoecology. Paleoenvironmental use of fossils. Field trip required.

Prerequisites: EEES 1030 FOR LEVEL UG WITH MIN. GRADE OF D- OR EEES 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4010 Microscopic Petrology **Credit Hours: 3**

Principles of optical crystallography, training and use of the petrographic microscope; classification, occurrence, petrogenesis and petrography of igneous, metamorphic and sedimentary rocks. Two hours lecture, two hours laboratory.

EEES4100 Glacial Geology **Credit Hours: 3**

To understand glaciers and glacial landscapes. Topics include mass balance, ice flow, hydrology, erosion, deposition, landforms, glacial lakes and development of the Ohio glacial landscape. Field trip is mandatory.

Prerequisites: EEES 3100 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4150 Evolution **Credit Hours: 3**

The modern theory of evolution presented within a framework of theoretical genetics and population biology; phylogeny and evolution of the vertebrates.

Prerequisites: (EEES 2150 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (BIOL 2150 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D-)

EEES4200 Quaternary Geology **Credit Hours: 3**

To provide understanding of such cyclical events as climate change, sea level fluctuations, vegetation change and ice sheet paleogeography during the Quaternary Period and to explore future changes for planet Earth.

Prerequisites: EEES 3200 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4220 Environmental Geochemistry **Credit Hours: 3**

Chemical reactions of environmental concern. Water and soil chemistry related to contaminant fate and mobility. Petroleum formation, migration and accumulation in the subsurface. Computer software used.

Prerequisites: CHEM 1240 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4240 Soil Science **Credit Hours: 3**

Basic principles of soil formation, physics, chemistry and biology with emphasis on their influence on fluid and chemical migration and preservation of soil quality from geological, agricultural and environmental perspectives.

Prerequisites: CHEM 1240 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4250 Soil Ecology **Credit Hours: 3**

Underlying concepts and theory of modern soil ecology will be reviewed including spatial and temporal distributions, sampling methods, biogeochemical cycles and ecological functions of soil. (Spring, alternate years, odd)

Prerequisites: EEES 3050 FOR LEVEL UG WITH MIN. GRADE OF D- OR EEES 4240 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4300 Field Botany **Credit Hours: 3**

Introduction to the principles and methodology of plant taxonomy with particular attention to the native plant species.

Prerequisites: EEES 2150 FOR LEVEL UG WITH MIN. GRADE OF D- OR BIOL 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4330 Vertebrate Ecology And Systematics **Credit Hours: 4**

Ecology, systematics and conservation of the vertebrates, with special emphasis on forms native to North America.

Prerequisites: EEES 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4400 ENVIRONMENTAL IMPACTS OF ALTERNATIVE ENERGY **Credit Hours: 3**

Compares environmental impacts of alternative energy with environmental impacts of conventional energy. Identifies obstacles to implementing various sustainable energy technologies and ways to mitigate negative impacts of alternative energy.

Prerequisites: PHYS 2080 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4410 Hydrogeology **Credit Hours: 3**

Fundamentals of groundwater flow and geological controls, including applications to water resource evaluation, utilization, chemical characterization, contaminant transport and geological processes.

Prerequisites: MATH 1750 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1850 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1830 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1920 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4450 Hazardous Waste Management **Credit Hours: 3**

Environmental regulations concerning hazardous waste, characteristics of hazardous waste and disposal technologies, toxicology, characteristics of organic chemicals and heavy metals, biodegradation, soil science, groundwater contamination, risk assessment, site investigation.

Prerequisites: CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4520 Bioremediation **Credit Hours: 3**

The environmental fate and transport of contaminants; their transformation and biodegradation by plants and microorganisms; bioremediation strategies, including solid phase, slurry phase, and vapor-phase treatments, and natural attenuation.

Prerequisites: (EEES 2150 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D-)

EEES4540 Microbial Ecology **Credit Hours: 3**

Students will learn the underlying processes that drive microbial population structure and function in the environment and become familiar with classical and current methodology used in microbial community analysis.

Prerequisites: EEES 2150 FOR LEVEL UG WITH MIN. GRADE OF D- OR BIOL 2170 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4550 Methods Of Microbial Investigation **Credit Hours: 3**

Student will learn the classical and current methodologies (biochemical and molecular) used in microbial community analysis while developing an understanding of experimental design sample handling and data analysis.

Prerequisites: EEES 4540 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4610 Geophysics **Credit Hours: 3**

Survey of theory, field applications, interpretation principles of solid earth and exploration geophysics. Two hours lecture, three hours methods laboratory.

EEES4620 Evironmental And Engineering Geophysics **Credit Hours: 3**

Electrical resistivity, electromagnetic conductivity, magnetometer and seismic methods are used to investigate subsurface structures and characterize materials concealed under the earth's surface.

Prerequisites: EEES 2500 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4630 Numerical Methods In Geophysics **Credit Hours: 3**

Numerical filters and matrix operations used to process potential field data and wave forms, isolating anomalies and signals of interest; derivative maps, upward and downward continuation; current interpretation software. Term project.

Prerequisites: EEES 4610 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4640 Applied Geology **Credit Hours: 1-2**

Weekly field experiments Friday mornings (10 weeks in fall; or 5 weeks in spring) covering a variety of geology topics to simulate professional activity and strengthen concepts. Junior standing required.

EEES4650 Geology Field Course **Credit Hours: 6**

Intensive field studies in the Black Hills, South Dakota and Wyoming; stratigraphic section measuring, geologic mapping and interpretation and other field methods in geology.

EEES4720 Ecology Of Freshwater Invertebrates **Credit Hours: 3**

Major freshwater invertebrate taxa are covered. The focus is the interaction of individual invertebrates with their biotic and abiotic environment with emphasis on community and ecosystem level interactions.

Prerequisites: EEES 3050 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4730 Aquatic Ecology **Credit Hours: 3**

The biology of populations, communities and ecosystems with emphasis on aquatic environments. Includes the application of principles and theory from aquatic ecology to help understand and solve management problems in aquatic systems.

Prerequisites: EEES 3050 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4740 Aquatic Ecology Laboratory **Credit Hours: 1**

Laboratory exercises on the biology of aquatic populations, communities and ecosystems.

Corequisites: EEES4730

EEES4750 Conservation Biology **Credit Hours: 3**

The application of principles of ecology, biogeography, genetics, economics, philosophy and other disciplines to the study and maintenance of biological diversity in temperate, subtropical and tropical systems.

Prerequisites: EEES 3050 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4760 Landscape Ecology **Credit Hours: 3**

Emphasis will be placed on ecological patterns, processes and management applications at multiple spatial and temporal scales.

Prerequisites: EEES 3050 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4790 Ecology Field Trip **Credit Hours: 2-4**

Field trip to a major ecosystem of a region other than northwestern Ohio. Includes analysis of structural and functional relationships within and between ecosystems, with opportunities for individual student projects.

Prerequisites: EEES 3050 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES4800 Plant Physiological Ecology **Credit Hours: 4**

Study of how form (morphology, anatomy) and function (physiology, metabolism biophysics) affect plant ecology. Laboratory emphasizes experimentation and introduction to techniques. Lecture includes reading and written critiques of scientific literature.

Prerequisites: (EEES 2150 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1240 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (BIOL 2170 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1240 FOR LEVEL UG WITH MIN. GRADE OF D-)

EEES4910 Directed Research **Credit Hours: 1-5**

Research under guidance of faculty member. An acceptable thesis is required for credit toward major.

EEES4920 Senior Geology Seminar **Credit Hours: 2**

Survey of geology at a senior level using readings, class discussions and some lectures. The final exam will be one of the assessment vehicles of the department.

EEES4940 Internship **Credit Hours: 1-4**

Student gains up to 4 credits for relevant professional experience with an adviser-approved organization. Student must enroll during the term service is performed.

EEES4980 Special Topics: Advanced Undergraduate **Credit Hours: 1-4**

An advanced undergraduate course covering some aspect of the environmental sciences not covered in the formal upper- division undergraduate curriculum. Students may repeat the course for different topics.

EEES4990 Independent Study: Advanced Undergraduate **Credit Hours: 1-4**

Student selects an appropriate approved subject for individualized study and prepares a report or gives equivalent evidence of mastery of the selected subject.

EEES5000 Invertebrate Paleontology **Credit Hours: 3**

Invertebrate fossil taxa of biologic and stratigraphic importance; morphology, paleoecology, biostratigraphy of each taxon reviewed. Field project required.

EEES5100 Advanced Glacial Geology **Credit Hours: 3**

To understand glaciers and glacial landscapes. Topics include mass balance, ice flow, hydrology, erosion, deposition, landforms, glacial lakes and development of the Ohio glacial landscape. Field trip is mandatory.

Prerequisites: EEES 3100 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES5150 Organic Evolution **Credit Hours: 3**

The modern theory of evolution presented within a framework of theoretical genetics and population biology.

Prerequisites: (EEES 2150 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1210 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (EEES 2150 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (BIOL 2150 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1210 FOR LEVEL UG WITH MIN. GRADE OF D-)

EEES5200 Advanced Quaternary Geology **Credit Hours: 3**

To provide understanding of such cyclical events as climate change, sea level fluctuations, vegetation change and ice sheet paleogeography during the Quaternary Period and to explore future changes for planet Earth.

Prerequisites: EEES 3200 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES5220 Environmental Geochemistry **Credit Hours: 3**

Chemical reactions of environmental concern. Water and soil chemistry related to contaminant fate and mobility. Petroleum formation, migration and accumulation in the subsurface. Computer software used.

EEES5240 Soil Science **Credit Hours: 3**

Basic principles of soil formation of physics, chemistry and biology with emphasis on their influence on fluid and chemical migration and preservation of soil quality from geological, agricultural and environmental perspectives.

EEES5250 Soil Ecology **Credit Hours: 3**

Underlying concepts and theory of modern soil ecology will be reviewed including spatial and temporal distributions, sampling methods, biogeochemical cycles and ecological functions of soil.

Prerequisites: (BIOL 3050 FOR LEVEL UG WITH MIN. GRADE OF D- AND EEES 4240 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (BIOL 3050 FOR LEVEL UG WITH MIN. GRADE OF D- AND EEES 5240 FOR LEVEL GR WITH MIN. GRADE OF D-)

EEES5300 Advanced Field Botany **Credit Hours: 3**

Principles of plant systematics stressing identification of local taxa; field trips.

EEES5330 Vertebrate Ecology And Systematics **Credit Hours: 4**

Ecology, systematics and conservation of the vertebrates, with special emphasis on forms native to North America.

EEES5400 ENVIRONMENTAL IMPACTS OF ALTERNATIVE ENERGY **Credit Hours: 3**

Compares environmental impacts of alternative energy with environmental impacts of conventional energy. Identifies obstacles to implementing various sustainable energy technologies and ways to mitigate negative impacts of alternative energy.

Prerequisites: PHYS 2080 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES5410 Hydrogeology **Credit Hours: 3**

Fundamentals of groundwater flow and geological controls, including applications to water resource evaluation, utilization, chemical characterization, contaminant transport and geological processes. Primarily for graduate students in environmental sciences, geology and engineering.

Prerequisites: MATH 1750 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1850 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1830 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1920 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES5450 Hazardous Waste Management **Credit Hours: 3**

Environmental regulations concerning hazardous waste, characteristics of hazardous waste and disposal technologies, toxicology, characteristics of organic chemicals and heavy metals, biodegradation, soil science, groundwater contamination, risk assessment, site investigation.

EEES5520 Bioremediation **Credit Hours: 3**

The environmental fate and transport of contaminants; their transformation and biodegradation by plants and microorganisms; bioremediation strategies, including solid phase, slurry phase and vapor-phase treatments, and natural attenuation.

EEES5540 Advanced Microbial Ecology **Credit Hours: 3**

Students will learn the underlying processes that drive microbial population structure and function in the environment and become familiar with classical and current methodology used in microbial community analysis.

EEES5550 Advanced Methods Of Microbial Investigation **Credit Hours: 3**

Student will learn the classical and current methodologies (biochemical and molecular) used in microbial community analysis while developing an understanding of experimental design sample handling and data analysis.

Prerequisites: EEES 5540 FOR LEVEL GR WITH MIN. GRADE OF D-

EEES5610 Solid Earth Geophysics **Credit Hours: 3**

Survey of theory, field applications, interpretation principles of solid earth and exploration geophysics. Two hours lecture, three hours methods laboratory.

Prerequisites: (PHYS 2070 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2080 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1850 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1860 FOR LEVEL UG WITH MIN. GRADE OF D-)

EEES5620 Environmental And Engineering Geophysics **Credit Hours: 3**

Electrical resistivity, electromagnetic conductivity, magnetometer and seismic methods are used to investigate subsurface structures and characterize materials concealed under the earth's surface.

Prerequisites: PHYS 2070 FOR LEVEL UG WITH MIN. GRADE OF D- OR PHYS 2130 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES5650 Geology Field Course **Credit Hours: 6**

Intensive field studies in the Black Hills, South Dakota and Wyoming; stratigraphic section measuring, geologic mapping and interpretation and other field methods in geology.

EEES5720 Ecology And Literature Of Freshwater Invertebrates **Credit Hours: 3**

Major freshwater invertebrate taxa are covered. The focus is the interaction of individual invertebrates with their biotic and abiotic environment with emphasis on community and ecosystem level interactions.

EEES5730 Advanced Aquatic Ecology **Credit Hours: 3**

Advanced cross-disciplinary concepts in the ecology of aquatic environments emphasizing the biology of populations, communities and ecosystems. Includes a project on the application of principles and theory to help understand and solve a management problem in aquatic systems.

Prerequisites: EEES 3050 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES5740 Advanced Aquatic Ecology Laboratory **Credit Hours: 1**

Laboratory exercises on the biology of aquatic populations, communities and ecosystems.

Corequisites: EEES5730

EEES5750 Advanced Conservation Biology **Credit Hours: 4**

Advanced cross-disciplinary concepts in the application of principles and theory to the study and maintenance of biological diversity in temperate, subtropical and tropical systems. Lectures, classroom discussion and readings.

Prerequisites: EEES 3050 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES5760 Advanced Landscape Ecology **Credit Hours: 3**

This course is for graduate students from a variety of disciplines. Emphasis will be placed on up-to-date knowledge and methods in landscape analysis, pattern-process relationship and potential management applications at multiple spatial and temporal scales.

Prerequisites: EEES 3050 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES5790 Ecology Field Trip **Credit Hours: 2-4**

Field trip to a major ecosystems of a region other than northwestern Ohio. Includes analysis of structural and functional relationships within and between ecosystem, with opportunities for individual student projects.

Prerequisites: EEES 3050 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES5800 Advanced Plant Physiological Ecology **Credit Hours: 4**

Study of how form (morphology, anatomy) and function (physiology, metabolism biophysics) affect plant ecology. Laboratory emphasizes experimentation and introduction to techniques. Lecture includes reading and written critiques of scientific literature.

EEES6100 Glacial Stratigraphy And Geophysics **Credit Hours: 3**

To integrate glacial sedimentology and stratigraphy, with near-surface, geophysical methodologies. Field work to collect a variety of field data to analyze in the lab is mandatory. Data to be presented as posters.

Prerequisites: EEES 3200 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES6150 Spreadsheet Programming For Scientists **Credit Hours: 3**

Programming the Excel spreadsheet using Microsoft Visual Basic for Applications (VBA); VBA programming language; controls, charts and objects; applications to geological and environmental science. Two hours lecture, two hours laboratory.

EEES6200 Earth System Science Through Inquiry-Based Learning **Credit Hours: 3**

The course is geared towards in-service teachers. Teachers will explore four natural events affecting the earth as a system, using inquiry-based learning and lesson plan development.

EEES6400 Biostatistics **Credit Hours: 4**

Application of statistical tools to sampling and measurement in biology and testing of hypotheses. Computer lab is included.

EEES6440 Contaminant Hydrogeology **Credit Hours: 3**

Groundwater contaminant sources, impacts, transport, geochemistry and remediation in relation to geological environments with attention to sampling, detection, characterization, modeling and aquifer protection.

Prerequisites: EEES 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

EEES6450 Advanced Applied Hydrogeology **Credit Hours: 3**

Applications of hydrogeological monitoring, analyses and modeling using mathematics, statistics and computers. Subjects include: well field and pump test design, sampling strategies, data presentation and analysis and modeling fundamentals.

Prerequisites: EECS 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

EEES6500 Multivariable Geostatistics **Credit Hours: 3**

Application of multivariate statistical methods to scientific data. Emphasis is on applied regression, cluster, principal components, factor, correspondence, canonical correlation and discriminant analyses.

Prerequisites: EEES 6400 FOR LEVEL GR WITH MIN. GRADE OF D-

EEES6550 Thermodynamics And Phase Transformations Condensed Systems **Credit Hours: 4**

A materials science approach to the thermodynamics of condensed state equilibria and phase transformation kinetics.

EEES6600 Foundations Of Ecology **Credit Hours: 4**

An overview of the development of ecological concepts for beginning graduate students. Readings and discussion focus on classic papers and historical essays.

EEES6650 Statistical Modeling in Environmental Sciences **Credit Hours: 4**

Statistical modeling techniques of factorial design and regression applied to environmental problems.

Prerequisites: EEES 6400 FOR LEVEL GR WITH MIN. GRADE OF D-

EEES6660 Biophysical Processes Of Ecosystems **Credit Hours: 3**

This course is for graduate students who are interested in the biophysical environment, energy flows and microclimate. Emphasis will be placed on hands-on experience and discussion on current literature.

EEES6800 Digital Field Mapping **Credit Hours: 3**

Technology and techniques for determining locations and elevations during field surveys; transferring field measurements to a digital database; total station, GPS and other tools used in ecological and geological research.

EEES6810 Writing For The Environmental Sciences **Credit Hours: 3**

This course will familiarize students with technical and persuasive aspects of scientific text preparation. Writing exercises will focus on basic manuscript formatting for journal submission and grant proposals.

EEES6930 Seminar **Credit Hours: 1**

Individual presentation and discussion of papers in the environmental sciences.

EEES6960 Thesis Research **Credit Hours: 1-15**

Research on a particular geologic problem leading to a written thesis which must be presented and defended before a faculty committee.

EEES6980 Special Topics **Credit Hours: 1-4**

A graduate course covering some aspect of environmental sciences not covered in the formal graduate curriculum. Students may repeat the course for credit as topics vary.

EEES6990 Independent Study **Credit Hours: 1-4**

Student selects an approved subject for individual study and prepares a detailed report, or gives equivalent evidence of mastering of the selected subject. Taken only as S/U.

EEES7150 Organic Evolution **Credit Hours: 3**

The modern theory of evolution presented within a framework of theoretical genetics and population biology.

EEES7300 Advanced Field Botany **Credit Hours: 3**

Principles of plant systematics stressing identification of local taxa; field trips.

EEES7730 Advanced Aquatic Ecology **Credit Hours: 3**

Advanced cross-disciplinary concepts in the ecology of aquatic environments emphasizing the biology of populations, communities and ecosystems. Includes a project on the application of principles and theory to help understand and solve a management problem in aquatic systems.

Prerequisites: EEES 3050 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES7740 Advanced Aquatic Ecology Laboratory **Credit Hours: 1**

Laboratory exercises on the biology of aquatic populations, communities and ecosystems.

Corequisites: EEES7730

EEES7750 Advanced Conservation Biology **Credit Hours: 4**

Advanced cross-disciplinary concepts in the application of principles and theory to the study and maintenance of biological diversity in temperate, subtropical and tropical systems. Lectures, classroom discussion and readings.

Prerequisites: EEES 3050 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES7790 Ecology Field Trip **Credit Hours: 2-4**

Field trip to a major ecosystems of a region other than northwestern Ohio. Includes analysis of structural and functional relationships within and between ecosystem, with opportunities for individual student projects.

Prerequisites: EEES 3050 FOR LEVEL UG WITH MIN. GRADE OF D-

EEES8400 Biostatistics **Credit Hours: 4**

Application of statistical tools to sampling and measurement in biology and testing of hypotheses. Computer lab is included.

EEES8500 Multivariate Geostatistics **Credit Hours: 3**

Application of multivariate statistical methods to scientific data. Emphasis is on applied regression, cluster, principal components, factor, correspondence, canonical correlation and discriminant analyses.

Prerequisites: EEES 8400 FOR LEVEL GR WITH MIN. GRADE OF D-

EEES8600 Foundations Of Ecology **Credit Hours: 4**

An overview of the development of ecological concepts for beginning graduate students. Readings and discussion focus on classic papers and historical essays.

EEES8650 Statistical Modeling in Environmental Sciences **Credit Hours: 4**

Statistical modeling techniques of factorial design and regression applied to environmental problems.

Prerequisites: EEES 6400 FOR LEVEL GR WITH MIN. GRADE OF D- AND EEES 8400 FOR LEVEL GR WITH MIN. GRADE OF D-

EEES8660 Biophysical Processes Of Ecosystems **Credit Hours: 3**

This course is for graduate students who are interested in the biophysical environment, energy flows and microclimate. Emphasis will be placed on hands-on experience and discussion on current literature.

EEES8810 Writing For The Environmental Sciences **Credit Hours: 3**

This course will familiarize students with technical and persuasive aspects of scientific text preparation. Writing exercises will focus on basic manuscript formatting for journal submission and grant proposals.

EEES8930 Seminar In Ecology **Credit Hours: 1**

Presentation on research or current literature by graduate doctoral students, faculty or guest speakers.

EEES8960 Doctoral Dissertation Research **Credit Hours: 1-15**

Research on a particular problem leading a written dissertation that must be presented and defended before a faculty committee.

EEES8980 Advanced Topics In Ecology **Credit Hours: 2-4**

Course covering some aspect of ecology not covered in the formal graduate curriculum. Students may repeat the course for different topics.

EEES8990 Advanced Readings In Ecology **Credit Hours: 2-4**

Faculty-directed readings or projects in a specific area of ecology. Students may repeat the course for different topics.

EET1010 Resistive Circuits **Credit Hours: 4**

This course constitutes an introduction to electrical components, direct current circuit analysis, circuit theorems and basic electrical measurements. An introduction to sinusoidal waveforms, complex numbers, phasors and Pspice is also included.

Corequisites: MATH1330

EET1020 Reactive Circuits **Credit Hours: 4**

This course involves transient analysis of first order, reactive DC circuits and steady state analysis of reactive circuits under AC conditions. Frequency response, three-phase analysis, oscilloscope usage and PSpice simulation methods are included.

Prerequisites: (EET 1010 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1330 FOR LEVEL UG WITH MIN. GRADE OF D-)

EET1410 Electrical Drafting **Credit Hours: 3**

Use of electrical and electronic symbols, familiarization with industry standards and codes and familiarization with different kinds of schematics and other electrical drawings. Course work performed on personal computers using CAD software.

Prerequisites: CSET 1100 FOR LEVEL UG WITH MIN. GRADE OF D-

EET2010 Electronic Principles **Credit Hours: 4**

Semiconductor devices and applications with emphasis on power supplies and amplifiers. AC/DC analysis of small-signal amplifiers using both bipolar junction and field effect transistors in various biasing configurations.

Prerequisites: EET 1020 FOR LEVEL UG WITH MIN. GRADE OF D-

EET2020 Electronic Device Applications **Credit Hours: 4**

This course covers principles and applications of electronic circuits and devices such as oscillators, power supplies, thyristors regulators and op amps.

Prerequisites: EET 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

EET2210 Digital Logic Fundamentals **Credit Hours: 4**

This course covers the fundamentals of digital logic circuits. Topics include number systems, logic gates, Boolean algebra, logic simplification, Karnaugh maps, adders, multipliers, multiplexers and decoders. Elementary digital circuits including flip-flops, counters, shift registers, memory devices, programmable logic devices and integrated circuits are also covered.

Prerequisites: EET 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR EET 2420 FOR LEVEL UG WITH MIN. GRADE OF D-

EET2230 Assembly Language Programming **Credit Hours: 4**

The study of machine and assembly language programming and circuit and system applications. Microprocessor architecture and organization are also presented.

Prerequisites: (EET 2210 FOR LEVEL UG WITH MIN. GRADE OF D- AND CSET 1100 FOR LEVEL UG WITH MIN. GRADE OF D-)

EET2410 Programmable Controller Fundamentals **Credit Hours: 4**

A study of programmable controllers emphasizing program development, logic development and troubleshooting. Emphasis on relays, timers, counters, integer math and scan-dependent programming. Factory floor control concepts are stressed.

Prerequisites: EET 2210 FOR LEVEL UG WITH MIN. GRADE OF D-

EET2420 Electrical Instrumentation Laboratory **Credit Hours: 1**

Provides an opportunity for freshman Computer Science and Engineering Technology students to gain laboratory experience with basic electrical instrumentation and basic computer components.

Corequisites: CSET1100

EET2980 Special Topics **Credit Hours: 1-4**

Student performs work on a specialized project of an advanced nature under the supervision of an Electrical Engineering Technology faculty member.

EET3250 Network Analysis **Credit Hours: 4**

This course consists of analysis of electrical wave-forms and first order time domain circuits, transient analysis of reactive circuits using Laplace transforms, system transfer functions, Bode plots and the interpretations of Fourier series and transforms.

Prerequisites: (EET 1020 FOR LEVEL UG WITH MIN. GRADE OF D- AND ENGT 3020 FOR LEVEL UG WITH MIN. GRADE OF D-)

EET3350 Digital Systems Design **Credit Hours: 4**

This course covers the design, analysis and applications of digital systems involving sequential circuits. Special attention is given to the formal analysis and design procedures for synchronous sequential logic circuits and bistable memory devices. Design projects focus on top-down design methodology using CAD tools and the VHSIC hardware description language.

Prerequisites: EET 2230 FOR LEVEL UG WITH MIN. GRADE OF D-

EET4150 Analog Systems Design **Credit Hours: 4**

This course emphasizes the design and analysis of transistor and integrated circuits using computer-aided engineering techniques.

Prerequisites: EET 2020 FOR LEVEL UG WITH MIN. GRADE OF D-

EET4250 Microcomputer Architecture **Credit Hours: 4**

This course covers microcomputer architecture and computer organizations. Topics include CPU interface design, system buses, interrupts, pipeline and parallel processing, computer arithmetic, input-output peripherals, memory management and multiprocessors. Data flow, hypercube and systolic architectures are also covered.

Prerequisites: EET 3350 FOR LEVEL UG WITH MIN. GRADE OF D-

EET4350 Electric Power Systems **Credit Hours: 4**

This course constitutes a study of AC-DC machines, including transformers, power transmission and the regulations governing them as specified by industry and the National Electrical Code.

Prerequisites: EET 1020 FOR LEVEL UG WITH MIN. GRADE OF D-

EET4450 Automatic Control Systems **Credit Hours: 4**

This course is an introduction to industrial controls, including the PID control of closed-loop servo and process systems, with emphasis placed on the electronic circuits of the closed-loop sub-systems.

Prerequisites: EET 3250 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGT 3050 FOR LEVEL UG WITH MIN. GRADE OF D-

EET4550 Programmable Controller Applications **Credit Hours: 4**

Use of programmable controllers and computers in factory automation. Topics included are process control, supervisory software, PLC networking, PLC/CNC integration, device configuration, use of programming software and PLC languages standards.

Prerequisites: (EET 2410 FOR LEVEL UG WITH MIN. GRADE OF D- AND CSET 2200 FOR LEVEL UG WITH MIN. GRADE OF D-)

EFSB3480 Entrepreneurial Finance **Credit Hours: 3**

Course focuses on basics of using financial tools to create and analyze financial statements in new ventures and to understand the sources and management of capital for start-ups and growing businesses.

EFSB3500 Introduction To Entrepreneurship for Non-Business Students **Credit Hours: 3**

Couse provides an extensive overview of issues and opportunities involved in starting new businesses. Focus is on the entrepreneurial environment and opportunities, technopreneurship, and the entrpreneurial mindset. (This course may not be taken with or after taking EFSB 3590).

EFSB3590 Entrepreneurship And Small Business Management **Credit Hours: 3**

A study of entrepreneurship and the process of starting and/or managing a new venture. Tools for developing and managing in all areas in a new or small business are applied in hands-on consulting with local companies and case analysis.

Prerequisites: EFSB 3480 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY) OR BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

EFSB4010 Growing Family And Entrepreneurial Businesses **Credit Hours: 3**

Advanced study of issues pertaining to family and entrepreneurial businesses. Issues of family psychology, growth strategies, financing, valuation, and harvesting the business are studied using hands-on consulting and case analysis.

Prerequisites: (EFSB 3480 FOR LEVEL UG WITH MIN. GRADE OF D- AND EFSB 3590 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D- AND EFSB 3590 FOR LEVEL UG WITH MIN. GRADE OF D-)

EFSB4940 Internship In Entrepreneurship And Family Business **Credit Hours: 3**

Receive practical entrepreneurship experience working in a family or small business.

EFSB4980 Special Topics In Entrepreneurship And Family Business **Credit Hours: 3**

This course is designed to focus on current issues in entrepreneurship and family business.

EFSB4990 Independent Study **Credit Hours: 1-3**

Individually supervised study in Entrepreneurship and Family Business. Student must submit a proposal to be approved by the Program Advisor or Chair prior to enrolling in the course.

EFSB6590 New Venture Creation **Credit Hours: 3**

Course addresses the issues faced in starting a new venture, including the identification of new business opportunities and the effective and efficient evaluation of the economic feasibility of these opportunities.

EFSB6690 Technology Commercialization **Credit Hours: 3**

Course addresses the entire technology commercialization process, from idea to market. A key feature of the course is a "strategic opportunity evaluation" of an actual early stage technology. (Prerequisite: EFSB 6590)

Prerequisites: EFSB 6590 FOR LEVEL GR WITH MIN. GRADE OF D-

EFSB6790 Venture Capital Finance **Credit Hours: 3**

Course considers how potential entrepreneurial investments are evaluated, valued, structured, and enhanced. Primarily focuses on financing start-up and early stage firms, later stage investments, and buyouts. (Prerequisites: BUAD 6200 and EFSB 6590)

Prerequisites: EFSB 6590 FOR LEVEL GR WITH MIN. GRADE OF D- AND BUAD 6200 FOR LEVEL GR WITH MIN. GRADE OF D-

EFSB6890 Small Business Practicum **Credit Hours: 3**

This course offers the unique opportunity to act as a consultant to entrepreneurial ventures. Students will rpovide analyses and recommendations to prospective entrepreneurs. (Prerequisites: EFSB 6590, EFSB 6690, and Permission of Instructor)

Prerequisites: EFSB 6590 FOR LEVEL GR WITH MIN. GRADE OF D- AND EFSB 6690 FOR LEVEL GR WITH MIN. GRADE OF D-

EMBA5500 Analytic Foundation For Executives **Credit Hours: 3**

This course provides managers with the analytical foundations in economics, computer skills and statistical methods. Internet exercises prior to class meetings provide the basis for continuous discussions of current economic events.

EMBA6010 Current Tech Developments **Credit Hours: 1**

EMBA6020 Global Issues **Credit Hours: 1**

EMBA6100 Global Competitive Challenge **Credit Hours: 3**

An overview of the competitive challenge faced by firms in today's global setting.

Prerequisites: EMBA 5500 FOR LEVEL GR WITH MIN. GRADE OF D-

EMBA6120 Cultural, Legal, & Operational Issues in Doing Business Abroad **Credit Hours: 3**

This course develops the executive's appreciation, knowledge and understanding of different cultures and legal systems as they impact on operational management.

Prerequisites: EMBA 5500 FOR LEVEL GR WITH MIN. GRADE OF D-

EMBA6130 Global Competitive Response **Credit Hours: 3**

EMBA6140 Accounting And Financial Foundations For Executives **Credit Hours: 3**

Introduces the balance sheet, income statement, statement or retained earnings and statement of cash flows. Financial techniques, domestic and foreign markets are explored.

Prerequisites: EMBA 5500 FOR LEVEL GR WITH MIN. GRADE OF D-

EMBA6200 Personal Strategic Planning And Entrepreneurship **Credit Hours: 3**

Executives assess their personal values, clarifying their personal goals and develop a career strategy. Identifying market opportunities and developing new businesses for today's technological and global environment are explored.

Prerequisites: EMBA 5500 FOR LEVEL GR WITH MIN. GRADE OF D-

EMBA6210 Processes for Ethical Business Decisions **Credit Hours: 3**

Introduces executives to specific analytical processes for identifying the ethical dilemmas frequently experienced in business, resolving them and then justifying the course of action selected from multiple ethical perspectives. These processes are essential for recognizing and understanding the ethical implications of complex and controversial problems in culturally diverse and competitive organizations. The course involves ongoing practice in ethical dilemma resolution in both group and individual formats involving various ethical scenarios.

Prerequisites: EMBA 5500 FOR LEVEL GR WITH MIN. GRADE OF D-

EMBA6220 Accounting Systems For Operational And Strategic Management **Credit Hours: 3**

Emphasizes the preparation and use of financial statements, accounting for international transactions and tax consequences of U.S. and international operatives. Managerial accounting and control systems are examined. Focuses on the tax consequences of selected transactions of both U.S. and international operations.

Prerequisites: EMBA 5500 FOR LEVEL GR WITH MIN. GRADE OF D-

EMBA6230 Market-Driven Analysis And Strategy **Credit Hours: 3**

This course focuses on what it means to be market-oriented and provides individuals with a basic understanding of the market-based management practices needed to create superior customer value.

Prerequisites: EMBA 5500 FOR LEVEL GR WITH MIN. GRADE OF D-

EMBA6240 Entrepreneurial Financial Management **Credit Hours: 3**

Studies the management of international financial activities, including financial planning and forecasting, capital budgeting and leasing, capital structure, working capital management, sources of funds, business valuation and risk management.

Prerequisites: EMBA 5500 FOR LEVEL GR WITH MIN. GRADE OF D-

EMBA6250 Leadership And Performance Management **Credit Hours: 3**

Executives learn to be visionary leaders by understanding how change, culture and strategy link to vision and mission. Also focuses on employee motivation, development and empowerment.

Prerequisites: EMBA 5500 FOR LEVEL GR WITH MIN. GRADE OF D-

EMBA6290 Strategic Management In A Global Environment **Credit Hours: 3**

The goal of the capstone course is for each executive to finish an integrated business plan creating value for his or her sponsoring firm. Strategic planning tools are studied.

Prerequisites: EMBA 5500 FOR LEVEL GR WITH MIN. GRADE OF D-

EMBA6300 Global Technology Management **Credit Hours: 3**

This course focuses on the strategic and technical challenges facing executives who want to take advantage of today's existing and emerging technological developments to enhance business opportunities. Best practices are reviewed and the focus is on how executives can manage technology across functions to best achieve competitive advantage.

Prerequisites: EMBA 5500 FOR LEVEL GR WITH MIN. GRADE OF D-

EMBA6310 Managing Global Supply Chains **Credit Hours: 3**

Examines how e-business models, information technology and globalization have changed supply chain design and management. Effective information management for decision making is explored.

Prerequisites: EMBA 5500 FOR LEVEL GR WITH MIN. GRADE OF D-

EMBA6320 Product Development **Credit Hours: 3**

This course is designed to provide an understanding of how new products/services and e-business initiatives are developed and managed and explores the tools and skills needed to manage these processes.

Prerequisites: EMBA 5500 FOR LEVEL GR WITH MIN. GRADE OF D-

EMBA6330 Customer Relationship Management **Credit Hours: 3**

Strategies for integrating the customer centered areas of business (Sales, Marketing and Customer Services) to identify, attract and retain the best customers are discussed. Investigates customer relationship management.

Prerequisites: EMBA 5500 FOR LEVEL GR WITH MIN. GRADE OF D-

EMBA6470 Global/E-Business Field Trip **Credit Hours: 2**

Visit pace-setting firms with best practices in global business or e-business. The destination of the trip changes each year, may be international or domestic and takes 7-9 days.

Prerequisites: EMBA 5500 FOR LEVEL GR WITH MIN. GRADE OF D-

EMBA6980 Special Topics in Business **Credit Hours: 3**

Analysis of current issues in business, specialized industries, or specfic markets. Syllabus determined jointly by EMBA office and faculty as special topics are identified.

EMBA6990 Independent Study **Credit Hours: 3**

Independent research report on a business topics of interest to the studsent and faculty member. Students must work with a professor on this project. Permission of Instructor required.

EMHS1030 First Responder **Credit Hours: 3**

This course is required by the State of Ohio for persons employed by police, fire, EMS, industrial and office personnel who as part of their normal duties respond for request for emergency first aid. Student must hold current certification in CPR/AHA Health prior to course completion.

EMHS1040 Prehospital Emergency Life Support **Credit Hours: 6**

Topics covered include patient assessment, advanced airway management, bandaging/splinting. Adult, pediatric emergency medicine topics are covered. Successful completion leads to eligibility to sit for National Registry examination as EMT-B.

Prerequisites: (KINE 2560 AND HEAL 1800)

EMHS2030 Paramedic Emergency Medicine I **Credit Hours: 6**

Roles and responsibilities of the EMT-P, including history and patient assessment techniques. Pathophysiology of shock, cardiac, renal and respiratory emergencies.

EMHS2040 Advanced Clinical Practicum I **Credit Hours: 2**

Clinical experiences are offered in patient assessment, airway management and venipuncture. Emphasis is on advanced assessment, ECG interpretation and skills needed to stabilize and manage critically ill patients.

Prerequisites: EMHS 1040 FOR LEVEL UG WITH MIN. GRADE OF D-

EMHS2050 Paramedic Skills I **Credit Hours: 3**

Presentation of intubation, intravenous skills, patient assessment skills, airway and ventilation management skills.

Prerequisites: EMHS 1040 FOR LEVEL UG WITH MIN. GRADE OF D-

EMHS2060 Disaster Planning And Response **Credit Hours: 2**

A systems approach to multiple casualties incidents will be presented. Topics include planning, organization and control, triage principles and incident command procedures.

EMHS2070 Advanced Skills For Paramedics **Credit Hours: 3**

Advanced physician extender skills for the paramedic. Lecture and laboratory include advanced assessment, suturing, critical care techniques, 12-lead EKGs. The evolving role of paramedics in primary care will be discussed.

Prerequisites: EMHS 1040 FOR LEVEL UG WITH MIN. GRADE OF D-

EMHS2080 Current Trends And Practices In Emergency Medicine **Credit Hours: 1**

Integration of practice with current issues in EMS designed to blend field work with up-to-date knowledge base. Research project required.

EMHS2160 Paramedic Emergency Medicine II **Credit Hours: 6**

Advanced techniques and knowledge required to manage trauma and pediatric patients is the major emphasis. Also discussed are obstetric and gynecological behavioral and environmental emergencies.

Prerequisites: (EMHS 2030 FOR LEVEL UG WITH MIN. GRADE OF D- AND EMHS 2040 FOR LEVEL UG WITH MIN. GRADE OF D- AND EMHS 2050 FOR LEVEL UG WITH MIN. GRADE OF D-)

EMHS2170 Advanced Clinical Practicum II **Credit Hours: 2**

Clinical experiences emphasize the initial stabilization and management of the acutely ill and/or injured patient. A wide range of exposure to patients in hospital and in prehospital setting.

Prerequisites: (EMHS 2030 FOR LEVEL UG WITH MIN. GRADE OF D- AND EMHS 2040 FOR LEVEL UG WITH MIN. GRADE OF D- AND EMHS 2050 FOR LEVEL UG WITH MIN. GRADE OF D-)

EMHS2180 Paramedic Skills II **Credit Hours: 3**

Presentation of trauma assessment and management skills. Including adult invasive airway procedures. Emergency childbirth skills presentation.

Prerequisites: (EMHS 2030 FOR LEVEL UG WITH MIN. GRADE OF D- AND EMHS 2040 FOR LEVEL UG WITH MIN. GRADE OF D- AND EMHS 2050 FOR LEVEL UG WITH MIN. GRADE OF D-)

EMHS2190 Prehospital Externship **Credit Hours: 3**

Clinical experience is offered providing concentrated experience in the prehospital care of the acutely ill/injured patient. Vehicle-based experience. Includes preparation for national certification examinations.

Prerequisites: (EMHS 2160 FOR LEVEL UG WITH MIN. GRADE OF D- AND EMHS 2170 FOR LEVEL UG WITH MIN. GRADE OF D- AND EMHS 2180 FOR LEVEL UG WITH MIN. GRADE OF D-)

EMHS2200 Paramedic Emergency Medicine III **Credit Hours: 2**

Integration of pathophysiological principles and assessment findings to formulate a field impression and implement treatment plan for neonatal, pediatric, geriatric patients and physically or mentally challenged, chronically ill patients.

Prerequisites: (EMHS 2160 FOR LEVEL UG WITH MIN. GRADE OF D- AND EMHS 2170 FOR LEVEL UG WITH MIN. GRADE OF D- AND EMHS 2180 FOR LEVEL UG WITH MIN. GRADE OF D-)

EMHS2210 Paramedic Emergency Skills III **Credit Hours: 1**

Properly perform the various psychomotor skills utilized by paramedics. Evaluation of psychomotor skills. Preparation of students for the National Registry written and practical EMT-Paramedic examinations.

Prerequisites: (EMHS 2160 FOR LEVEL UG WITH MIN. GRADE OF D- AND EMHS 2170 FOR LEVEL UG WITH MIN. GRADE OF D- AND EMHS 2180 FOR LEVEL UG WITH MIN. GRADE OF D-)

EMHS2990 Independent Study **Credit Hours: 1-3**

A course designed to provide educational opportunities in a specialized academic area under the direct supervision of a faculty member.

ENGL1020 Writing And Grammar For Students Of English As A Second Language — Credit Hours: 3

Course work focuses on the major grammatical patterns of academic writing in English as well as accuracy in the mechanics of academic writing. The primary emphasis is on these features in the context of the students' own written work. Eligibility by placement exam only. A maximum of 3 semester hours in ENGL 1020 and 1120 may be counted toward fulfilling the 124 hour requirement for graduation.

Prerequisites: ENLG FOR MIN. SCORE OF 1020

ENGL1100 Composition I With Workshop — Credit Hours: 5

Explanatory and persuasive writing in both personal and public genres; instruction and practice in generating, focusing, developing, researching and presenting ideas in ways consistent with one's subject, purposes and intended audiences. Placement through examination or portfolio evaluation. Students receiving a grade of C or better enroll in Composition II; those who receive No Credit enroll in Composition I. From Composition I with Workshop, Composition I and Composition II, no more than 6 hours apply toward graduation.

ENGL1110 College Composition I — Credit Hours: 3

Explanatory and persuasive writing in both personal and public genres; instruction and practice in generating, focusing, developing, researching and presenting ideas in ways consistent with one's subject, purposes and intended audience. Placement through examination or portfolio evaluation or through completion of ENGL 1100 with grade of NC. (ESL students must have completed ENGL 1020 with grade of Pass. From Composition I with Workshop, Composition I and Composition II, no more than 6 hours apply toward graduation.

Prerequisites: ENLG FOR MIN. SCORE OF 1110 OR A01 FOR MIN. SCORE OF 20 OR S01 FOR MIN. SCORE OF 480 OR ENLG FOR MIN. SCORE OF 1120 OR ENLG FOR MIN. SCORE OF 1118

ENGL1120 College Composition I Laboratory For Students Of English As A Second Language — Credit Hours: 2

The corequisite of ENGL 1120 is an ESL section of 1110. Graded PS/NC. Writing laboratory using students' writings from ENGL 1110 as well as other supplementary materials. May be required based on placement exam or ENGL 1020 final exam score. (Note: A student required to take this course who does not receive a PS cannot receive a passing grade in an Engl 1110 taken concurrently.) Eligibility by placement exam only. A maximum of 3 semester hours in ENGL 1020 and 1120 may be counted toward fulfilling the 124 hour requirement for graduation.

Prerequisites: ENLG FOR MIN. SCORE OF 1120

Corequisites: ENGL1110

ENGL1130 College Composition II: Academic Disciplines And Discourse **Credit Hours: 3**

Reading and analyzing the documents from multiple disciplines to synthesize results from different perspectives and produce disciplinarily appropriate writing. Web enhanced. Critical reading, research papers required.

Prerequisites: ENGL 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENLG FOR MIN. SCORE OF 1130

ENGL1140 College Composition II: Writing The Community **Credit Hours: 3**

Reading and analytical writing growing from the study of and participation in specific communities. Web enhanced. Critical reading, research papers required.

Prerequisites: ENGL 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENLG FOR MIN. SCORE OF 1130

ENGL1150 College Composition II: Language And Identity **Credit Hours: 3**

Reading and analyzing the ways languages construct identities through interactions of race, class, gender, sexual orientation, disability, age and religion. Web enhanced. Critical reading; research paper required.

Prerequisites: ENGL 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENLG FOR MIN. SCORE OF 1130

ENGL1930 Technical Writing For Engineers **Credit Hours: 3**

Instruction and practice in writing technical reports and documents for the field of engineering. Students will compose on the computer.

Prerequisites: (MIME 1000 FOR LEVEL UG WITH MIN. GRADE OF D- AND ENGL 1100 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (MIME 1000 FOR LEVEL UG WITH MIN. GRADE OF D- AND ENGL 1110 FOR LEVEL UG WITH MIN. GRADE OF D-)

ENGL2010 Advanced Composition **Credit Hours: 3**

Instruction and practice in writing expository and persuasive prose for a variety of audiences with particular attention to the effect of content and style upon readers.

Prerequisites: ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1180 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1170 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1180 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1190 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1210 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1220 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1230 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL2710 Reading Fiction **Credit Hours: 3**

Exploration of various kinds of fiction with goals of literary appreciation and analytical insight. (not for major credit)

Prerequisites: ENGL 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL2720 Reading Drama **Credit Hours: 3**

Exploration of various kinds of drama with goals of literary appreciation and analytical insight. (not for major credit)

Prerequisites: ENGL 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL2730 Reading Poetry **Credit Hours: 3**

Exploration of various kinds of poetry with goals of literary appreciation and analytical insight. (not for major credit)

Prerequisites: ENGL 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL2740 British Literature: Readings And Analysis **Credit Hours: 3**

This course offers students an opportunity to study British literature in a lecture/discussion format. Lectures provide historical and critical background, while discussion sections provide in-depth study of individual works.

Prerequisites: ENGL 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL2760 American Literature: Readings And Analysis **Credit Hours: 3**

This course offers students an opportunity to study American literature in a lecture/discussion format. Lectures provide historical and critical background, while discussion sections provide in-depth study of individual works.

Prerequisites: ENGL 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL2800 Writing About Literature **Credit Hours: 3**

A writing-intensive (WAC) course introducing the process of writing various types of papers and analyzing literary works. Special emphasis on discovering a topic and on revision and structure in expository writing.

Prerequisites: ENGL 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL2950 Science And Technical Report Writing **Credit Hours: 3**

Instruction and practice in writing informational and analytical reports to varied audiences in medical, scientific or technical fields.

Prerequisites: ENGL 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL2960 Organizational Report Writing **Credit Hours: 3**

Instruction and practice in report writing within an organizational context. Emphasis on the analytical report based on research.

Prerequisites: ENGL 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL3000 Human Language **Credit Hours: 3**

A non-technical overview of the nature of human language, including issues relating to spoken and written language, language change and language development, and other aspects of language use in a variety of contexts.

ENGL3010 Creative Writing **Credit Hours: 3**

A basic introduction to creative writing. Students write poems, stories or creative nonfiction which serve as the basis for classroom discussion and for conferences with instructor.

Prerequisites: ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1180 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1170 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1190 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1210 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1220 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1230 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL3050 Persuasive Writing **Credit Hours: 3**

Analysis of and practice in the techniques of persuasive writing. Emphasis varies from writing about legal issues to writing about issues of public controversy.

Prerequisites: ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1180 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1170 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1190 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1210 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1220 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1230 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL3060 Screenwriting **Credit Hours: 3**

This course involves practical analysis of screenplays, emphasizing story structure and characterization. Students plan, write and refine story lines before writing actual scripts.

ENGL3080 The Art And Process Of The Book **Credit Hours: 3**

This course examines all aspects of the printed book - from scrolls to Gutenburg to contemporary publishing - as students work towards designing, printing and binding a finely printed edition.

Prerequisites: ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1180 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1170 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1190 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1210 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1220 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1230 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL3150 Linguistic Principles **Credit Hours: 3**

An introduction to modern linguistic theories about the nature and structure of language with emphasis on English.

ENGL3250 The Detective Story **Credit Hours: 3**

A survey of the genre, giving special attention to differences in the British and American versions of the genre. Includes Poe, Doyle, Christie, Sayers, Hammett and Chandler. Recommended: ENGL 2700, 2710, or 2800.

ENGL3280 Contemporary Poetry **Credit Hours: 3**

A study of recent trends in contemporary poetry. Recommended: ENGL 2730, 2800, or 3790.

ENGL3600 American Literary Traditions **Credit Hours: 3**

A study, primarily for non-majors, of selected American literary works such as "The Scarlet Letter," "Walden," "Leaves of Grass," "The American," "The Great Gatsby" and ""The Bear." Recommended: ENGL 2710 or 2800.

ENGL3610 British Literary Traditions **Credit Hours: 3**

Introduction to literary history, and the terminology and techniques of the historical study of British literature, intended as preparation for the English major. Texts may include works from the Medieval period to the 21st-century.

Prerequisites: ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- AND ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL3650 Science Fiction And Fantasy Literature **Credit Hours: 3**

This course examines literary works of science fiction and fantasy, and related scholarship, from a variety of perspectives. Readings are selected from prominent writers in both genres.

Prerequisites: ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1180 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL3710 Literature Of The Old Testament **Credit Hours: 3**

A study of the Old Testament from the literary point of view, including ancient poetry, history, romance, short story, hymn, prophecy and wisdom writing. Recommended: ENGL 2800.

ENGL3720 Literature And Mythology **Credit Hours: 3**

Study of classical and biblical mythologies in modern Western literature, private mythologies and literary adaptations of patterns from legend and folklore. Recommended: ENGL 2800.

ENGL3730 Folklore **Credit Hours: 3**

A survey of the field of folklore with an emphasis on folk narrative, folk music and material culture in America. Recommended: Consent of instructor and/or Composition II.

Prerequisites: ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1180 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1170 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1190 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1210 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1220 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1230 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL3750 Women And Literature **Credit Hours: 3**

Offered as Writing Across the Curriculum (WAC) course. Examines literary works in light of major issues raised by feminist criticism. Specific emphasis varies. Recommended: ENGL 2800 or 3790.

ENGL3760 European Literature To The Renaissance **Credit Hours: 3**

The literary European heritage from its Biblical and Classical origins to the 16th century (in English translation). Includes such writers as Homer, Virgil and Dante. Recommended: ENGL 2800 or 3790.

ENGL3770 World Literature And Cultures **Credit Hours: 3**

This course examines texts and cultures form around the world (and in particular the non-western world). The genres examined include autobiography, poetry, short fiction, novels, plays and histories.

Prerequisites: ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1180 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1170 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1190 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1210 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1220 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1230 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL3780 Modern European Literature **Credit Hours: 3**

Continental European literature from the l7th to the early 19th century. (In English translation.) Includes such writers as Dostoyevsky, Baudelaire and Rilke. Recommended: ENGL 2800, or 3790.

ENGL3790 Foundations Of Literary Study **Credit Hours: 3**

Writing Across the Curriculum Course An overview and introduction to the discipline of literary study, its history, its methods, and its specialized languages. Humanities Core Course.

Prerequisites: ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1180 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1170 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1190 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1210 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1220 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1230 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL3800 Visual Language **Credit Hours: 3**

Writing Across the Curriculum course. Lecture/studio, utilizes Toledo Museum of Art collection. Origins of writing, letterforms, artist's books, medieval manuscripts, collaborations, journals, sketchbooks, writing about visual art, concrete poetry.

ENGL3810 Shakespeare I **Credit Hours: 3**

A careful examination of several of Shakespeare's plays and a rapid reading of others. Recommended: ENGL 2720, 2800 or 3790.

ENGL3980 Special Topics in Literature **Credit Hours: 3**

Group study of a period, genre, author or special literary topic. May be repeated with change of specialty number. Topics will be announced in the semester Time Schedules. Recommended: ENGL 2800 or 3790.

ENGL4030 Writing Workshop In Nonfictional Prose **Credit Hours: 3**

Directed study of nonfiction genres, rhetorical forms and elements of style; extensive practice in the writing and critical evaluation of prose.

Prerequisites: ENGL 2010 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL4060 Screenwriting II **Credit Hours: 3**

For students familiar with the fundamentals of screenplays, this course devotes attention to writing a complete script. Students are expected to come to the class with a planned story line.

Prerequisites: ENGL 3060 FOR LEVEL UG WITH MIN. GRADE OF D- OR FILM 3350 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL4070 Writing Workshop In Poetry **Credit Hours: 3**

An advanced workshop in writing poetry emphasizing a wider range of readings, craft and technique.

Prerequisites: ENGL 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL4080 Writing Workshop In Fiction **Credit Hours: 3**

An advanced workshop emphasizing a wider range of readings, craft and technique. May be repeated once for credit.

Prerequisites: ENGL 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL4090 Current Writing Theory **Credit Hours: 3**

A study of current theory and research connecting reading, critical thinking and writing with applications of theory to students' writing practice.

Prerequisites: ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1180 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1170 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1190 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1210 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1220 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1230 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL4100 The History Of English **Credit Hours: 3**

Description of the changes that have taken place in the English language from the earliest days to the present.

Prerequisites: ENGL 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR LING 3150 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL4110 Old English **Credit Hours: 3**

A study of phonology, morphology and syntax with representative readings in verse and prose.

ENGL4120 Middle English **Credit Hours: 3**

Study of the phonology, morphology and syntax of Middle English, with special attention to literary and cultural background. Representative readings in verse and prose.

ENGL4150 Applied Linguistics Research And Theory I **Credit Hours: 3**

Focus on the methods of applied linguistics in the broad sense, including their use in studies of first and second language acquisition, language teaching, the teaching of reading and writing, and other related areas.

Prerequisites: ENGL 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR LING 3150 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL4170 Applied Linguistics Research And Theory II **Credit Hours: 3**

Focuses on theories of second/foreign language acquisition, especially, but not exclusively, as they relate to English as a Second Language.

Prerequisites: ENGL 4150 FOR LEVEL UG WITH MIN. GRADE OF D- OR LING 4150 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL4200 British Fiction: 18th Century **Credit Hours: 3**

The development and achievement of British fiction in the 18th Century, including Defoe, Richardson, Fielding, Smollett and Sterne. Recommended: ENGL 2710, 2800, or 3790.

ENGL4240 British Fiction: 20th Century **Credit Hours: 3**

A study of the major trends in 20th century British fiction with particular emphasis on changes in technique and approach. Includes Woolf, Joyce, Lawrence and Conrad. Recommended: ENGL 2710, 2800, or 3790.

ENGL4280 American Fiction: 20th Century **Credit Hours: 3**

Major developments in content and form of the 20th-century American short story and novel. Writers studied include Hemingway, Faulkner, Fitzgerald and Steinbeck. Recommended: ENGL 2710, 2800 or 3790.

ENGL4310 British Drama To 1642 **Credit Hours: 3**

A study of the drama in England to the closing of the theaters, excluding Shakespeare but including Marlowe, Jonson and Webster. Recommended: ENGL 2710, 2800, or 3790.

ENGL4340 Modern Drama **Credit Hours: 3**

A study of Western Drama from the 1870's to the 1930's. Special emphasis on Ibsen, Strindberg, Chekhov, Brecht, O'Neill, Beckett, Pinter and Shepard. Recommended: ENGL 2710, 2720, 2800, or 3790.

ENGL4400 British Literature: The Medieval Period **Credit Hours: 3**

The study of British literature before 1500, often in translation. Topics vary and may include Anglo-Saxon, Norse, and Celtic literature; Norman, English, and Scots literature; or specific themes or genres. Recommended: ENGL 2800 or 3790.

ENGL4420 British Literature: Renaissance **Credit Hours: 3**

Poetry and prose of the English Renaissance. Authors may include Spenser, Sidney, Shakespeare (nondramatic works), More, Ralegh, Queen Elizabeth I and others. Recommended: ENGL 2730, 2800, or 3790.

ENGL4440 Early 17th Century English Literature **Credit Hours: 3**

Poetry and prose from 1603 to 1660 and beyond, including such authors as Milton, Donne, Jonson, Herrick, Herbert, Bacon, Cary, Lanyer, Marvell and others. Recommended: ENGL 2730, 2800, or 3790.

ENGL4460 British Literature: Restoration And 18th Century **Credit Hours: 3**

Drama, poetry, and essays of the Restoration, neo-classical and pre-Romantic periods. Recommended: ENGL 2730, 2800, or 3790.

ENGL4500 British Literature: The Romantic Period **Credit Hours: 3**

Study of major authors and genres of the Romantic period: approximately 1789 to 1837.

ENGL4520 British Literature: The Victorian Period **Credit Hours: 3**

Study of major authors, genres and ideas of the Victorian period: approximately 1837 to 1901.

ENGL4540 British Literature: The 20th Century **Credit Hours: 3**

Twentieth century British poetry and criticism with particular attention to the works of Hardy, Woolf, Yeats, Lawrence, Auden and Thomas. Recommended: ENGL 2730, 2800, or 3790.

ENGL4600 Early American Literature **Credit Hours: 3**

The poetry and theology of the New England Puritans, especially Bradstreet and Taylor, the literature of the American Enlightenment, the beginnings of American Romanticism in Bryant and Cooper. Recommended: ENGL 2800, or 3790.

ENGL4620 American Romanticism **Credit Hours: 3**

This course focuses on the literature of the United States from the early nineteenth century through about 1865, with concentration on the literary production between 1840 and 1865. Recommended: ENGL 2800, or 3790.

ENGL4630 American Literary Realism **Credit Hours: 3**

American literature from the post-Civil War period to the early 20th Century, particularly the fiction of Twain, James, Howells and Stephen Crane; some attention to humor, "naturalism" (in Kate Chopin or Dreiser) and poetry. Recommended: ENGL 2710, 2800 or 3790.

ENGL4640 Early 20th Century American Poetry **Credit Hours: 3**

Significant developments in American poetry 1900-50 from the perspective of other literary and intellectual movements; includes, among others, such major writers as Frost, Pound, Eliot, Stevens, H. Crane and Williams. Recommended: ENGL 2730, 2800, or 3790.

ENGL4650 African American Writers Before The 20th Century **Credit Hours: 3**

A survey of African-American prose, poetry, drama and fiction from 1760 to 1915. Recommended: ENGL 2800, or 3790.

ENGL4660 African American Literature In The 20th Century **Credit Hours: 3**

Study of the literary achievement of major African-American writers beginning with DuBois and ending with Gwendolyn Brooks and Ed Bullins. Recommended: ENGL 2800, or 3790.

ENGL4680 American Literature Since World War II **Credit Hours: 3**

The postwar literary sensibility in poetry and fiction; the influence of existentialism and naturalism; includes such writers as Albee, Barthelme, Bellow, Lowell, Plath and Updike. Recommended: ENGL 2800, or 3790.

ENGL4690 Native American Literature And Culture **Credit Hours: 3**

Native American literature interrogates a selection of texts by and about Native Americans, including the oral traditions of storytelling and mythology.

ENGL4730 World Cinemas And Cultures **Credit Hours: 3**

World Cinema focuses on the question of representation across cultures in terms of the relations between film, its subjects and the camera.

Prerequisites: ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2800 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 3790 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL4780 Principles Of Literary Criticism **Credit Hours: 3**

A comparative study of the principles of literary criticism, including readings from representative critics of all ages, and of basic aesthetic theories underlying the major approaches to literature. Recommended: ENGL 2800, or 3790.

ENGL4800 Chaucer **Credit Hours: 3**

A study of Chaucer¿s major works and historical contexts, with emphasis on Troilus and Criseyde and the dream visions or on The Canterbury Tales in their entirety. Recommended: ENGL 2730, 2800, or 3790.

ENGL4810 Shakespeare II **Credit Hours: 3**

A study of Shakespeare's plays with emphasis on his development as a dramatist. Recommended: ENGL 3810.

ENGL4820 Milton **Credit Hours: 3**

A study of the poetry and selected prose of Milton. Recommended: ENGL 2730, 2800, or 3790.

ENGL4850 Studies In The Work Of A British Author **Credit Hours: 3**

Author changes with each offering. Consult Time Schedules for authors to be studied. Recommended: ENGL 2800, 3790.

ENGL4860 Studies In The Work Of An American Author **Credit Hours: 3**

Author changes with each offering. Consult Time Schedules for authors to be studied. Recommended: ENGL 2800, or 3790.

ENGL4890 Capstone: Senior Seminar In Writing **Credit Hours: 3**

Focusing on a single topic which varies term-by-term, this capstone course offers students the opportunity to demonstrate the ability to write in a variety of genres, e.g. personal essay, poem, documented paper, reportage.

Prerequisites: ENGL 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL4900 English Honors Seminar **Credit Hours: 2**

The Honors Seminar is taken in conjunction with the Honors Thesis (English 4960). Required of all candidates for departmental honors.

ENGL4940 Internship In English **Credit Hours: 1-4**

Internship with an approved program, company or agency employing research, writing editing or linguistics expertise. Student must submit proposal for approval by advisory and a departmental committee. (Repeatable for a maximum of 4 hours credit.)

ENGL4950 Special Topics For Writers **Credit Hours: 3**

An advanced course in genre writing. Content varies with each offering. May be repeated once for credit.

Prerequisites: ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1180 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1170 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1190 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1210 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1220 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1230 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGL4960 English Honors Thesis **Credit Hours: 1-4**

Research and writing of a thesis on a topic in English or linguistics required of all candidates for departmental honors.

ENGL4980 Special Topics In Literature **Credit Hours: 3**

An undergraduate course on a special topic. Consult Time Schedules for topic to be studied and semester offered. Recommended: ENGL 2800, or 3790.

ENGL4990 Independent Study **Credit Hours: 1-3**

Supervised independent study in special topics of British and American language and literature. Courses may be repeated more than once for credit.

ENGL5010 Writer's Workshop **Credit Hours: 3**

Students present their poetry and/or creative prose for peer critique and discussion. Readings in primary texts. Portfolio.

ENGL5090 Current Writing Theory **Credit Hours: 3**

An intensive study of current theories and research connecting reading, critical thinking and writing with applications of theory to students' literate practices and research.

ENGL5100 History Of The English Language **Credit Hours: 3**

Study of the origins and development of the English language.

Prerequisites: ENGL 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR LING 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 5150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 5150 FOR LEVEL GR WITH MIN. GRADE OF D- OR ENGL 7150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 7150 FOR LEVEL GR WITH MIN. GRADE OF D-

ENGL5110 Old English **Credit Hours: 3**

Study of the phonology, morphology and syntax of Old English, with special attention to literary and cultural backgrounds. Representative readings in verse and prose.

ENGL5120 Middle English **Credit Hours: 3**

Study of the phonology, morphology and syntax of Middle English, with special attention to literary and cultural background. Representative readings in verse and prose.

ENGL5150 Linguistic Principles **Credit Hours: 3**

Intensive study of modern linguistic theories about the nature and structure of language, with emphasis on English.

ENGL5200 British Fiction: 18th Century **Credit Hours: 3**

A course in 18th Century fiction with emphasis on the novels of Defoe, Richardson, Fielding, Smollett, and Sterne and their relation to historical background and literary theory.

ENGL5240 British Fiction: 20th Century **Credit Hours: 3**

Major developments in British fiction from Conrad to the present, with particular emphasis on changes in technique and approach.

ENGL5280 American Fiction: 20th Century **Credit Hours: 3**

A study of the chief developments in content and form of the American short story and novel since World War I, partly through intensive analysis of works by selected major writers.

ENGL5310 British Drama: 1580-1642 **Credit Hours: 3**

A study of early British drama exclusive of Shakespeare, with particular attention to Elizabethan drama and its background.

ENGL5340 Modern Drama **Credit Hours: 3**

A study of Western Drama from the l870's to the 1980's, concentrating on Ibsen, Strindberg, Chekhov, Brecht, O'Neill, Williams, Pinter, Shepard and other dramatists, with special attention to modern theories of theater and performance.

ENGL5410 Old And Middle English Literature **Credit Hours: 3**

Study of Old and Middle English Literature, using translations where necessary, with emphasis on major works and genres, cultural, philosophical, and historical contexts and backgrounds.

ENGL5420 English Renaissance **Credit Hours: 3**

Poetry and prose of the English Renaissance, including the sonnet tradition; "Spenser¿s Fairie Queene"; Shakespeare¿s longer poems; the prose of Ralegh, Hoby, Ascham, and Elyot; "Defense of Poesy"; More¿s "Utopia."

ENGL5440 Early 17th Century English Literature **Credit Hours: 3**

Early and mid-17th Century non-dramatic texts. Including such authors as Milton, Donne, Jonson, Herrick, Herbert, Marvell, Bacon and Browne. Non-canonical writing by women and figures of historical as well as literary importance.

ENGL5460 Restoration And 18th Century British Literature **Credit Hours: 3**

Drama, poetry, and prose of the Restoration, Neo-classical and pre-Romantic periods, focusing on literary strategies and themes, political and cultural contexts.

ENGL5500 British Literature: The Romantic Period **Credit Hours: 3**

Study of major authors and genres of the Romantic period: approximately 1789 to 1837.

ENGL5520 British Literature: The Victorian Period **Credit Hours: 3**

Study of major authors, genres and ideas of the Victorian period: approximately 1837 to 1901.

ENGL5540 20th Century British Literature **Credit Hours: 3**

British poetry of the early 20th century, including the works of such poets as Hopkins, Housman, Hardy, Yeats, Owen, Lawrence, Auden and Thomas, and the research and criticism relevant to them.

ENGL5600 Early American Literature **Credit Hours: 3**

The poetry and prose writings of the New England Puritans and the American Enlightenment with emphasis on Bradford, Bradstreet, Taylor, Franklin, Jefferson, Paine and Wheatley.

ENGL5620 American Literary Romanticism **Credit Hours: 3**

American literature from 1798 to 1865, from the beginnings of Romanticism in Bryant and Cooper through the Transcendental movement, with emphasis on Hawthorne, Melville, Stowe and Douglass.

ENGL5630 American Literary Realism **Credit Hours: 3**

American literature from the post-Civil War period to the early 20th century: some emphasis on naturalism and humor; such writers as Twain, James, Howells, Dreiser and Wharton.

ENGL5640 Early 20th Century American Literature **Credit Hours: 3**

Study of American literature from 1900 to World War II, focusing on literary modernism and its social, political and philosophical contexts.

ENGL5650 African American Writing Before The 20th Century **Credit Hours: 3**

Study of African American prose, poetry, drama and fiction from 1760 to 1915.

ENGL5660 African American Writing In The 20th Century **Credit Hours: 3**

A literary, historical and social consideration of the achievement of black American writers since 1915.

ENGL5680 American Literature Since World War II **Credit Hours: 3**

Major trends in postwar American literature, including traditional and uncanonical writers. Emphasis may be on poetry or prose by instructor's option.

ENGL5690 Native American Literature And Culture **Credit Hours: 3**

Native American literature interrogates a selection of texts by and about Native Americans, including the oral traditions of storytelling and mythology.

ENGL5730 World Cinemas And Cultures **Credit Hours: 3**

World Cinema focuses on the question of representation across cultures in terms of the relations between film, its subjects and the camera.

ENGL5750 History Of Literary Criticism **Credit Hours: 3**

A chronological examination of literary criticism, analyzing the variety of claims and practices which contribute to the current frameworks used to interpret and analyze literary texts.

ENGL5780 Contemporary Literary Theories And Criticism **Credit Hours: 3**

An intensive examination of contemporary literary theories and criticism, focusing on selected issues and on representative theorists and critics.

ENGL5790 Approaches To Research In English **Credit Hours: 3**

An introduction to the discipline(s) of English, the methods and resources of scholarship in the field.

ENGL5800 Chaucer **Credit Hours: 3**

A study of Chaucer¿s major works and historical contexts, with emphasis on either Troilus and Criseyde and the dream visions, or on The Canterbury Tales in their entirety.

ENGL5810 Shakespeare **Credit Hours: 3**

A study of Shakespeare's plays with emphasis on his development as a dramatist and with readings in major Shakespearean criticism.

ENGL5820 Milton **Credit Hours: 3**

A study of the poetry and selected prose. Particular attention is given to biography and criticism.

ENGL5850 Studies In The Work Of A British Author **Credit Hours: 3**

Author changes with each offering. Consult Time Schedules for authors to be studied.

ENGL5860 Studies In The Work Of An American Author **Credit Hours: 3**

Author changes with each offering. Consult Time Schedules for authors to be studied.

ENGL5950 Topics In Comparative And General Literature **Credit Hours: 3**

A seminar in which special problems, specific authors, the foreign relations of English literature, and other subjects can be considered from a comparative perspective.

ENGL5980 Special Topics **Credit Hours: 3**

Consideration of a special topic in literature and language.

ENGL6010 Seminar In English Instruction: Composition **Credit Hours: 3**

For prospective college instructors of composition. Includes supervised teaching of composition. Graded S/U only.

ENGL6060 Seminar In English Instruction: English As A Second Language **Credit Hours: 4**

Seminar and extensive supervised practice teaching/observation for prospective teachers of English as a Second Language. Graded S/U only.

Prerequisites: ENGL 5190 FOR LEVEL GR WITH MIN. GRADE OF D-

ENGL6150 Applied Linguistics I **Credit Hours: 3**

Focus on the methods of "applied linguistics" in the broad sense, through case studies including research on first and second language acquisition, language teaching, the teaching of reading and writing, and other related areas.

Prerequisites: ENGL 5150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 5150 FOR LEVEL GR WITH MIN. GRADE OF D-

ENGL6160 Applied Linguistics Lab **Credit Hours: 1**

Computer lab for Applied Linguistics Research and Theory I.

Corequisites: ENGL6150

ENGL6170 Applied Linguistics Research And Theory II **Credit Hours: 3**

Focuses on theories of second/foreign language acquisition, especially, but not exclusively, as they relate to English as a Second Language.

Prerequisites: ENGL 6150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 6150 FOR LEVEL GR WITH MIN. GRADE OF D-

ENGL6180 Methods In Composition Research, Course Design And Assessment **Credit Hours: 3**

Students will learn to use rhetorical analysis, discourse analysis and ethnographic research methodologies to write a substantial research proposal, and to design a course and write criteria for assessment of student writing accomplished in such a course.

Prerequisites: ENGL 4090 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 5090 FOR LEVEL GR WITH MIN. GRADE OF D-

ENGL6190 Environments For Esl Learning **Credit Hours: 3**

In the course, students learn how to identify English as a Second Language learners' linguistic needs and to design and evaluate environments for ESL learning.

Prerequisites: ENGL 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 5150 FOR LEVEL GR WITH MIN. GRADE OF D- OR ENGL 7150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR LING 5150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 7150 FOR LEVEL GR WITH MIN. GRADE OF D-

ENGL6410 Seminar: Studies In Early English Literature **Credit Hours: 3**

Seminar on a specialized topic in Old and/or Middle English literature.

ENGL6420 Seminar: Studies In English Renaissance Literature **Credit Hours: 3**

Seminar on a specialized topic in English Renaissance literature.

ENGL6500 Seminar: Studies In British Romantic Literature **Credit Hours: 3**

Seminar on a specialized topic in British Romantic literature.

ENGL6520 Seminar: Studies In Victorian Literature **Credit Hours: 3**

Seminar on a specialized topic in Victorian literature.

ENGL6620 Seminar: Studies In American Literary Romanticism **Credit Hours: 3**

Seminar on a specialized topic in American literary Romanticism.

ENGL6640 Seminar: Studies In 20th Century American Literature **Credit Hours: 3**

Seminar on a specialized topic in 20th century American literature.

ENGL6890 Certificate Capstone **Credit Hours: 3**

This course completes the certificate program. Students will fulfill research on writing piloted in ENGL 6180, culminating in a research essay that will be submitted for publication to an appropriate scholarly journal.

Prerequisites: (ENGL 5090 FOR LEVEL GR WITH MIN. GRADE OF D- AND ENGL 5780 FOR LEVEL GR WITH MIN. GRADE OF D- AND ENGL 6010 FOR LEVEL GR WITH MIN. GRADE OF D- AND ENGL 6180 FOR LEVEL GR WITH MIN. GRADE OF D-)

ENGL6940 Externship in English as a Second Language **Credit Hours: 4**

Supervised practice teaching in the form of a communilty-service externship in Enlglish as a Second Language. Graded S/U only.

ENGL6960 Master's Research **Credit Hours: 1-3**

Research on, and writing of the master's paper or thesis.

ENGL6980 Seminar: Literary Types And Special Topics **Credit Hours: 3**

Seminar on a specialized topic in English studies.

ENGL6990 Independent Study **Credit Hours: 1-3**

By permission of department; may be repeated for additional credit.

ENGL7100 History Of The English Language **Credit Hours: 3**

Study of the origins and development of the English language.

ENGL7120 Middle English **Credit Hours: 3**

Study of the phonology, morphology and syntax of Middle English, with special attention to literary and cultural background. Representative readings in verse and prose.

ENGL7150 Linguistic Principles **Credit Hours: 3**

Intensive study of modern linguistic theories about the nature and structure of language, with emphasis on English.

ENGL7850 Studies In The Work Of A British Author **Credit Hours: 3**

Author changes with each offering. Consult Time Schedules for authors to be studied.

ENGL7960 Doctoral Readings **Credit Hours: 1-10**

Graded S/U only.

ENGL7980 Special Topics **Credit Hours: 3**

Consideration of a special topic in literature and language.

ENGL8150 Applied Linguistics I **Credit Hours: 3**

Focus on the methods of "applied linguistics" in the broad sense, through case studies including research on first and second language acquisition, language teaching, the teaching of reading and writing and other related areas.

ENGL8160 Applied Linguistics Lab **Credit Hours: 1**

Computer lab for Applied Linguistics Research and Theory I.

ENGL8170 Applied Linguistics Research And Theory II **Credit Hours: 3**

Focuses on theories of second/foreign language acquisition, especially, but not exclusively, as they relate to English as a Second Language.

Prerequisites: ENGL 8150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 8150 FOR LEVEL GR WITH MIN. GRADE OF D-

ENGL8190 Environments For Esl Learning **Credit Hours: 3**

In this course, students learn how to identify English as a Second Language learners' linguistic needs and to design and evaluate environments for ESL learning.

Prerequisites: ENGL 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 5150 FOR LEVEL GR WITH MIN. GRADE OF D- OR ENGL 7150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR LING 5150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 7150 FOR LEVEL GR WITH MIN. GRADE OF D-

ENGL8940 Externship in English as a Second Language **Credit Hours: 4**

Supervised practice teaching in the form of a communilty-service externship in Enlglish as a Second Language. Graded S/U only.

ENGL8960 Dissertation Research **Credit Hours: 1-15**

Graded S/U only Maximum of 30 hours.

ENGL8990 Independent Study **Credit Hours: 1-3**

By permission of department; may be repeated for additional credit.

ENGT1000 Engineering Technology Orientation **Credit Hours: 1**

Overview of careers in engineering technology, information about each program in Engineering Technology, and skills required for success in technological fields, such as computer skills.

ENGT1050 Computers For Engineering Technology **Credit Hours: 3**

Concepts and techniques on the application of computers to the solution of manufacturing and engineering technology problems. Provides an introduction to computer operating systems, programming language and technical software.

ENGT2000 Professional Development **Credit Hours: 1**

An introduction to the performance expectations of the engineering profession. Topics covered include resume writing, public speaking, interviewing skills, ethics, social responsibilities and the value of continuing education and professional registration.

Prerequisites: ENGT 1000 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGT2500 Technical Project Management **Credit Hours: 3**

General methodology of managing a technical project from concept to operational use. Emphasis is on the functions and responsibilities of the project manager related to maintaining project control and team management.

ENGT3010 Applied Statistics And Design Of Experiments **Credit Hours: 4**

Introduction to probability, statistical inference and design of experiments. Topics include confidence intervals, tests of hypothesis, regression, analysis of variance, factorial experimental designs and propagation of experimental errors.

ENGT3020 Applied Engineering Mathematics **Credit Hours: 3**

Introduction to partial derivatives, series expansions, complex variables, differential equations and Laplace transform analysis. Application of computers for numerical solution techniques.

Prerequisites: MATH 2460 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGT3030 Applied Statics and Dynamics **Credit Hours: 4**

ENGT3040 Applied Materials Science **Credit Hours: 4**

Study of the relationships between structures and properties for common engineering materials, including metals, polymers, ceramics and composites. Mechanical behavior, temperature effects, heat treatment, corrosion and electrical properties are covered.

Prerequisites: (ENGT 3010 FOR LEVEL UG WITH MIN. GRADE OF D- AND MET 2120 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (ENGT 3010 FOR LEVEL UG WITH MIN. GRADE OF D- AND MET 2120 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1280 FOR LEVEL UG WITH MIN. GRADE OF D-)

ENGT3050 Fundamentals Of Electricity **Credit Hours: 4**

An introduction to basic analytical techniques for resistive and reactive DC and AC electric circuits, and an introduction to electronic devices, including diodes and transistors. No credit towards EET degree.

Prerequisites: MATH 1340 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGT3940 Co-Op Experience **Credit Hours: 1**

Approved co-op work experience. Course may be repeated.

Prerequisites: ENGT 2000 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGT3950 Co-op Experience **Credit Hours: 1**

Approved co-op work experience beyond third required co-op experience. Course may be repeated.

Prerequisites: ENGT 3940 FOR LEVEL UG WITH MIN. GRADE OF D-

ENGT4050 Senior Technology Capstone **Credit Hours: 3**

A comprehensive problem in engineering technology is assigned to a group of students who work together as a team to present a solution in a formal written and oral report.

ENGT4900 Engineering Review For Professional Certification **Credit Hours: 3**

A review and application of general engineering principles and procedures in preparation for the Fundamentals of Engineering (FE) exam. Offered for students preparing to take the exam and for those considering it.

ENGT4980 Special Topics In Engineering Technology **Credit Hours: 2-4**

Selected topics in engineering technology with emphasis on intensive investigation of recent literature in areas of special interest.

ENGT5400 Applied Heat Transfer **Credit Hours: 3**

Fundamentals of applied heat transfer by conduction, laminar and turbulent convection, condensation and boiling, radiation exchange between sufaces, and heat exchangers. Finite Element Analysis software is used for solving practical heat transfer problems.

ENGT5500 Applications Of Engineering Analysis **Credit Hours: 3**

A course in analysis for engineers. Topics include: Linear differential equations, continuous and discrete series representations. Laplace transforms, matrix methods, eigenvalues and eigenvectors, systems of equations.

ENGT6920 Special Projects In Engineering Technology **Credit Hours: 1-6**

A special project is intended for the graduate student to investigate or solve a problem in an area of mechanical, electrical, construction or computer science engineering technology. The scope of the project is defined by the instructor in the are of mutual interest of the instructor and the student.

ENGT6980 Special Topics In Engineering Technology **Credit Hours: 1-6**

A special topic in advanced engineering or technology emphasizing investigation of literature and /or methods in areas of special interest to the class and the instructor.

ETPT2020 Technology And Multimedia In Educational Environments **Credit Hours: 3**

Emphasizes the development of computing skills with a focus on productivity tools in organizing, managing, multimedia authoring, homepage development, software evaluation and presenting lessons for professional communication in K-12.

ETPT4200 Computer Skills For Instructional Professionals **Credit Hours: 3**

Emphasizes developing skills in the use of this common productivity software and the use of computer technology in solving typical classroom problems.

ETPT4400 Training And Human Performance Technology **Credit Hours: 3**

Provides an introduction to human performance technology (HPT), with an emphasis on the use of training as an HPT intervention.

ETPT4950 Workshop In Educational Technology & Performance Technology **Credit Hours: 1-5**

Workshops are developed around topics of interest in all areas of educational technology and performance technology. Students should discuss specific content for each offering with educational technology faculty.

ETPT4990 Independent Study In Educational Technology & Performance Technology **Credit Hours: 1-5**

Individual study designed to provide a student the opportunity to work individually on professional problems under the direction of educational technology & performance technology faculty.

ETPT5000 Introduction To Educational Technology **Credit Hours: 3**

Introduces the field of Educational Technology and its relevant competencies. Examines current trends in Educational Technology.

ETPT5100 Instructional Systems Design Principles **Credit Hours: 3**

An introduction to various ISD models and approaches for designing effective systems of instruction. Students will begin to acquire experience in the actual analysis, design, development and evaluation of instruction.

ETPT5200 Computer Skills For Instructional Professionals **Credit Hours: 3**

Emphasizes developing skills in the use of this common productivity software and the use of computer technology in solving typical instructional problems.

ETPT5210 Introduction To Multimedia And Web Design **Credit Hours: 3**

An introduction to the software, hardware and processes involved in the design and development of multimedia and Web-based instructional materials.

ETPT5270 Instructional Video Production **Credit Hours: 3**

An introduction to all facets of producing video for use in various instructional settings.

ETPT5550 Using The Internet In The Classroom **Credit Hours: 3**

An introduction to effective use of Internet resources in instruction.

ETPT5950 Workshop In Educational Technology & Performance Technology **Credit Hours: 1-5**

Workshops are developed around topics of interest in all areas of educational technology and performance technology. Students should discuss specific content for each offering with educational technology faculty.

ETPT5980 Special Topics In Educational Technology And Performance Technology **Credit Hours: 1-5**

Special offerings are of interest to graduate students in educational technology and performance technology. Students should discuss specific content for each offerings with ETPT faculty.

ETPT5990 Graduate Independent Study In Educational Technology & Performance Technology **Credit Hours: 1-5**

Individual study designed to provide a student the opportunity to work individually on professional problems under the direction of educational technology & performance technology faculty.

ETPT6110 Instructional Systems Design Applications **Credit Hours: 3**

Based on the knowledge and skills acquired in ETPT 6100/8100, students design, develop and evaluate multimedia-based instructional modules and systems.

Prerequisites: (ETPT 5100 FOR LEVEL GR WITH MIN. GRADE OF D- AND ETPT 5210 FOR LEVEL GR WITH MIN. GRADE OF D-)

ETPT6150 Designing Instruction For Diverse Learner Populations **Credit Hours: 3**

Focuses on instructional designer's role in assessing and addressing such differences as performance environment, culture, ethnicity, physical attributes, age/experience and socioeconomic factors to maximize learning.

Prerequisites: ETPT 5100 FOR LEVEL GR WITH MIN. GRADE OF D-

ETPT6220 Developing Computer-Based Instructional Materials **Credit Hours: 3**

Teaches design and development of instructional software, using multimedia development environments and strategies.

Prerequisites: (ETPT 5100 FOR LEVEL GR WITH MIN. GRADE OF D- AND ETPT 5210 FOR LEVEL GR WITH MIN. GRADE OF D-)

ETPT6230 Developing Web-Based Instructional Materials **Credit Hours: 3**

Students apply previously acquired skills in multimedia and Web design to develop instructional materials for delivery via the World Wide Web.

Prerequisites: (ETPT 5100 FOR LEVEL GR WITH MIN. GRADE OF D- AND ETPT 5210 FOR LEVEL GR WITH MIN. GRADE OF D-)

ETPT6300 Technology Management In K-16 Education **Credit Hours: 3**

Provides teachers and technology coordinators with the knowledge and skills necessary to manage instructional computer laboratories and services in K-16 settings.

ETPT6400 Human Performance Technology **Credit Hours: 3**

Provides an introduction to human performance technology (HPT) for the graduate educational technology major.

ETPT6410 Performance Improvement Interventions **Credit Hours: 3**

Investigates the options available to the human performance technology (HPT) professional for improving performance.

ETPT6420 Assessing Needs In Improving Performance **Credit Hours: 3**

Focuses on the theoretical foundations and techniques for assessing gaps in results at individual, group and organizational levels in order to improve performance.

ETPT6430 Human Performance Technology Theory And Practice **Credit Hours: 3**

Students investigate current trends in human performance technology (HPT) and assist one another in pursuing detailed individual study of one major topic area in HPT.

ETPT6440 Consulting For Performance Improvement **Credit Hours: 3**

Addresses relevant models, practices and concepts of both internal and external consulting in human performance improvement (HPT) contexts in all types of organizations.

ETPT6470 Performance Intervention Analysis **Credit Hours: 3**

Focus is on the conceptual framework and procedures involved in the analysis of various HRD interventions (including training) for improving performance and, ultimately, organizational results.

ETPT6510 Teaching And Learning At A Distance **Credit Hours: 3**

Investigates various applications of distance learning for education and training.

ETPT6710 Systemic Change Principles And Applications **Credit Hours: 3**

Examines the process of change in the diffusion and adoption of innovations in education as well as business and industry. Adoption theory is analyzed.

ETPT6810 Research And Theory In Educational Technology And Performance Technology **Credit Hours: 3**

Investigates current major research trends and topics in various areas of educational technology and performance technology. Students develop and present a research proposal.

ETPT6900 Master's Seminar In Educational Technology And Performance Technology **Credit Hours: 3**

This course is the culminating experience in the ETPT master's program. Students complete a project under supervision of an educational technology faculty member.

Prerequisites: (ETPT 5000 FOR LEVEL GR WITH MIN. GRADE OF D- AND ETPT 6110 FOR LEVEL GR WITH MIN. GRADE OF D-)

ETPT6930 Master's Research Project In Educational Technology And Performance Technology **Credit Hours: 1-3**

Student will complete an individual research project under the orientation of a committee of at least two faculty members in ETPT, ordinarily including the faculty adviser.

ETPT6940 Practicum In Educational Technology And Performance Technology **Credit Hours: 3**

Students apply ETPT course work to solve an instructional and/or performance problem for a client organization under the supervision of educational technology faculty.

ETPT6960 Master's Thesis In Educational Technology And Performance Technology **Credit Hours: 3**

Students who elect this option will complete a thesis under the direction of committee of at least two faculty members from ETPT, ordinarily including the faculty adviser.

Prerequisites: ETPT 5100 FOR LEVEL GR WITH MIN. GRADE OF D-

ETPT7000 Introduction To Educational Technology **Credit Hours: 3**

Introduces the field of educational technology and its relevant competencies. Examines current trends in educational technology.

ETPT7100 Instructional Systems Design Principles **Credit Hours: 3**

An introduction to various ISD models and approaches for designing effective systems of instruction. Students will begin to acquire experience in the actual analysis, design, development and evaluation of instruction.

ETPT7210 Introduction To Multimedia And Web Design **Credit Hours: 3**

An introduction to the software, hardware and processes involved in the design and development of multimedia and Web-based instructional materials.

ETPT7270 Instructional Video Production **Credit Hours: 3**

An introduction to all facets of producing video for use in various instructional settings.

ETPT7550 Using The Internet In The Classroom **Credit Hours: 3**

An introduction to effective use of Internet resources in instruction.

ETPT7940 Specialist Practicum In Educational Technology And Performance Technology **Credit Hours: 3**

Observation and supervised experience in an appropriate setting. Students will be assigned to work as interns under the joint supervision of school and University personnel.

Prerequisites: ETPT 7100 FOR LEVEL GR WITH MIN. GRADE OF D-

ETPT7980 Special Topics In Educational Technology And Performance Technology **Credit Hours: 1-5**

Special offerings are of interest to graduate students in educational technology and performance technology. Students should discuss specific content for each offerings with ETPT faculty.

ETPT7990 Independent Study in ETPT **Credit Hours: 1-5**

Individual study designed to provide a student the opportunity to work individually on professional problems under the direction of Educational Technology faculty.

ETPT8110 Instructional Systems Design Applications **Credit Hours: 3**

Based on the knowledge and skills acquired in ETPT 6100/8100, students design, develop and evaluate multimedia-based instructional modules and systems.

Prerequisites: (ETPT 7100 FOR LEVEL GR WITH MIN. GRADE OF D- AND ETPT 7210 FOR LEVEL GR WITH MIN. GRADE OF D-)

ETPT8150 Designing Instruction For Diverse Learner Populations **Credit Hours: 3**

Focuses on instructional designer's role in assessing and addressing such differences as performance environment, culture, ethnicity, physical attributes, age/experience and socioeconomic factors to maximize learning.

Prerequisites: ETPT 7100 FOR LEVEL GR WITH MIN. GRADE OF D-

ETPT8220 Developing Computer-Based Instructional Materials **Credit Hours: 3**

Teaches design and development of instructional software, using multimedia development environments and strategies.

Prerequisites: (ETPT 7100 FOR LEVEL GR WITH MIN. GRADE OF D- AND ETPT 7210 FOR LEVEL GR WITH MIN. GRADE OF D-)

ETPT8230 Developing Web-Based Instructional Materials **Credit Hours: 3**

Students apply previously acquired skills in multimedia and Web design to develop instructional materials for delivery via the World Wide Web.

Prerequisites: (ETPT 7100 FOR LEVEL GR WITH MIN. GRADE OF D- AND ETPT 7210 FOR LEVEL GR WITH MIN. GRADE OF D-)

ETPT8300 Technology Management In K-16 Education **Credit Hours: 3**

Provides teachers and technology coordinators with the knowledge and skills necessary to manage instructional computer laboratories and services in K-16 settings.

ETPT8400 Human Performance Technology **Credit Hours: 3**

Provides an introduction to human performance technology (HPT) for the graduate educational technology major.

ETPT8410 Performance Improvement Interventions **Credit Hours: 3**

Investigates the options available to the human performance technology (HPT) professional for improving performance.

ETPT8420 Assessing Needs In Improving Performance **Credit Hours: 3**

Focuses on the theoretical foundations and techniques for assessing gaps in results at individual, group and organizational levels in order to improve performance.

ETPT8430 Human Performance Technology Theory And Practice **Credit Hours: 3**

Students investigate current trends in human performance technology (HPT) and assist one another in pursuing detailed individual study of one major topic area.

ETPT8440 Consulting For Performance Improvement **Credit Hours: 3**

Addresses relevant models, practices and concepts of both internal and external consulting in human performance improvement (HPT) contexts in all types of organizations.

ETPT8470 Performance Intervention Analysis **Credit Hours: 3**

Focus is on the conceptual framework and procedures involved in the analysis of various HRD interventions (including training) for improving performance and, ultimately, organizational results.

ETPT8510 Teaching And Learning At A Distance **Credit Hours: 3**

Investigates various applications of distance learning systems for education and training.

ETPT8710 Systemic Change Principles And Applications **Credit Hours: 3**

Examines the process of change in the diffusion and adoption of innovations in education as well as business and industry. Adoption theory is analyzed.

ETPT8810 Research And Theory In Educational Technology And Performance Technology **Credit Hours: 3**

Investigates current major research trends and topics in various areas of educational technology and performance technology. Students develop and present a research proposal.

ETPT8900 Doctoral Seminar In Educational Technology And Performance Technology **Credit Hours: 3**

This seminar will consider problems and provide advanced study for doctoral students in educational technology and performance technology.

Prerequisites: ETPT 7100 FOR LEVEL GR WITH MIN. GRADE OF D-

ETPT8920 Interdisciplinary Seminar In Educational Technology And Performance Technology **Credit Hours: 3**

Considers issues and problems in various areas of educational technology and performance technology. Intended for advanced ETPT doctoral students.

ETPT8930 Advanced Research In Educational Technology And Performance Technology **Credit Hours: 1-5**

Individual study is designed to provide the doctoral student opportunity to work individually on professional problems under the direction of educational technology and performance technology faculty.

ETPT8940 Practicum In Educational Technology And Performance Technology **Credit Hours: 3**

Students apply ETPT course work to solve an instructional and/or performance problem for a client organization under the supervision of educational technology faculty.

ETPT8960 Dissertation In Educational Technology And Performance Technology **Credit Hours: 1-12**

Original research in an area of educational technology and performance technology.

FACD620 Educ Res Health/Med Science **Credit Hours: 3**

FACD625 Learning/Instruct Theories **Credit Hours: 3**

Introduction to the fundamental principles of curriculum development and assessment of learning outcomes. Application of the theoretical concepts to the development of curriculum and instructional strategies. The concept of instructional alignment will be at the foundation of various experiences that will expose students to knowledge and skill revelant to the development of instructional units and appropriate evaluation strategies.

FACD635 Teach/Learn Hlth Med Sci **Credit Hours: 3**

Introduction to various theories of teaching and learning. Explores current issues in medical and health science education relative to the theoretical foundations of teaching. Current challenges faced by educators in the health sciences will be discussed and relevant literature reviewed and assessed.

FACD636 Teach/Learn Health Science II **Credit Hours: 1**

FACD637 Teach/Learn Health Science III **Credit Hours: 1**

FACD670 Teach Improve Practicum **Credit Hours: 1**

Students evaluate their own teaching and reflect on how they integrate concepts presented in FACD 635 and FACD 625 into their own performance.

Prerequisites: FACD 635 FOR LEVEL GR WITH MIN. GRADE OF S

FACD671 Teach Improvement Practicum II **Credit Hours: 1**

FACD697 Teaching/Learning Project **Credit Hours: 3**

Students are provided with the opportunity to synthesize the concepts presented and discussed in FACD 625 and FACD 635 into a unique curriculum development or educational research project.

Prerequisites: (FACD 635 FOR LEVEL GR WITH MIN. GRADE OF S AND FACD 625 FOR LEVEL GR WITH MIN. GRADE OF S)

FACD698 Teaching and Learning Proj II **Credit Hours: 2**

FACD699 Teaching and Learning Proj III **Credit Hours: 2**

FILM1310 Introduction To Film **Credit Hours: 3**

Introduction to the history and interpretation of cinema as art form, with emphasis on discovering how meaning is encoded in film at the levels of shot, sequence and narrative construction. (Not recommended or required for majors.)

FILM2310 Film I **Credit Hours: 3**

An intensive introduction to the theory and practice of creative filmmaking utilizing the professional 16 mm format. Individual and group production exercises. Students must purchase supplies.

Prerequisites: FILM 2340 FOR LEVEL UG WITH MIN. GRADE OF C

FILM2320 Video I **Credit Hours: 3**

Introduction to theory and practice of digital video. Students purchase supplies.

Prerequisites: FILM 2340 FOR LEVEL UG WITH MIN. GRADE OF C

FILM2340 Critical Approaches To Cinema **Credit Hours: 3**

A critical approach to the development of cinema as an industrial, artistic and ideological practice. Emphasis on theories of film construction and interpretation and the development of research skills for cinema studies.

FILM2350 Cinema History **Credit Hours: 3**

A study of the major movements and authors of Cinema History. Screenings included in class.

FILM2980 Cinema Studies Topic I **Credit Hours: 3**

Topics of Cinema Studies, concentrating on a specific style, genre, or national cinema, such as, Italian Cinema, Non-Western Cinema, etc. Topics vary. May be repeated for 9 hours.

FILM2990 Special Projects **Credit Hours: 1-3**

Individual study provides the student an opportunity to work independently on a problem of special interest in Film/Video under the direction of the faculty. For Freshman and Sophomore students.

FILM3310 Film II **Credit Hours: 4**

Intermediate 16mm filmmaking workshop. Emphasis on sync-sound and narrative film, advanced lighting and exposure techniques, and camera movement. Individual and group projects. Students are required to purchase supplies.

Prerequisites: FILM 2310 FOR LEVEL UG WITH MIN. GRADE OF C AND FILM 2320 FOR LEVEL UG WITH MIN. GRADE OF C

FILM3320 Video II **Credit Hours: 4**

Intermediate video production; emphasis on personal and political uses of the medium. Individual and group projects. Students are required to purchase supplies.

Prerequisites: FILM 2320 FOR LEVEL UG WITH MIN. GRADE OF C AND FILM 2310 FOR LEVEL UG WITH MIN. GRADE OF C

FILM3350 Screenwriting **Credit Hours: 3**

This course involves practical analysis of screenplays, emphasizing story structure and characterization. Students plan, write and refine story lines before writing actual scripts.

Prerequisites: ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1010 FOR LEVEL UG WITH MIN. GRADE OF D- OR HON 1020 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1180 FOR LEVEL UG WITH MIN. GRADE OF D-

FILM3360 Production Topic **Credit Hours: 4**

Topics of Film or Video production including Animation, Sound, Lighting, Editing, etc. Individual and group projects. Students must purchase supplies.

Prerequisites: FILM 2310 FOR LEVEL UG WITH MIN. GRADE OF C OR FILM 2320 FOR LEVEL UG WITH MIN. GRADE OF C

FILM3370 Documentary Film **Credit Hours: 3**

A study of the major movements and authors of Documentary Film. Screenings included in class.

Prerequisites: (ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D-) AND FILM 2350 FOR LEVEL UG WITH MIN. GRADE OF C

FILM3380 Experimental Film **Credit Hours: 3**

A study of the major movements and authors of Experimental Film. Screenings included in class.

Prerequisites: (ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D-) AND FILM 2350 FOR LEVEL UG WITH MIN. GRADE OF C

FILM3390 History Of Video Art **Credit Hours: 3**

A study of the major movements of the History of Video Art and Installation. Screenings included in class.

Prerequisites: ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D- OR FILM 2350

FILM3410 European Cinema **Credit Hours: 3**

A study of the major movements and authors of European cinema. Screenings included in class.

Prerequisites: ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D- OR FILM 2350

FILM3420 Third Cinema **Credit Hours: 3**

A study of the major movements and authors of Third World Cinema. Screenings included in class. FILM 2350 is recommended before taking this class.

Prerequisites: (ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D-) AND FILM 2350 FOR LEVEL UG WITH MIN. GRADE OF C

FILM3730 Directing For Camera **Credit Hours: 3**

Directing dramatic scenes for camera with emphasis on effective director/actor communication and the creation of dramatically meaningful camera and actor blocking.

Prerequisites: FILM 2310 FOR LEVEL UG WITH MIN. GRADE OF C AND FILM 2320 FOR LEVEL UG WITH MIN. GRADE OF C

FILM3980 Cinema Studies Topic II **Credit Hours: 3-4**

A non-historical approach to specific topics of cinema studies, concentrating on problems of film theory and individual research projects. Topics vary. (May be repeated to 12 hours.)

Prerequisites: ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D- OR FILM 2350 FOR LEVEL UG WITH MIN. GRADE OF C

FILM4320 Film/Video Workshop **Credit Hours: 4**

Advanced independent production projects, including screenwriting. Weekly critiques of work in progress. Requires proposal for admission. Larger projects may be completed over successive semesters. May be repeated up to 8 hours.

Prerequisites: FILM 3310 FOR LEVEL UG WITH MIN. GRADE OF D- OR FILM 3320 FOR LEVEL UG WITH MIN. GRADE OF D- OR FILM 3350 FOR LEVEL UG WITH MIN. GRADE OF D- OR FILM 3360 FOR LEVEL UG WITH MIN. GRADE OF D-

FILM4340 Topics In Feminist Cinema Studies **Credit Hours: 3**

Crosslistings of film classes with the Department of Women's and Gender Studies. Specific topics vary. Check Course Schedule for specific subject and prerequisites.

FILM4350 Screenwriting II **Credit Hours: 3**

For students familiar with the fundamental elements of screenplays, this course devotes attention to writing a complete script. Students are expected to come to the class with a planned story line.

Prerequisites: FILM 3350 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 3060 FOR LEVEL UG WITH MIN. GRADE OF D-

FILM4360 Le Cinema Francais **Credit Hours: 3**

A study of the development of French film and its place in world cinema.

FILM4370 Cinema Studies Seminar (topics) **Credit Hours: 3-4**

A research oriented seminar concerning a specific topic of cinema studies, emphasizing original research culminating in an individual research project.

Prerequisites: (ENGL 1130 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1140 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2950 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 2960 FOR LEVEL UG WITH MIN. GRADE OF D-) AND FILM 2350 FOR LEVEL UG WITH MIN. GRADE OF C

FILM4940 Internship **Credit Hours: 3**

Internship with an approved program, company, or agency in Film. Video or television. (repeatable for 6 credit hours)

FILM4950 Honors Thesis **Credit Hours: 3**

Research or a creative project on a topic in Film or Video. Required of all BA candidates seeking department honors. (Repeatable for 6 credit hours.)

FILM4990 Special Projects **Credit Hours: 1-3**

Individual study provides the student an opportunity to work independently on a problem of special interest in Film/Video under the direction of the faculty. For Junior and senior students.

FINA2000 Personal Investing **Credit Hours: 3**

Learn about common stocks and other securities, how to invest, and how to build financial security, using a real time stock market simulation. Not applicable toward Finance major.

FINA3060 Personal Finance **Credit Hours: 3**

Designed for the non-business major, encompasses personal financial planning such as credit, insurance, home ownership, stocks, bonds, mutual funds, income tax planning and strategies. Not applicable toward finance major.

FINA3480 Investments **Credit Hours: 3**

An introduction to investment alternatives, risk-reward trade-offs, valuation techniques and performance evaluation. Developing investment strategies based on objectives and constraints.

Prerequisites: BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D-

FINA3500 International Business Finance **Credit Hours: 3**

Examines the role of a financial manager in international transactions. The international environment and the role of international asset markets are emphasized.

Prerequisites: BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D-

FINA3600 Risk Management **Credit Hours: 3**

Investigates non-speculative risks and the methods used to deal with them. Emphasizes on the insurance mechanism. Explores the functional aspect of the insurance operations.

Prerequisites: BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D-

FINA3610 Life And Health Insurance **Credit Hours: 3**

Combines a discussion of the economic aspects of life and health insurance with basic analysis on life insurance, health and annuity contracts. Includes investigation of major functional aspects.

Prerequisites: BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D-

FINA3660 Real Estate Principles, Practices And Finance **Credit Hours: 3**

A basic discussion in real estate economics, valuation theory, transfer procedures, legal characteristics, brokerage, taxation and financing techniques. Emphasis on residential properties. A term project is required.

Prerequisites: BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D-

FINA3670 Real Estate Valuation **Credit Hours: 3**

Methodology of appraising large and small commercial real properties and the theory underlying appraisal techniques and valuation. A term project is required.

Prerequisites: BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D-

FINA3680 Real Estate Law, Insurance And Taxes **Credit Hours: 3**

An integrative analysis of real estate, insurance, taxes and legislation as they impact commercial real estate ownership returns and risk. A term project is required.

Prerequisites: BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D-

FINA3890 Quantitative Applications In Finance **Credit Hours: 3**

The financial applications of economic forecasting, economic model building, univariate and multivariate analysis, hypothesis testing and probability theory. Uses statistical package for analysis. Applications come from all areas of finance.

Prerequisites: (BUAD 2070 FOR LEVEL UG WITH MIN. GRADE OF D- AND BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D-)

FINA4080 Intermediate Financial Management **Credit Hours: 3**

Explores financial decision making in depth, using case studies and computer projects. Topics include cost of capital, capital budgeting, leasing, financial planning, financial statement analysis, leverage and capital structure.

Prerequisites: BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D-

FINA4090 Financial Markets And Institutions **Credit Hours: 3**

The operation and function of financial institutions and markets are examined. Emphasis on interest rate theory, institutions management and the role of e-commerce, internationalization, and the role of government through regulation and monetary policy.

Prerequisites: BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D-

FINA4100 Security Analysis & Portfolio Management **Credit Hours: 3**

Emphasizes the importance of portfolio management techniques and evaluation. Techniques of financial statement analysis, economic analysis, industry analysis, theoretical issues of efficient markets, technical analysis and fundamental analysis.

Prerequisites: (BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D- AND FINA 3480 FOR LEVEL UG WITH MIN. GRADE OF D-)

FINA4480 Student Managed Portfolio Practicum **Credit Hours: 1-3**

Course provides selected students active portfolio management training utilizing an endowed portfolio. Student Portfolio Managers apply equity selection analysis and portfolio risk analytics, with fiduciary responsibilities.

Prerequisites: FINA 3480 FOR LEVEL UG WITH MIN. GRADE OF D-

FINA4670 Advanced Financial Management **Credit Hours: 3**

Applies financial analysis techniques and outside information through case studies of small, medium, and large companies to formulate policies, practices and funding approaches that resolve their problems and/or achieve their goals.

Prerequisites: (FINA 3480 FOR LEVEL UG WITH MIN. GRADE OF D- AND FINA 4080 FOR LEVEL UG WITH MIN. GRADE OF D-)

FINA4840 Small Business Financial Policies And Practices **Credit Hours: 3**

Financial management and planning in small and medium-sized firms. Course focuses on the financial analysis and management of their problems, policies, practices and funding requirements.

Prerequisites: BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D-

FINA4870 Advanced Financial Institutions & Markets **Credit Hours: 3**

Seminar focusing on current issues in financial institutions and services management.

FINA4880 Real Estate Property Management **Credit Hours: 3**

Methodology of managing large and small commercial properties and buildings to maximize current earnings, earnings potential and asset value for the property owners.

Prerequisites: (BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D- AND FINA 3670 FOR LEVEL UG WITH MIN. GRADE OF D- AND FINA 3680 FOR LEVEL UG WITH MIN. GRADE OF D-)

FINA4890 Financial And Estate Planning **Credit Hours: 3**

Nature and methods of Financial planning. Creation, conservation and distribution of estates. Emphasis is on investments, insurance wills, trusts and tax laws.

Prerequisites: BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D-

FINA4900 Seminar In Finance **Credit Hours: 3**

Seminar course in advanced and specialized topics. Current readings from finance journals. Written paper required.

Prerequisites: (FINA 3480 FOR LEVEL UG WITH MIN. GRADE OF D- AND FINA 4080 FOR LEVEL UG WITH MIN. GRADE OF D-)

FINA4940 Finance Internship **Credit Hours: 1-3**

A prearranged work-study program where students gain on-the-job experience while learning some basic concepts and techniques. A written report is required.

Prerequisites: BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D-

FINA4990 Independent Study: Readings And Research In Finance **Credit Hours: 1-3**

An independent, professor supervised, course dealing with an in depth investigation of a financial area not covered adequately in another listed course.

Prerequisites: (FINA 3480 FOR LEVEL UG WITH MIN. GRADE OF D- AND FINA 4080 FOR LEVEL UG WITH MIN. GRADE OF D- AND FINA 4090 FOR LEVEL UG WITH MIN. GRADE OF D-)

FINA5160 Fundamentals Of Health Care Finance **Credit Hours: 3**

Information about accounting and the financial environment of the health care industry provide a foundation for financial concepts and techniques necessary for health care administrators. For non-business students only.

FINA5310 Managerial Finance **Credit Hours: 3**

A course that focuses on how firms raise capital and how they allocate this capital in a manner consistent with the maximization of a firm's value.

Prerequisites: ACCT 5000 FOR LEVEL GR WITH MIN. GRADE OF D-

FINA6130 Managerial Finance **Credit Hours: 3**

Emphasizes integrated financial decision making tools, techniques and theory. Stresses interpretation and analysis of data to manage long and short-term capital expenditure and financing decisions.

FINA6140 Investments And Security Analysis **Credit Hours: 3**

Includes investment alternatives, risk-reward trade-offs, index models, strategies of using common stock, bonds and derivative securities, and portfolio evaluation criteria. Investment policy and strategies illustrated through a portfolio simulation.

Prerequisites: FINA 5310 FOR LEVEL GR WITH MIN. GRADE OF D- OR BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D-

FINA6150 Financial Institutions And Markets **Credit Hours: 3**

Operations of financial institutions and financial markets. Topics include financial institutions as intermediaries, interest rate theory, financial instrument characteristics, institution management, internationalization and government regulation.

Prerequisites: FINA 5310 FOR LEVEL GR WITH MIN. GRADE OF D- OR BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D-

FINA6160 Advanced Health Care Finance **Credit Hours: 3**

Information about the health care industry provides a foundation for knowledge of financial management theory, principles and concepts required for analysis and decision-making by health care administrators.

Prerequisites: FINA 5310 FOR LEVEL GR WITH MIN. GRADE OF D-

FINA6330 Seminar In Financial Management Problems And Policies **Credit Hours: 3**

An in-depth analysis of capital budgeting, capital structure, cost of capital, valuation, dividend policy, mergers and acquisitions, agency theory, options and corporate finance, immunization, duration, swaps and risk management.

Prerequisites: FINA 6130 FOR LEVEL GR WITH MIN. GRADE OF D-

FINA6340 Seminar In Portfolio Management **Credit Hours: 3**

An in-depth analysis of individual and institutional portfolios, active portfolio management, derivative security analysis, hedging techniques, international diversification and financial innovations.

Prerequisites: FINA 6140 FOR LEVEL GR WITH MIN. GRADE OF D-

FINA6350 Financial Institution Management **Credit Hours: 3**

Topics include current issues in financial institution management, such as interest rate risk measurement and management, credit and liquidity risk, capital adequacy, institution marketing banking structures.

Prerequisites: FINA 6150 FOR LEVEL GR WITH MIN. GRADE OF D-

FINA6370 Mba International Financial Management **Credit Hours: 3**

Techniques and theory of financial management in an international environment. The role of international markets in risk reduction and profit maximization are emphasized.

Prerequisites: FINA 5310 FOR LEVEL GR WITH MIN. GRADE OF D- OR BUAD 3040 FOR LEVEL UG WITH MIN. GRADE OF D-

FINA6380 Financial Institutions Management **Credit Hours: 3**

Topics include investment and liquidity management, lending policies, bank marketing, liability management, capital management and banking structure. Cases and PC applications are used.

Prerequisites: FINA 6150 FOR LEVEL GR WITH MIN. GRADE OF D-

FINA6480 Student Managed Portfolio **Credit Hours: 3**

Course provides selected students active portfolio management training utilizing an endowed portfolio. Student Portfolio Managers apply equity selection analysis and portfolio risk analytics, with fiduciary responsibilites.

Prerequisites: FINA 5310 FOR LEVEL GR WITH MIN. GRADE OF D-

FINA6750 Research In Finance **Credit Hours: 1-3**

Independent research, professor supervised, on a specific topic in finance that is not covered adequately in another listed course.

Prerequisites: FINA 6130 FOR LEVEL GR WITH MIN. GRADE OF D-

FINA6840 Small Business Financial Management **Credit Hours: 3**

In depth financial management and planning in small and medium-sized firms. Course focuses on the financial analysis and management of their problems, policies, practices and funding requirements.

Prerequisites: FINA 6130 FOR LEVEL GR WITH MIN. GRADE OF D-

FINA7310 Managerial Finance **Credit Hours: 3**

A course that focuses on how firms raise capital and how they allocate this capital in a manner consistent with the maximization of a firm's value.

Prerequisites: ACCT 5000 FOR LEVEL GR WITH MIN. GRADE OF D-

FLAN3440 Intercultural Communication: Principles And Practice **Credit Hours: 4**

This course offers a survey of major concepts in intercultural communication. It emphasizes a balance between theoretical and practical learning opportunities and seeks to promote intercultural understanding.

FREN1090 French & Francophone Culture In The Modern World **Credit Hours: 3**

This course focuses on modern French and Francophone culture and their historical and geographical sources. Taught in English. (Not for major credit.)

FREN1110 Elementary French I **Credit Hours: 4**

A comprehensive introductory course in French language and culture through the four basic skills: aural comprehension, reading, speaking and writing. Laboratory practice required. (not for major credit)

FREN1120 Elementary French II **Credit Hours: 4**

A comprehensive introductory course in French language and culture through the four basic skills: aural comprehension, reading, speaking and writing. Laboratory practice required. (not for major credit)

Prerequisites: FREN 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNFR FOR MIN. SCORE OF 1120

FREN1500 Review Of Elementary French **Credit Hours: 4**

Review of first-year college French for students who studied the language in high school and who need to strengthen communication skills, vocabulary, grammar and pronunciation before study at the 2000 level. (not for major credit)

FREN2140 Intermediate French I **Credit Hours: 3**

Review and further development of command of the French language and culture through the four basic skills: aural comprehension, reading, speaking and writing. Laboratory practice required. (not for major credit)

Prerequisites: FREN 1120 FOR LEVEL UG WITH MIN. GRADE OF D- OR FREN 1500 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNFR FOR MIN. SCORE OF 2140

FREN2150 Intermediate French II **Credit Hours: 3**

Further review and development of command of the French language and culture through the four basic skills: aural comprehension, reading, speaking and writing. Laboratory practice required. (not for major credit)

Prerequisites: FREN 2140 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNFR FOR MIN. SCORE OF 2150

FREN2190 Study Abroad **Credit Hours: 1-3**

This course is designed to permit and encourage non-majors to spend time in a country where French is spoken. Credit granted in accordance with established departmental procedures. (Not for major credit.)

Prerequisites: FREN 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

FREN3010 Conversation And Composition I **Credit Hours: 3**

Idiomatic conversation practice, dictation and pronunciation drill as well as development of practical writing skills.

Prerequisites: FREN 2150 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNFR FOR MIN. SCORE OF 3000

FREN3020 Conversation And Composition II **Credit Hours: 3**

Further aural/oral development with emphasis on the mechanics of writing in French and the organization of ideas. A writing-intensive course.

Prerequisites: FREN 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

FREN3170 Business French **Credit Hours: 3**

An introduction to the language of the French-speaking world, with emphasis on business and commerce.

Prerequisites: FREN 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

FREN3210 Survey Of French Literature I **Credit Hours: 3**

French literature from its origins through the eighteenth century.

Prerequisites: FREN 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

FREN3220 Survey Of French Literature II **Credit Hours: 3**

French and Francophone literature from the 19th and 20th centuries.

Prerequisites: FREN 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

FREN3400 Cross-Cultural Understanding **Credit Hours: 3**

An examination of the notions of culture, multiculturalism and Francophone cultures. Course content emphasizes issues of race, class and gender in U.S. and Francophone contexts.

FREN3410 Survey Of French Civilization I **Credit Hours: 3**

A study of the many ways in which France has contributed to world culture through architecture, painting, sculpture, music, literature, folklore, science, philosophy and education.

Prerequisites: FREN 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

FREN3420 Survey Of French And Francophone Civilization II **Credit Hours: 3**

An introductory study of selected sociological, political, cultural and economic issues of contemporary France and Francophone areas.

Prerequisites: FREN 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

FREN3710 French Phonetics **Credit Hours: 3**

Introduction to phonetic theory and practice in pronunciation.

Prerequisites: FREN 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

FREN4010 French Syntax And Stylistics I **Credit Hours: 3**

A thorough study of syntax, morphology, phonetic principles and grammatical structure of French. Emphasizes various writing activities and styles.

Prerequisites: FREN 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

FREN4020 French Syntax And Stylistics II **Credit Hours: 4**

Emphasizes various writing activities and styles. Includes a research component and basic literary criticism as well as a review of syntax and grammar. A writing-intensive and capstone course.

Prerequisites: FREN 4010 FOR LEVEL UG WITH MIN. GRADE OF D-

FREN4070 French Translation **Credit Hours: 3**

Practice in translation of texts from French into English and English into French. Subject matter area will include commerce, natural, physical, and social sciences and the humanities.

FREN4160 Teaching Colloquium **Credit Hours: 3**

A course in the theory and practice of teaching French and of second language acquisition in general.

FREN4190 Study Abroad **Credit Hours: 1-12**

Designed to permit and encourage the French major to pursue study in a country where French is spoken. Credit granted in accordance with established departmental procedures.

Prerequisites: FREN 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

FREN4200 Contemporary French And Francophone Civilization **Credit Hours: 3**

A study of contemporary France and/or Francophone cultures including discussion of economics, daily life, the family, social groups, industry, politics and education.

FREN4810 French & Francophone Literature Of The 20th Century I **Credit Hours: 3**

Literature of all genres from the period before World War I to the present.

Prerequisites: (FREN 3210 FOR LEVEL UG WITH MIN. GRADE OF D- AND FREN 3220 FOR LEVEL UG WITH MIN. GRADE OF D-)

FREN4820 French & Francophone Literature Of The 20th Century II **Credit Hours: 3**

Literature of all genres from the period before World War I to the present.

Prerequisites: (FREN 3210 FOR LEVEL UG WITH MIN. GRADE OF D- AND FREN 3220 FOR LEVEL UG WITH MIN. GRADE OF D-)

FREN4850 Le Cinema Francais **Credit Hours: 3**

A study of the development of French film and its place in world cinema.

Prerequisites: (FREN 3210 FOR LEVEL UG WITH MIN. GRADE OF D- AND FREN 3220 FOR LEVEL UG WITH MIN. GRADE OF D-)

FREN4860 La Production Feminine **Credit Hours: 3**

A study of texts produced by women in the French language in various fields (for example, literary theory, film, literature, philosophy, psychoanalysis, semiotics, post-colonial theory).

Prerequisites: (FREN 3210 FOR LEVEL UG WITH MIN. GRADE OF D- AND FREN 3220 FOR LEVEL UG WITH MIN. GRADE OF D-)

FREN4910 Honors Research In French **Credit Hours: 3**

Independent research in special topics. May be repeated once for additional credit.

FREN4980 Special Topics In French Studies **Credit Hours: 1-3**

Study of a selected topic in French or Francophone language, literature, or culture. May be repeated when topic varies.

FREN4990 Independent Study In French **Credit Hours: 1-3**

Independent research in special topics. May be repeated once for additional credit.

FREN5010 Advanced French Stylistics I **Credit Hours: 3**

A study of structural and stylistic principles of French with emphasis on various writing activities.

FREN5020 Advanced French Stylistics II **Credit Hours: 4**

A study of structural and stylistic principles of French with emphasis on various writing activities.

FREN5070 French Translation **Credit Hours: 3**

Practice in translation of texts from French into English and English into French. Subject matter area will include commerce, natural, physical, and social sciences and the humanities.

FREN5160 Teaching Colloquium I **Credit Hours: 3**

A course in the theory and practice of teaching French and of second language acquisition in general.

FREN5190 Study Abroad **Credit Hours: 1-12**

Graduate credit may be granted for foreign study on the basis of credentials that certify the nature of the student's academic achievements in a French-speaking country.

FREN5200 Contemporary French And Francophone Civilization **Credit Hours: 3**

A study of contemporary France and/or Francophone cultures including discussion of economics, daily life, the family, social groups, industry, politics and education.

FREN5210 French For Reading Knowledge I **Credit Hours: 3**

Course designed to develop sufficient reading proficiency to conduct and process research in French. (Not for majors)

FREN5220 French For Reading Knowledge II **Credit Hours: 3**

Course designed to develop sufficient reading proficiency to conduct and process research in French. (Not for majors)

FREN5310 Medieval Studies **Credit Hours: 3**

Introduction to Old French and readings in the major genres from the twelfth through fifteenth centuries.

FREN5410 Renaissance Studies **Credit Hours: 3**

Literature reflecting major currents of the Renaissance.

FREN5510 17th Century French Literature **Credit Hours: 3**

A study of the development of French Classicism.

FREN5610 18th Century French Literature **Credit Hours: 3**

Readings from the novels, plays and prose of the major writers of the Enlightenment.

FREN5710 19th Century French Literature I **Credit Hours: 3**

Literary and intellectual trends from Romanticism to Symbolism.

FREN5810 Contemporary French & Francophone Literature I **Credit Hours: 3**

Literature of all genres from the period before World War I to the present.

FREN5850 Le Cinema Francais **Credit Hours: 3**

A study of the development of French film and its place in world cinema.

FREN5860 La Production Feminine **Credit Hours: 3**

This course deals with examples of feminine production which have influenced French culture in the areas of film, literary criticism, literature, philosophy, psychoanalysis and semiotics.

FREN5980 Special Topics In French Studies **Credit Hours: 3**

Study of a selected topic in French or Francophone language, literature, or culture. May be repeated when topic varies.

FREN5990 Independent Study In French **Credit Hours: 1-3**

Independent research in special topics. May be repeated once for additional credit.

FREN6900 Research In French **Credit Hours: 1-3**

Independent research of a selected topic in French or Francophone language, literature, or culture. May be repeated once for additional credit.

GEPL1010 Human Geography **Credit Hours: 3**

Presentations of major approaches to geographic thought: the natural environment, regional studies, human ecology, development issues and spatial interrelationships. (not for major credit)

GEPL1100 Environmental Geography **Credit Hours: 3**

While gaining a fundamental understanding of the world's physical environment, students explore issues regarding humanity's interaction with the earth. Current issues such as global warming, acid rain, ozone depletion, deforestation and desertification are addressed.

GEPL2010 Fundamentals Of Geography **Credit Hours: 3**

An introduction to basic geographic concepts of both physical and human geography, with emphasis on the interrelationships of people with their physical and cultural environments.

GEPL2030 Cultural Geography **Credit Hours: 3**

A learning-through-writing course. Systematic applications of the concept of cultural to geographic themes: culture areas, cultural landscapes, culture history, cultural ecology and cultural diversity.

GEPL2040 World Regional Geography **Credit Hours: 3**

The course examines the geographical distribution of urban, cultural, economic and demographic phenomena in several contrasting regions of the world.

GEPL2200 Climate Change **Credit Hours: 3**

An overview of the understanding of climate change and role of human activities, including atmospheric processes, greenhouse effect, carbon cycling, physical evidence, impacts, and proposed global actions in response.

GEPL2980 Selected Topics In Geography **Credit Hours: 3**

Explores a topic representing a contemporary and significant issue of interest to geographers, the study of which reveals appropriate geographical principles, concepts and methodologies.

GEPL3030 Geography Of Europe **Credit Hours: 3**

A detailed study of several regions. Special consideration of agriculture, industry and commerce from a regional viewpoint. Russia excluded.

GEPL3050 Geography Of U.s. And Canada **Credit Hours: 3**

Systematic and regional survey of physical, social and economic geography of the region. Emphasis on the region with respect to worldwide/continental problems and prospects in economic development, management of resources and population adjustment.

GEPL3120 Geography Of Asia **Credit Hours: 3**

Compares and contrasts physical and human aspects of Asian countries and peoples in relation to economic development.

GEPL3220 Geography Of Africa **Credit Hours: 3**

Course begins with a general overview of Africa's physical environment, its colonial history and its people and cultures. It then examines a variety of themes associated with development, population, urban and political geography.

GEPL3300 Geography Of Latin America **Credit Hours: 3**

Survey and analysis of the physical and cultural characteristics of Latin America.

GEPL3420 Quantitative Methods And Mapping **Credit Hours: 4**

The presentation of quantitative methods and statistics in a spatial context with an emphasis on cartographic display of results.

GEPL3610 Conservation And Resources **Credit Hours: 3**

An examination of the basic philosophies, principles and ethics of conservation and resource use. Case studies of selected resource management and environmental problems.

GEPL3650 Industrial Geography **Credit Hours: 3**

An introduction to industrial geography; including industrial location theory, competing production systems, and shifts from manufacturing to service-based economies.

GEPL3860 Gender Issues In Geography **Credit Hours: 3**

Traces the development and institutionalization of gender roles and how these influence spatial decisions and the formation of perceptual landscapes.

GEPL3890 Geographic Research & Natural Disasters **Credit Hours: 3**

Analysis and evaluation of all types of natural disasters within a geographic framework. Some discussion of physical processes, but focus is on social/economic implications of natural hazards and disasters on a worldwide scale.

GEPL3900 Environmental Planning **Credit Hours: 3**

GEPL 1100, 3550 or 3540 recommended. Explores history, goals, methods, ethics and social dilemmas encountered when trying to achieve environmentally sensitive planning. Presents case studies of environmental planning successes and failures, both within and outside the U.S.

GEPL4040 Geography Education Strategies **Credit Hours: 3**

Use of geographic inquiry in the emerging integrated social studies and standard geography education curricula for K -12 instruction.

GEPL4110 Geographic Information Systems **Credit Hours: 4**

Introduction to computerized methods for the capture, storage, management, analysis and display of spatially-referenced data for the solution of planning, management and research problems.

GEPL4160 Patterns Of World Development **Credit Hours: 3**

An examination of contemporary global economic patterns and trends. Compares and contrasts population problems; the diffusion of multinational corporations, and the emergence of post-industrial economies.

GEPL4180 Geographic Information Systems Applications **Credit Hours: 4**

Advanced applications in geographic information systems (GIS) with an emphasis on advanced GIS analysis techniques, Global Positioning System applications in GIS, database design, and a survey of vector- and raster-based GIS software and databases.

Prerequisites: GEPL 4110 FOR LEVEL UG WITH MIN. GRADE OF D-

GEPL4210 Land Use Planning **Credit Hours: 3**

A broad review of urban and regional planning in the US and Western Europe, introducing land use planning concepts and practices and their role in shaping the direction of urban development.

GEPL4310 Geography Of Gypsies (romanies) And Travelers **Credit Hours: 3**

Explorations into identities and distributions of Gypsies (Romanies) and Travelers (GR&T peoples) worldwide and the challenges that their study presents to Geography and to other social science disciplines.

GEPL4420 Quantitative Methods in Geographic **Credit Hours: 4**

The presentation of quantitative methods and statistics in a spatial context with an emphasis on cartographic display of results.

GEPL4490 Remote Sensing Of The Environment **Credit Hours: 4**

Introduction to theory, methods and techniques used to gather and analyze remote sensor data. Topics range from low altitude air photo interpretation through satellite image acquisition. Recommended: GEPL 3550.

GEPL4500 Digital Image Analysis **Credit Hours: 4**

Explores digital image analysis techniques such as classification and principle component analysis. Terrestrial and coastal applications of satellite image analysis are performed in intensive laboratory sessions.

Prerequisites: GEPL 4490 FOR LEVEL UG WITH MIN. GRADE OF D-

GEPL4520 Analytical And Computer Cartography **Credit Hours: 4**

The theoretical and mathematical foundations of the mapping process in a digital environment. An introduction to the structure and manipulation of graphic and nongraphic geographical data to produce maps.

Prerequisites: GEPL 4510 FOR LEVEL UG WITH MIN. GRADE OF D- OR GEPL 4110 FOR LEVEL UG WITH MIN. GRADE OF D-

GEPL4530 Principles Of Urban Planning **Credit Hours: 3**

An introduction to planning theory. the planner's role in land use regulation economic development, housing and social service delivery is reviewed.

GEPL4540 Weather And Climate **Credit Hours: 3**

A survey analysis of meteorology and climatology. The physical processes of weather and the pattern of climate provide the basis for this course.

GEPL4550 Community Economic Development Planning **Credit Hours: 3**

This course explores community-based alternatives and bottom-up development as a response to economic and social difficulties. The specific issues, strategies and applications of this approach are discussed.

GEPL4570 Land Development And Planning **Credit Hours: 4**

The exploration of theoretical location analysis, pragmatic land development issues and analytic feasibility tools, and the consequences of land use policies that affect development.

GEPL4580 Location Analysis **Credit Hours: 4**

The application of geographic location theory, spatial interaction modeling, optimization techniques and geographic information system processing to the solution of facility location problems.

GEPL4600 Urban Design **Credit Hours: 3**

Concepts and procedures for the organization, design and development of public and private urban forms and spaces at the micro level, including a survey of intraurban elements, cultural, ecological and aesthetic considerations, and interdisciplinary collaboration.

GEPL4650 Physical Geography **Credit Hours: 3**

The development, characteristics and distribution of landforms, soils, vegetation, water resources and climates are presented.

GEPL4700 Community Planning Workshop **Credit Hours: 3**

This course introduces the skills and techniques used by practitioners in the planning process. Assignments will focus on the collection, analysis and communication of information by following community planning approaches.

GEPL4710 Urban Environments **Credit Hours: 3**

Social, political and economic functions of cities. Geographic perspectives on land use, residential and consumer behavior, health care, recreation and criminal justice systems in contemporary and future cities.

GEPL4750 Transportation Geography **Credit Hours: 3**

The role of transportation and communication in the economic development of places. Theories of geographic interaction, location of transport routes and the developmental implications of transport investments are explored.

GEPL4810 Political Geography **Credit Hours: 3**

An examination of geopolitical and geostrategic issues at the nation-state and international level.

GEPL4900 Proseminar in Geography **Credit Hours: 3**

GEPL4910 Research in Geography **Credit Hours: 1-4**

GEPL4920 Readings in Geography **Credit Hours: 1-3**

GEPL4960 Honors Thesis in Geography **Credit Hours: 4**

GEPL5040 Geography Education Strategies **Credit Hours: 3**

Graduate level preparation for K - 12 educators with geography specialization. Integrates social studies and standard geography curricula in response to state and federal mandates.

GEPL5110 Geographic Information Systems **Credit Hours: 4**

Introduction to computerized methods for the capture, storage, management, analysis and display of spatially-referenced data for the solution of planning, management and research problems.

GEPL5160 Patterns Of World Development **Credit Hours: 3**

Examination of contemporary global economic patterns and trends. Topics receiving special attention include population problems, the spread of multinational corporations, and the causes and consequences of the emergence of postindustrial economics.

GEPL5180 Geographic Information Systems Applications **Credit Hours: 4**

Advanced applications in geographic information systems (GIS) with an emphasis on advanced GIS analysis techniques, Global Positioning System applications in GIS, database design, and a survey of vector- and raster-based GIS software and databases. Research project required.

Prerequisites: GEPL 5110 FOR LEVEL GR WITH MIN. GRADE OF D-

GEPL5210 Land Use Planning **Credit Hours: 3**

A broad review of urban and regional planning in the US and Western Europe, introducing land use planning concepts and practices and their role in shaping the direction of urban development.

GEPL5310 Geography of Gypsies (Romanies) and Travelers **Credit Hours: 3**

Explorations into identities and distributions of Gypsies (Romanies) and Travelers (GR&T peoples) worldwide and the challenges that their study presents to Geography and to other social science desciplines.

GEPL5420 Quantitative methods in geographic research **Credit Hours: 4**

use existing description for GEPL 3420 (modified to course number GEPL 4420)

GEPL5490 Remote Sensing Of The Environment **Credit Hours: 4**

Immersion in theory, methods and techniques used to gather and analyze remote sensor data. Topics range from low altitude air photo interpretation through satellite image acquisition.

GEPL5500 Digital Image Analysis **Credit Hours: 4**

Explores digital image analysis techniques such as classification and principal components analysis. Terrestrial and coastal applications of satellite image analysis are performed in intensive laboratory sessions.

Prerequisites: GEPL 4490 FOR LEVEL UG WITH MIN. GRADE OF D- OR GEPL 5490 FOR LEVEL GR WITH MIN. GRADE OF D-

GEPL5520 Analytical And Computer Cartography **Credit Hours: 4**

The theoretical and mathematical foundations of the mapping process in a digital environment. An introduction to the structure and manipulation of graphic and nongraphic geographical data to produce maps.

Prerequisites: GEPL 5510 FOR LEVEL GR WITH MIN. GRADE OF D-

GEPL5530 Principles Of Urban Planning **Credit Hours: 3**

Elaborations on planning theory. The planner's role in land use regulation, economic development, housing and social service delivery is reviewed.

GEPL5540 Weather And Climate **Credit Hours: 3**

Survey analysis of meteorology and climatology. The physical processes of weather and the pattern of climate provide the basis for this course.

GEPL5550 Community Economic Development Planning **Credit Hours: 3**

This course explores community-based alternatives and bottom-up development as a response to economic and social difficulties. The specific issues, strategies and applications of this approach are discussed.

GEPL5570 Land Development And Planning **Credit Hours: 4**

The exploration of theoretical location analysis, pragmatic land development issues and analytic feasibility tools, and the consequences of land use policies that affect development.

GEPL5580 Location Analysis **Credit Hours: 4**

The application of geographic location theory, spatial interaction modeling, optimization techniques and geographic information system processing to the solution of facility location problems.

Prerequisites: GEPL 5570 FOR LEVEL GR WITH MIN. GRADE OF D-

GEPL5600 Urban Design **Credit Hours: 3**

Concepts and procedures for the organization, design and development of public and private urban forms and spaces at the micro-level, including a survey of intraurban elements, cultural, ecological and aesthetic considerations, historic preservation, and interdisciplinary collaboration. Research project required.

GEPL5650 Physical Geography **Credit Hours: 3**

This course will introduce you to the fundamental aspects of physical geography: the understanding of the physical elements and processes which comprise the environment and the spatial patterns of these elements and processes.

GEPL5700 Community Planning Workshop **Credit Hours: 3**

This course introduces the skills and techniques used by practitioners in the planning process. Assignments will focus on the collection, analysis and communication of information by following community planning approaches.

Prerequisites: GEPL 4600 FOR LEVEL UG WITH MIN. GRADE OF D-

GEPL5710 Urban Environments **Credit Hours: 3**

Examines urban areas, the approaches to studying them, and explanations offered for urban processes and forms.

GEPL5750 Transportation Geography **Credit Hours: 3**

The role of transportation and communication in the economic development of places. Theories of geographic interaction, location of transport routes and the developmental implications of transport investments are explored.

GEPL5810 Political Geography **Credit Hours: 3**

Space and place facets of population size, growth, migration, distribution and composition with emphasis on the population trends and patterns in both developing and developed nations.

GEPL5910 Directed Research **Credit Hours: 1-3**

GEPL5920 Readings in Geography **Credit Hours: 1-3**

GEPL6100 Philosophy & General Methodology **Credit Hours: 3**

Past and current trends in geographic thought and related methodological implications, with elaborations by current faculty members.

GEPL6150 Seminar In Research Methods **Credit Hours: 4**

A computer-based course in geographic research methodology. The course includes an introduction to research design, data measurement, spatial sampling and multivariate approaches to the study of areal networks and spatial distributions.

GEPL6160 Seminar In Spatial Analysis **Credit Hours: 4**

A computer-based laboratory course in multivariate spatial analysis methodologies. The course includes the study of spatial graphics and mapping, computerized regionalization, areal forecasting and predictive modeling techniques.

Prerequisites: GEPL 6150 FOR LEVEL GR WITH MIN. GRADE OF D-

GEPL6190 Advanced Geographic Information Systems Seminar **Credit Hours: 4**

Seminar in advanced GIS topics which include database design, spatial analysis and specialized application to spatial problems.

Prerequisites: GEPL 5180 FOR LEVEL GR WITH MIN. GRADE OF D- OR GEPL 6180 FOR LEVEL GR WITH MIN. GRADE OF D-

GEPL6200 Earth System Science Through Inquiry-Based Learning **Credit Hours: 3**

The course is geared towards in-service teachers. Teachers will explore four natural events affecting the earth as a system, using inquiry-based learning and lesson plan development.

GEPL6300 Seminar In Resource Management **Credit Hours: 3**

Intensive group study of major themes in the resource management literature. Primary emphasis is placed on individual student research projects oriented toward resource management problems.

GEPL6530 Seminar-Urban/Regional Planning Applications **Credit Hours: 3**

The course applies forecasting and projection techniques to urban and regional problems. Population, economic base, land use, retail and fiscal impact analyses are examined.

GEPL6550 Seminar In Environment Planning **Credit Hours: 3**

Intensive group study of major goals and methodologies of environmental planning. Major emphasis is placed upon individual student research projects oriented toward specific environmental planning problems.

GEPL6570 Seminar In Neighborhood Revitalization **Credit Hours: 3**

Intensive group study of major themes in the revitalization of urban neighborhoods, both residential and commercial. Major emphasis is placed upon individual residential and commercial. Major emphasis is placed upon individual student research projects oriented toward specific revitalization problems.

GEPL6580 Urban Development And Housing **Credit Hours: 3**

Course examines the changing land use and functions of metropolitan regions. City suburban linkages, urban restructuring, urban policy and metropolitan planning issues are examined.

GEPL6700 Teaching Practicum In Geography **Credit Hours: 1-6**

Methods of teaching geography in a university of college setting. Supervision of labs or discussion.

GEPL6910 Comprehensive Exam Preparation **Credit Hours: 2**

The course is used for the completion of the comprehensive exam requuirement for M.A candidates.

Prerequisites: (GEPL 6100 FOR LEVEL GR WITH MIN. GRADE OF D- AND GEPL 6150 FOR LEVEL GR WITH MIN. GRADE OF D-)

GEPL6920 Research Design **Credit Hours: 3**

The course will have students prepare all the main components of a thesis proposal leading to the completion presentation of the proposal to their thesis advisory committee.

Prerequisites: (GEPL 6100 FOR LEVEL GR WITH MIN. GRADE OF D- AND GEPL 6150 FOR LEVEL GR WITH MIN. GRADE OF D- AND GEPL 6910 FOR LEVEL GR WITH MIN. GRADE OF D-)

GEPL6930 General Seminar **Credit Hours: 3**

GEPL6940 Internship In Planning **Credit Hours: 1-6**

Professional work experience with a Greater Toledo planning organization related to academic education.

GEPL6950 Applied Geographic Workshop **Credit Hours: 3**

Capstone course for GIS/Applied Geographics certificate program to provide hands-on experience in applying GIS, remote sensing and desktop mapping systems to spatially-oriented problems that are unique to their individual disciplines.

GEPL6960 Thesis **Credit Hours: 1-6**

Work on a thesis is the culmination of graduate education and occupies most of the second year.

GERM1080 German Culture And Commerce **Credit Hours: 3**

Study of German culture and society with emphasis on business and economics. Taught in English. (Not for major credit.)

GERM1090 Introduction To Modern German Culture **Credit Hours: 3**

An introduction to principal social, artistic and literary aspects of modern German culture. Taught in English. (Not for major credit.)

GERM1110 Elementary German I **Credit Hours: 4**

An introduction to German language and culture through listening, speaking, reading and writing. Laboratory practice required.

GERM1120 Elementary German II **Credit Hours: 4**

An introduction to German language and culture through listening, speaking, reading and writing. Laboratory practice required.

Prerequisites: GERM 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNGE FOR MIN. SCORE OF 1120

GERM1500 Review Of Elementary German **Credit Hours: 4**

Review of first-year college German for students who studied the language in high school and who need to strengthen communication skills, vocabulary, grammar and pronunciation before study at the 2000 level. (not for major credit)

GERM2140 Intermediate German I **Credit Hours: 3**

Practice of the four language skills with grammar review and readings of a literary-cultural nature. Laboratory practice required. (not for major credit)

Prerequisites: GERM 1120 FOR LEVEL UG WITH MIN. GRADE OF D- OR GERM 1500 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNGE FOR MIN. SCORE OF 2140

GERM2150 Intermediate German II **Credit Hours: 3**

Further practice of the four language skills with grammar review and readings of a literary-cultural nature. Laboratory practice required. (Not for major credit)

Prerequisites: GERM 2140 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNGE FOR MIN. SCORE OF 2150

GERM2190 Study Abroad **Credit Hours: 1-3**

The course permits beginning students of German to study or work in a country where German is spoken. Credit will be awarded in accordance with established departmental procedures. (Not for major credit.)

Prerequisites: GERM 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

GERM3010 Conversation And Composition I **Credit Hours: 3**

Work on advanced listening, speaking, reading and writing skills through intensive work with authentic texts that deal with contemporary issues relating to the German-speaking world.

Prerequisites: GERM 2150 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNGE FOR MIN. SCORE OF 3000

GERM3020 Conversation And Composition II **Credit Hours: 3**

Work on advanced speaking, listening, reading and writing skills through intensive work with authentic texts that deal with contemporary issues relating to the German-speaking world. A writing-intensive course.

Prerequisites: GERM 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

GERM3170 Business German **Credit Hours: 3**

An introduction to the language and practices of German business and commerce.

Prerequisites: GERM 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

GERM3200 Survey Of German Literature **Credit Hours: 3**

A survey of German literature from its origins to the present, with emphasis on literature after 1750.

Prerequisites: GERM 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

GERM3410 Survey Of German Civilization I **Credit Hours: 3**

A study of different aspects of German culture and civilization such as fine arts, history, science and philosophy.

Prerequisites: GERM 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

GERM3420 Survey Of German Civilization II **Credit Hours: 3**

A study of different aspects of German culture and civilization such as fine arts, history, science and philosophy.

Prerequisites: GERM 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

GERM4010 German Syntax And Stylistics I **Credit Hours: 3**

Refinement of conversation and composition skills through the analysis of texts and written and oral exercises.

Prerequisites: GERM 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

GERM4020 Advanced Conversation And Composition II **Credit Hours: 4**

A practical application of language skills in the preparation of a German-related project chosen, developed and presented by the student. A writing-intensive and capstone course.

Prerequisites: GERM 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

GERM4160 Teaching Colloquium **Credit Hours: 3**

A course in the theory and practice of teaching German and of second language acquisition in general.

GERM4190 Study Abroad **Credit Hours: 1-12**

The course permits the German major or minor to study or work in a country where German is spoken. Credit awarded in accordance with established departmental procedures.

Prerequisites: GERM 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

GERM4200 German Culture And Civilization **Credit Hours: 3**

Study of major trends and current developments in German Landeskunde. May be repeated when topic varies.

GERM4500 History Of The German Language **Credit Hours: 3**

The course traces the emergence of the German language from its Indo-European roots to its present-day form with regard to phonological, morphological, semantic and syntactic developments.

GERM4710 German Literature Of The 19th Century **Credit Hours: 3**

Study of selected works by authors from B¿chner to Fontane.

GERM4720 German Romanticism **Credit Hours: 3**

Study of Romantic writers of Germany such as Novalis, Eichendorff, E.T.A. Hoffmann and Bettina Brentano.

GERM4850 Genre Studies **Credit Hours: 3**

Study of a selected literary or film genre, its development, and its influence on German culture. May be repeated for credit when topic varies.

GERM4900 Studies In The Works Of An Author Or Authors **Credit Hours: 1-3**

Readings of the works of a major author or authors of German literature. May be repeated when topic varies.

GERM4910 Honors Research In German **Credit Hours: 3**

Independent research in special topics. May be repeated once for additional credit.

GERM4940 Work Experience Abroad **Credit Hours: 1-12**

Educational work experience in a selected professional field. Experience must be carried out in a German-speaking country. Maximum of 3 hours may be applied to the German major or minor program.

Prerequisites: GERM 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

GERM4980 Special Topics In German Studies **Credit Hours: 1-3**

Study of a selected topic in German language, literature, or culture. May be repeated for credit when topic varies.

GERM4990 Independent Study In German **Credit Hours: 1-3**

Independent research in special topics. May be repeated once for additional credit.

GERM5010 German Syntax And Stylistics I **Credit Hours: 3**

A review of German stylistic structures through the analysis of texts and written and oral exercises.

GERM5160 Teaching Colloquium **Credit Hours: 3**

A practical course in the theories, methods and specific techniques of teaching German. May be repeated once for additional credit.

GERM5210 German For Reading Knowledge I **Credit Hours: 3**

Elements of pronunciation, structure and vocabulary most appropriate to preparing graduate students to read effectively in German. (Not for major credit).

GERM5500 History Of The German Language **Credit Hours: 3**

The course traces the emergence of the German language from its Indo-European roots to its present-day form with regard to phonological, morphological, semantic and syntactic developments.

GERM5710 German Literature Of The 19th Century **Credit Hours: 3**

Study of selected works by authors from B¿chner to Fontane.

GERM5810 German Literature Of The 20th Century **Credit Hours: 3**

Study of selected works by authors from the turn of the century to the present.

GERM5980 Special Topics In German Studies **Credit Hours: 1-3**

Study of a selected topic in German language, literature, or culture. May be repeated for credit when topic varies.

GERM5990 Independent Study In German **Credit Hours: 1-3**

Independent research in special topics. May be repeated once for additional credit.

GERM6930 Seminar: Selected Topics **Credit Hours: 1-3**

Study of selected topics in German language, literature, or culture. May be repeated once for additional credit.

GIFT4100 Educating Young Talented And Gifted Children **Credit Hours: 3**

Examination of major topics about the development of talents and gifts with an emphasis on developmentally appropriate practices with young children.

GIFT5100 Introduction To Talented And Gifted Education **Credit Hours: 3**

Survey of major topics about the education and development of talents and gifts, including history, identification, social-emotional development, curriculum, creativity, intelligence, programming and evaluation.

GIFT5200 Assessment And Evaluation In Talented And Gifted Education **Credit Hours: 3**

The study of assessment and evaluation as it pertains to the special educational needs of talented and gifted persons. Theoretical and practical issues in assessing talent domains and educational programs are emphasized.

GIFT5300 Socioemotional Development Of The Talented And Gifted **Credit Hours: 3**

Examination of the social and emotional needs of talented and gifted persons within the context of roles in family, school and society. Attention to issues of guidance, parenting, special populations and underachievement.

GIFT5400 Creativity In The Classroom **Credit Hours: 3**

Explores existing theories about creativity; examination of approaches and their implementation within various educational settings.

GIFT5500 Curriculum I: Differentiation For The Talented And Gifted **Credit Hours: 3**

The study of curriculum models, theories and trends, principles and practices of differentiation, and application of content within various educational settings.

GIFT5600 Curriculum II: Integrating & Implementing Service Plans For The Talented & Gifted **Credit Hours: 3**

The study, development and implementation of curriculum models across content areas both vertically and horizontally within various educational settings. Focuses on multi-exceptionalities and implications of varied service delivery plans.

GIFT5700 Practicum In Talented And Gifted Education **Credit Hours: 3-6**

Provides opportunities for field experience to use and refine the strategies for persons with talented and gifted abilities.

GIFT6000 Issues & Trends In Talented And Gifted Education **Credit Hours: 3**

The course examines the current theoretical and practical issues that are dominating the literature in the field. Perennial issues such as identification and intelligence will be discussed, as well as emergent topics such as the biological bases of advanced development and creativity and emotional adjustment.

GIFT6100 Advanced Development In Social, Cultural & Political Context In Talented & Gifted Education **Credit Hours: 3**

The course explores social, cultural and political contexts related to advanced development or expression of talents. Emphasizes personal reflection and recognition of hegemony related to gifted individuals' past, present and future.

Prerequisites: (GIFT 5100 FOR LEVEL GR WITH MIN. GRADE OF D- AND GIFT 5300 FOR LEVEL GR WITH MIN. GRADE OF D-)

GIFT6900 Advanced Seminar In Teaching, Learning & Curriculum Theory In Talented & Gifted Education Credit Hours: 3

The course studies teaching, learning and curriculum from theoretical and historical perspectives to establish defensible lines of scholarly inquiry in gifted education.

GIFT6910 Seminar In Talent & Advanced Development I: Academic Talents Credit Hours: 3

The course studies the theoretical and research basis of development of specific academic domains, such as science, mathematics, language and literature, etc. Attention is paid to tacit as well as more public kinds of knowledge.

GIFT6920 Seminar In Talent & Advanced Development II: Aesthetic Talents Credit Hours: 3

The course studies development and expression of aesthetic abilities and talents such literacy, theatrical and/or musical expressiveness, visual and performing arts, emotional giftedness, movement and dance.

GIFT6930 Seminar In Talent & Advanced Development III: Practical, Folk & Sport Credit Hours: 3

The course studies the theoretical and research basis for development of talents in folk, practical and athletic domains. Attention is paid to tacit, esoteric and public forms of knowledge.

GIFT6950 Master's Research Project In Talented And Gifted Education **Credit Hours: 3**

Independent research project that integrates and synthesizes concepts and practices in gifted and talented education with implementation of action research and practical inquiry study.

GIFT6980 Special Topics About Advanced Development In The Talented And Gifted **Credit Hours: 3-6**

Collaborative inquiry into emerging topics in the field. This course is open to advanced graduate students in the master's or doctoral program.

GIFT6990 Independent Study In The Development Of The Talented & Gifted **Credit Hours: 1-6**

Directed readings and/or study on a topic selected in conjunction with a faculty mentor.

GIFT7100 Introduction To Talented And Gifted Education **Credit Hours: 3**

Survey of major topics about the education and development of talents and gifts, including history, identification, social-emotional development, curriculum, creativity, intelligence, programming and evaluation.

GIFT7200 Assessment And Evaluation In Talented And Gifted Education **Credit Hours: 3**

The study of assessment and evaluation as it pertains to the special educational needs of talented and gifted persons. Theoretical and practical issues in assessing talent domains and educational programs are emphasized.

GIFT7300 Socioemotional Development Of The Talented And Gifted **Credit Hours: 3**

Examination of the social and emotional needs of talented and gifted persons within the context of roles in family, school and society. Attention to issues of guidance, parenting, special populations and underachievement.

GIFT7400 Creativity In The Classroom **Credit Hours: 3**

Explores existing theories about creativity; examination of approaches and their implementation within various educational settings.

GIFT7500 Curriculum I: Differentiation For The Talented And Gifted **Credit Hours: 3**

The study of curriculum models, theories and trends, principles and practices of differentiation, and application of content within various educational settings.

GIFT7600 Curriculum II: Integrating & Implementing Service Plans For The Talented & Gifted **Credit Hours: 3**

The study, development and implementation of curriculum models across content areas both vertically and horizontally within various educational settings. Focuses on multi-exceptionalities and implications of varied service delivery plans.

GIFT7700 Practicum In Talented And Gifted Education **Credit Hours: 3-6**

Provides opportunities for field experience to use and refine the strategies for persons with talented and gifted abilities.

GIFT8000 Issues & Trends In Talented And Gifted Education **Credit Hours: 3**

The course examines the current theoretical and practical issues that are dominating the literature in the field. Perennial issues such as identification and intelligence will be discussed, as well as emergent topics such as the biological bases of advanced development and creativity and emotional adjustment.

GIFT8100 Advanced Development In Social, Cultural & Political Context In Talented & Gifted Education **Credit Hours: 3**

The course explores social, cultural and political contexts related to advanced development or expression of talents. Emphasizes personal reflection and recognition of hegemony related to gifted individuals' past, present and future.

GIFT8900 Advanced Seminar In Teaching, Learning & Curriculum Theory In Talented & Gifted Education Credit Hours: 3

The course studies teaching, learning and curriculum from theoretical and historical perspectives to establish defensible lines of scholarly inquiry in gifted education.

GIFT8910 Seminar In Talent & Advanced Development I: Academic Talents Credit Hours: 3

The course studies the theoretical and research basis of development of specific academic domains, such as science, mathematics, language and literature, etc. Attention is paid to tacit as well as more public kinds of knowledge.

GIFT8920 Seminar In Talent & Advanced Development II: Aesthetic Talents Credit Hours: 3

The course studies development and expression of aesthetic abilities and talents such literacy, theatrical and/or musical expressiveness, visual and performing arts, emotional giftedness, movement and dance.

GIFT8930 Seminar In Talent & Advanced Development III: Practical, Folk & Sport Credit Hours: 3

The course studies the theoretical and research basis for development of talents in folk, practical and athletic domains. Attention is paid to tacit, esoteric and public forms of knowledge.

GIFT8940 Internship In Gifted Studies **Credit Hours: 3-6**

Supervised internship in college teaching, or administration/leadership in agencies, or research and evaluation for advanced graduate students to practice skills and knowledge within settings relevant to career goals in talented and gifted education.

GIFT8960 Doctoral Dissertation **Credit Hours: 1-15**

Developing, conducting analyzing and writing the dissertation.

GIFT8980 Special Topics About Advanced Development In The Talented And Gifted **Credit Hours: 3-6**

Collaborative inquiry into emerging topics in the field. This course is open to advanced graduate students in the master's or doctoral program.

GIFT8990 Independent Study In The Development Of The Talented & Gifted **Credit Hours: 1-6**

Directed readings and/or study on a topic selected in conjunction with a faculty mentor.

GLST2000 Principles Of Global Studies **Credit Hours: 3**

A multidisciplinary exploration of the world. Global processes will be examined using many viewpoints, such as culture, politics, economics, geography and philosophy.

GLST2980 Topics In Global Studies **Credit Hours: 3**

An exploration of a specific global issue. Approaches will be explicitly multidisciplinary and will make use of a variety of perspectives. May be repeated for credit.

GLST4900 Senior Seminar In Global Studies **Credit Hours: 3**

Theories and research methods in global studies will be examined. A major component of the course will be a research project on some aspect of global studies.

Prerequisites: GLST 2000 FOR LEVEL UG WITH MIN. GRADE OF D-

GLST4980 Advanced Topics In Global Studies **Credit Hours: 3**

An advanced multidisciplinary exploration of a specific issue in global studies. May be repeated for credit.

GRAD600 Wkshp Instr Higher Education **Credit Hours: 2**

HCAR4360 Quality Improvement In Health Care **Credit Hours: 3**

Purpose and philosophy of quality assessment and system design. Selection/application of tools for data collection, analysis and problem resolution. Incorporates requirements of Joint Commission on the Accreditation of Healthcare Organizations.

HCAR4500 Health Care Informatics **Credit Hours: 4**

Case study approach to application and evaluation of health care-related information systems. Includes different information systems used in health care organizations. Basic systems concepts and interrelation between departments and entire organizations.

HCAR4510 Medical And Legal Aspects Of Health Care **Credit Hours: 3**

Coverage of historical development of legal controls in health care facilities, contemporary legal medical analysis and strategy. Also involves major factors influencing education in the allied health professions.

HCAR4530 Problem Solving In Health Care Environment **Credit Hours: 4**

An investigation and study of problem solving and effective decision making within the dynamics of current health care organizations.

HCAR4540 Internship In Health Management **Credit Hours: 3**

Internship in institutional health care focusing on mid-management.

HCAR4550 Health Care Finance **Credit Hours: 3**

Study of financial problems and current sources of reimbursement to health care organizations. Emphasis on departmental financial management as integrated with financial management of organizations.

Prerequisites: BUAD 2050 FOR LEVEL UG WITH MIN. GRADE OF D-

HEAL1500 First Aid **Credit Hours: 2**

Provides knowledge, skills and confidence of care for victims of sudden illnesses and injuries. CPR for Professional Rescuer and First Responder certification (NSC) upon successful course completion.

HEAL1700 Introduction to Health Careers **Credit Hours: 3**

An introduction to health and human service careers through an examination of the health care system, health career educational requirements, job outlook, and professional settings in which they operate.

HEAL1800 Medical Terminology **Credit Hours: 3**

Study of the origin and structure of medical words, their prefixes, suffixes, special endings and singular to plural forms. Medical terms relating to the body and to clinical procedures will be explored.

HEAL2000 Foundations Of Health Education **Credit Hours: 3**

Designed to acquaint students with basic information, history, philosophy and competencies unique to health educators in both the school and community setting. The Competencies for Entry-Level Health Educators will be introduced in this course and a portfolio documenting achievement in each competency will be started.

HEAL2400 General Safety **Credit Hours: 3**

An analysis of accident causation and disasters occurring in the home, workplace and community, and the presentation of a framework for developing accident counter-measures.

HEAL2500 Personal Health **Credit Hours: 3**

Information is presented on the prevention and control of health problems including heart disease, cancer, infectious diseases, mental health, nutrition, human sexuality and other pertinent personal health issues.

HEAL2600 Mental Health **Credit Hours: 3**

An examination of the principles of mental health, mental illnesses, mental health professionals and mental health facilities.

HEAL2700 Community Health **Credit Hours: 3**

Introduces students to the structure, organization and methods of public health including an emphasis on protecting and improving the health of populations via research, needs assessment, program planning, program implementation, and program evaluation.

HEAL2750 Introduction to Epidemiology **Credit Hours: 3**

This course provides students with a basic understanding of epidemiologic methods and study design and of the place of epidemiology in preventive and clinical medicine, disease investigation, program evaluation and public policy.

HEAL2800 Principles Of Nutrition **Credit Hours: 3**

Students learn basic nutrition concepts. Personal nutritional practices are analyzed and evaluated to plan improvements. Encourages making informed decisions about nutrition by critically analyzing nutrition information which abounds in popular media.

HEAL2900 Health Education Linking Seminar **Credit Hours: 2**

In this course, health education major students will discuss the information learned in health content courses and teaching.

HEAL2940 Practicum In Community Health **Credit Hours: 1**

Supervised field experience with community health agency. Students work under direct supervision of the agency's staff and a University supervisor.

HEAL3000 Global Health **Credit Hours: 3**

This is an introductory course focused on applying public health principles in developing as well as developed countries designed to fulfill a global studies distribution requirement.

HEAL3100 Health Education For Early Childhood Educators **Credit Hours: 2**

This course will focuses on developmentally integrated learning experiences in basic health, safety and nutrition, health appraisal procedures, and utilization of community resources.

HEAL3200 Consumer Health **Credit Hours: 3**

An examination of responsible and fraudulent practices in the health field. Evaluation of selected health services, products, fads and types of quackery.

Prerequisites: HEAL 2500 FOR LEVEL UG WITH MIN. GRADE OF D-

HEAL3300 Drug Awareness **Credit Hours: 3**

Focuses on the impact of drug abuse and misuse on the individual and society. Explores physiological, psychological and rehabilitative aspects of drug misuse and abuse. Prevention strategies are discussed.

HEAL3400 Health Education In Elementary Schools **Credit Hours: 3**

Provides students with an introduction to comprehensive school health education programs and to the health information and skills necessary to teach health education.

HEAL3500 Environmental Health **Credit Hours: 3**

An overview of the environmental effects of factors such as population growth, pollution, energy use, agriculture practices and waste disposal on the environment. Consideration will be given to solutions.

HEAL3600 Prevention And Control Of Disease **Credit Hours: 3**

An examination of the etiology, pathogenesis, prevention and control of acute and chronic diseases. Current techniques of prevention, control and detection are examined.

HEAL3700 Foundations Of Human Sexuality **Credit Hours: 3**

The course is designed to provide an introduction to the scientific study of human sexuality. The topic is approached from a variety of perspectives, including the historical, psychological, sociological, biological, ethical and legal.

HEAL3800 Death And Dying **Credit Hours: 3**

The course is designed to analyze the relationship between death and health with emphasis upon the biological, psychological, bioethical and legal aspects of death in contemporary society.

HEAL4100 Health Behavior **Credit Hours: 3**

Examines the major theories and models of health behavior and explores how those theories/models can be used to promote health and wellness in individuals, groups and populations.

Prerequisites: (HEAL 2000 FOR LEVEL UG WITH MIN. GRADE OF D- AND HEAL 2500 FOR LEVEL UG WITH MIN. GRADE OF D-)

HEAL4200 Methods And Materials In Community Health **Credit Hours: 3**

Introduces students to resource materials and methods appropriate for community health education. Students will use various mediums of instruction in direct application to community health programs.

HEAL4300 Instructional Programs In Health **Credit Hours: 4**

A course emphasizing theory, methods, materials and curriculum in health instruction. Required prior to student teaching.

Prerequisites: HEAL 4400 FOR LEVEL UG WITH MIN. GRADE OF D-

HEAL4350 Instructional Programs In Health: Field Experience **Credit Hours: 2**

This field experience allows school health education majors the opportunity to observe and practice teaching health education in a secondary school setting.

Corequisites: HEAL4300

HEAL4400 Health Problems Of Youth **Credit Hours: 3**

Designed to provide education majors with the knowledge and skills to help identify, understand and prevent preadolescent and adolescent health problems which directly impact school and future success.

HEAL4500 Women's Health Care **Credit Hours: 3**

The course is designed to consider personal health topics of special interest and applicability to women. The focus is upon the role of self-understanding and self-help in promotion of health and well-being.

HEAL4560 Health Problems Of Aging **Credit Hours: 3**

Acquaints students with physical changes and socio-psychological problems that occur with aging. Focus is on personal adjustment important in maintaining health throughout the aging process.

HEAL4600 School Health Programs **Credit Hours: 3**

Acquaints students with the organization, administration and evaluation of the eight components of a coordinated school health program.

HEAL4700 Nutritional Science **Credit Hours: 3**

Introduces basic human nutritional needs. Examines the role of diet and health and disease throughout the lifestyle, including weight control and fitness issues. Personal nutritional practices are analyzed and evaluated.

Prerequisites: KINE 2530 FOR LEVEL UG WITH MIN. GRADE OF D- OR KINE 2560 FOR LEVEL UG WITH MIN. GRADE OF D- OR KINE 2570 FOR LEVEL UG WITH MIN. GRADE OF D- OR HHS 2570 FOR LEVEL UG WITH MIN. GRADE OF D-

HEAL4750 Obesity And Eating Disorders **Credit Hours: 3**

Examines the issues of obesity and eating disorders. Consideration of effects on the individual as well as the public health implications. Explores causes, health and emotional impact, and treatment approaches.

Prerequisites: HEAL 2800 FOR LEVEL UG WITH MIN. GRADE OF D-

HEAL4800 Public Health Research And Statistics **Credit Hours: 3**

An examination of research and statistical techniques commonly employed in the health field. Topics will include research design, ethics of research, hypothesis testing and critiques of published research in health journals.

HEAL4900 Health Education Seminar **Credit Hours: 1-3**

Seminars are developed around selected topics of interest and allow in-depth consideration of the subject. They provide the student with advanced study in the area.

HEAL4920 Student Teaching Seminar: Health Education **Credit Hours: 1-2**

This course will focus on reflection and feedback on student teaching, portfolio development, interviewing and resume writing.

Corequisites: HEAL4930

HEAL4930 Student Teaching In Health Education **Credit Hours: 6-12**

Planned field experience in public school health education classroom under the direction of a university supervisor. Observation of an experienced teacher followed by full responsibility by the student teacher.

Prerequisites: UPDV FOR MIN. SCORE OF 1

HEAL4940 Senior Field Experience **Credit Hours: 1-9**

Planned supervised field experience with a health related agency. Students will work under direct supervision of staff personnel of the specific agency and a university supervisor.

HEAL4950 Workshop In Health Education **Credit Hours: 1-4**

A workshop developed around topics of interest and concern for preservice teachers and other educational personnel.

HEAL4990 Independent Study In Health Education **Credit Hours: 1-3**

Directed individual study. Specialty title, seminar sheet and permission of instructor are required.

HEAL5200 Teaching Elementary Health Education **Credit Hours: 3**

Designed to provide information, skills and materials that are needed to teach elementary health education.

HEAL5400 Professional Issues In School Nursing **Credit Hours: 3**

Examination of the roles and standards of school nursing, legal and ethical issues faced by school nurses, and techniques commonly employed by school nurses.

HEAL5930 General Seminar In Health Education **Credit Hours: 1-3**

A seminar to consider health problems and provide advanced study in health education. A graduate student may register for this seminar two or more times with permission of the adviser.

HEAL5940 School Health Internship **Credit Hours: 1-4**

A field internship designed to supplement classroom experience by providing direct insights into the operation of a comprehensive school health education program in public schools.

HEAL5950 Workshop In Health Education **Credit Hours: 1-4**

Topical workshops developed around areas of interest and concern to health professionals. Credit cannot be applied towards a degree program.

HEAL6000 Professional Issues In Health Education **Credit Hours: 2**

This course will examine the historical and philosophical foundations underlying the health education profession. Occupational and ethical issues specific to the field of health education will be explored.

HEAL6100 College Teaching In Health Education **Credit Hours: 2**

This course is designed to provide an overview of the issues surrounding teaching at the college level.

HEAL6280 Health Communication **Credit Hours: 3**

Designed to help students identify, analyze, and apply concepts, theories and methodologies related to health communication in various settings and at various levels of influence. Emphasis will be placed on learning how to design, communicate and evaluate effective health promotion messages.

Prerequisites: HEAL 6600 FOR LEVEL GR WITH MIN. GRADE OF D-

HEAL6360 Applied Survey Research In Health **Credit Hours: 3**

An examination of applied survey research techniques essential in conducting health-related surveys. Topics will include standard health survey instruments, sample selection, quality instruments, response rates and data presentation for publication.

Prerequisites: HEAL 6700 FOR LEVEL GR WITH MIN. GRADE OF D-

HEAL6420 Sports Nutrition **Credit Hours: 3**

Examines basic nutritional needs as applied to physical activity and athletic performance. Focuses on the application of current research in sports nutrition to determine the nutritional needs of athletes.

HEAL6500 Issues In School Health **Credit Hours: 3**

Acquaints students with problems and issues in school health education and with today's youth. The coordinated school health program is examined as a possible solution to many of these problems.

HEAL6530 Drug Use And Misuse **Credit Hours: 3**

Focuses on impact of drug abuse and misuse on the individual and society. Explores physiological, psychological, societal and rehabilitative aspects of substance abuse. Prevention strategies are addressed.

HEAL6540 Human Sexuality **Credit Hours: 3**

The course examines the historical, physiological, psychological, sociological and ethical aspects of human sexuality in health and illness. Extensive emphasis is placed on reviewing the pertinent periodical literature.

HEAL6700 Epidemiology **Credit Hours: 3**

An examination of the process utilized in determining the distribution of disease and in analyzing factors related to disease occurrence. The course focuses on measurements used in the surveillance and investigation of diseases.

HEAL6720 Issues In Minority Health **Credit Hours: 3**

This course will be an examination of the demographic trends of racial/ethnic minorities and social, political and economic factors affecting the physical and mental well-being of minorities.

HEAL6750 Applied Biostatistics **Credit Hours: 3**

Fundamental statistical concepts related to the practice of public health. Topics include: descriptive statistics; probability; sampling theory; hypothesis testing; life tables; and applied statistical methods, including basic non-parametric analyses. Use of the computer in statistical analyses.

HEAL6880 Scientific Writing In Health **Credit Hours: 3**

This course is designed to integrate research methods with the writing of a five-chapter thesis or dissertation, including: selecting a topic, literature reviews; research hypotheses; selecting participants; data analysis; instrument development; institutional review boards; references; conclusions, discussion, and recommendations.

Prerequisites: (HEAL 6600 FOR LEVEL GR WITH MIN. GRADE OF D- AND HEAL 6800 FOR LEVEL GR WITH MIN. GRADE OF D-)

HEAL6900 Grant Writing In Health Sciences **Credit Hours: 3**

Consideration is given to funding sources, proposal guidelines, procedures for support, budgetary requirements and evaluation procedures. Students examine different types of funded projects, develop a research prospectus and grant proposal, and explore the art of politics and grantsmanship.

Prerequisites: (RESM 6320 FOR LEVEL GR WITH MIN. GRADE OF D- AND HEAL 6800 FOR LEVEL GR WITH MIN. GRADE OF D-)

HEAL6920 Master's Research Project In Health Education **Credit Hours: 1-4**

Open to graduate students who elect the completion of a master's project in fulfilling the research elective of the master's program. Students may register for the credits in more than one semester.

HEAL6930 Interdisciplinary Seminar In Health Education **Credit Hours: 1-3**

A seminar to consider problems and provide advanced study in several fields of education and other disciplines related to health education. Open only to advanced graduate students.

HEAL6940 Public Health Internship **Credit Hours: 1-4**

A field internship designed to supplement classroom experience by providing direct insight into the operation of a public health agency through participant-observer experience.

HEAL6960 Master's Research Thesis In Health Education **Credit Hours: 1-4**

Open to graduate students who elect the completion of a master's thesis in fulfilling the research elective of the master's program. Students may register for the credits in more than one semester.

HEAL6990 Independent Study In Health Education **Credit Hours: 1-3**

The student will participate in independent readings, laboratory research, field experience and other activities not suited for class instruction. May be repeated for course credit.

HEAL7930 General Seminar In Health Education **Credit Hours: 1-3**

A seminar to consider health problems and provide advanced study in health education. A graduate student may register for this seminar two or more times with permission of the adviser.

HEAL7940 School Health Internship **Credit Hours: 1-4**

A field internship designed to supplement classroom experience by providing direct insights into the operation of a comprehensive school health education program in public schools.

HEAL7950 Workshop In Health Education **Credit Hours: 1-4**

Topical workshops developed around areas of interest and concern to health professionals. Credit cannot be applied towards a degree program.

HEAL8000 Professional Issues In Health Education **Credit Hours: 2**

This course will examine the historical and philosophical foundations underlying the health education profession. Occupational and ethical issues specific to the field of health education will be explored.

HEAL8100 College Teaching In Health Education **Credit Hours: 2**

This course is designed to provide an overview of the issues surrounding teaching at the college level.

HEAL8280 Health Communication **Credit Hours: 3**

Designed to help students identify, analyze, and apply concepts, theories and methodologies related to health communication in various settings and at various levels of influence. Emphasis will be placed on learning how to design, communicate and evaluate effective health promotion messages.

Prerequisites: HEAL 8600 FOR LEVEL GR WITH MIN. GRADE OF D-

HEAL8360 Applied Survey Research In Health **Credit Hours: 3**

An examination of applied survey research techniques essential in conducting health-related surveys. Topics will include standard health survey instruments, sample selection, quality instruments, response rates and data presentation for publication.

Prerequisites: HEAL 6700 FOR LEVEL GR WITH MIN. GRADE OF D-

HEAL8420 Sports Nutrition **Credit Hours: 3**

Examines basic nutritional needs as applied to physical activity and athletic performance. Focuses on the application of current research in sports nutrition to determine the nutritional needs of athletes.

HEAL8500 Issues In School Health **Credit Hours: 3**

Acquaints students with problems and issues in school health education and with today's youth. The coordinated school health program is examined as a possible solution to many of these problems.

HEAL8530 Drug Use And Misuse **Credit Hours: 3**

Focuses on impact of drug abuse and misuse on the individual and society. Explores physiological, psychological, societal and rehabilitative aspects of substance abuse. Prevention strategies are addressed.

HEAL8540 Human Sexuality **Credit Hours: 3**

The course examines the historical, physiological, psychological, sociological and ethical aspects of human sexuality in health and illness. Extensive emphasis is placed on reviewing the pertinent periodical literature.

HEAL8720 Issues In Minority Health **Credit Hours: 3**

This course will be an examination of the demographic trends of racial/ethnic minorities and social, political and economic factors affecting the physical and mental well-being of minorities.

HEAL8880 Scientific Writing In Health **Credit Hours: 3**

This course is designed to integrate research methods with the writing of a five-chapter thesis or dissertation, including: selecting a topic, literature reviews; research hypotheses; selecting participants; data analysis; instrument development; institutional review boards; references; conclusions, discussion, and recommendations.

Prerequisites: (HEAL 8600 FOR LEVEL GR WITH MIN. GRADE OF D- AND HEAL 8800 FOR LEVEL GR WITH MIN. GRADE OF D-)

HEAL8900 Grant Writing In Health Sciences **Credit Hours: 3**

Consideration is given to funding sources, proposal guidelines, procedures for support, budgetary requirements and evaluation procedures. Students examine different types of funded projects, develop a research prospectus and grant proposal, and explore the art of politics and grantsmanship.

Prerequisites: (RESM 8320 FOR LEVEL GR WITH MIN. GRADE OF D- AND HEAL 8800 FOR LEVEL GR WITH MIN. GRADE OF D-)

HEAL8930 Interdisciplinary Seminar In Health Education **Credit Hours: 1-3**

A seminar to consider problems and provide advanced study in several fields of education and other disciplines related to health education. Open only to advanced graduate students.

HEAL8940 Public Health Internship **Credit Hours: 1-4**

A field internship designed to supplement classroom experience by providing direct insight into the operation of a public health agency through participant-observer experience.

HEAL8960 Doctoral Research Dissertation **Credit Hours: 1-12**

Graduate students may register for credit in more than one semester. Dissertation credit toward the degree program may not exceed 16 hours.

HEAL8990 Independent Study In Health Education **Credit Hours: 1-3**

The student will participate in independent readings, laboratory research, field experience and other activities not suited for class instruction. May be repeated for course credit.

HED5920 Introduction to Master's Studies in Higher Education **Credit Hours: 1-3**

This course explores the expectations and challenges of graduate education. We will look at the role of the graduate student, faculty, adviser, and other university offices that support your journey.

HED5930 Interdisciplinary Seminar **Credit Hours: 3**

This seminar formatted course will provide the opportunity to explore problems and issues from the perspectives of the various fields of education and of other disciplines related to higher education.

HED5950 Workshop In Higher Education **Credit Hours: 1-3**

Each workshop is developed on a topic of interest to faculty members and administrators of higher education institutions. Practical applications of the workshop topic will be emphasized.

HED5980 Special Topics In Higher Education **Credit Hours: 1-3**

This seminar formatted course will provide advanced study in special topics of interest to faculty and administrators in higher education.

HED6010 History Of Higher Education **Credit Hours: 3**

Introduction to the historical development of American higher education from colonial times to the 20th century. Emphasis on the major historical events that contributed to the diversity of higher education.

HED6210 The Community College **Credit Hours: 3**

A study of the history, distinguishing characteristics (mission, functions, organization, curriculum, finances) and current issues facing community colleges, including marginalization of students and institutions, and transfer and articulation policy.

HED6250 Technical Higher Education **Credit Hours: 3**

Technical, occupational and career education account for over 40 percent of community college enrollments. This course examines the development, mission, functions and assessment of technical education, including community needs assessment.

HED6270 Learning and Teaching in Higher Education **Credit Hours: 3**

Course facilitates application of theory to practice of teaching in higher education. Students explore diverse pedagogical approaches, professional faculty roles effective learning and teaching.

HED6410 College & University Curriculum **Credit Hours: 3**

Introduction to patterns of curriculum development and organization in post-secondary education. Addresses issues governing curriculum planning, including social, economic, political, historical and philosophical contexts influencing curriculum formation and operation.

HED6440 General Education In Higher Education **Credit Hours: 3**

This course will examine the meaning and purposes of general education in the United States. Students will become acquainted with the design, analysis and evaluation of general education curricula.

HED6510 The American College Student **Credit Hours: 3**

This course explores the character and nature of student populations in contemporary American colleges and universities and considers the impact of campus environments and experiences on development, interaction and learning.

HED6520 Organization & Management Of Student Affairs **Credit Hours: 3**

A brief overview of functional areas and philosophies is followed by a comprehensive examination of student affair's organization and management from the perspective of the Chief Student Affairs Officer.

HED6530 Theories Of Student Development **Credit Hours: 3**

Students will critically examine traditional and contemporary theories of college student development, identify methods of assessing that development, and explore ways to apply the theories to everyday practice.

HED6610 Issues Of Access In Higher Education **Credit Hours: 3**

This course explores access issues that result from the changing educational needs of society and analyzes the application of democratic ideals of American education to current educational policies affecting access.

HED6630 Faculty Issues in Higher Ed **Credit Hours: 3**

HED6640 Governance And Administration In Higher Education **Credit Hours: 3**

Course focuses on internal administrative organization and governance that supports the academic enterprise. Purposes and development of mission and functions, centralization and decentralization, accreditation, appraisal, accountability, and assessment are discussed.

HED6660 Building Academic Culture **Credit Hours: 3**

An examination of institutional culture and the interplay of student, faculty and administrative subcultures. Critical perspectives are used to analyze and understand cultural inquiry, conflict and collaboration in post secondary institutions.

HED6700 Finance Of Higher Education **Credit Hours: 3**

This course discusses issues related to the expenditure of funds for higher education within institutions and systems. issues addressed include capital funding, endowment management and budget preparation.

HED6710 Economics Of Higher Education **Credit Hours: 3**

This course discusses issues related to the revenue sources of higher education and discussion of the social worth of public and private sector investment in higher education. Issues include the connection of educational outcomes to educational budget making and how sources of funds drive educational policymaking.

HED6730 Legal Aspects Of Higher Education **Credit Hours: 3**

Law, its history, philosophy and practical application to and effect on the creation and administration of public and private higher education is examined in the context of court decisions.

HED6750 Strategic Planning And Decision Making **Credit Hours: 3**

Engages students in development of model strategic plans applicable to academic and nonacademic programs. Students learn how "big strategic decisions are made right," by focusing on strategic mission, analysis, goals, objectives, implementation and evaluation. Policies and practices regarding how institutions create internal climates for data-driven decision-making are discussed.

HED6770 Evaluation And Outcomes Assessment In Higher Education **Credit Hours: 3**

Historical concepts and basis for evaluation of college and university programs, emphasizing criteria and procedure and how evaluation and outcomes assessment through regional accrediting bodies, state and federal agencies contribute to public confidence in higher education.

HED6790 Managing College And University Personnel **Credit Hours: 3**

This course acquaints students with key concepts regarding how to effectively manage human resources within large, medium-sized, small, public and private institutions of higher education. topics covered will include collective bargaining in higher education.

HED6810 Women In Higher Education **Credit Hours: 3**

This course will study the history of women's college education in the United States with special emphases on the influence of cultural and social events that shape this history.

HED6820 Institutional Advancement In Higher Education **Credit Hours: 3**

Overview of the field of development and introduction to the knowledge, research and theory emerging in the field. Focus on practical skill enhancement as it applies to building development programs.

HED6830 The Independent College **Credit Hours: 3**

This course details the role, place and function of the four year independent colleges, focusing on their development, organization, funding and evaluation.

HED6840 Adult Continuing Education **Credit Hours: 3**

Course assists student in interpreting the highly diversified field of adult continuing education from the point of view of the student's current or anticipated involvement. Intended for teachers of adults.

HED6850 Critical Issues In Higher Education **Credit Hours: 3**

Focus on critical issues facing administrators in post-secondary education in the United States. Issues discussed change yearly. Students will read widely and prepare a research paper or a project.

HED6870 Econonomic Development And Higher Education **Credit Hours: 3**

How do institutions of higher education impact their local economies? This course examines various roles and methods by which institutions of higher education add to economic development.

HED6920 Master's Project In Higher Education **Credit Hours: 1-3**

Open to graduate students who elect the completion of a research project in fulfilling the research requirements of the master's program.

HED6940 Master's Practicum In Higher Education **Credit Hours: 1-3**

This course provides students with the opportunity to develop specialized skills working in an area of college student personnel administration. Students will work under the supervision of an experienced administrator.

HED6960 Master's Thesis In Higher Education **Credit Hours: 1-3**

Open to graduate students who elect the completion of a research thesis in fulfilling the research requirements of the master's program.

HED6980 Master's Capstone Seminar **Credit Hours: 1-3**

This course aims to strengthen students¿ academic and professional skills and to apply them in different student affairs contexts. As the culminating requirement, students develop an electronic academic learning portfolio.

HED6990 Independent Study In Higher Education-Masters **Credit Hours: 1-3**

Provides student the opportunity to work independently on professional problem under direction of Higher Education Program faculty member. Student meets individually with instructor rather than through formal class meetings.

HED7930 Interdisciplinary Seminar **Credit Hours: 3**

This seminar formatted course will provide the opportunity to explore problems and issues from the perspectives of the various fields of education and of other disciplines related to higher education.

HED7950 Workshop In Higher Education **Credit Hours: 1-3**

Each workshop is developed on a topic of interest to faculty members and administrators of higher education institutions. Practical applications of the workshop topic will be emphasized.

HED7980 Special Topics In Higher Education **Credit Hours: 1-3**

This seminar formatted course will provide advanced study in special topics of interest to faculty and administrators in higher education.

HED8010 History Of Higher Education **Credit Hours: 3**

Introduction to the historical development of American higher education from colonial times to the 20th century. Emphasis on the major historical events that contributed to the diversity of higher education.

HED8020 Advanced Seminar In Historiography Hied **Credit Hours: 3**

Historical methods applied to research in higher education discussed. Course focuses on in-depth readings of primary source material on liberal arts colleges, universities and community colleges. Research paper required.

HED8030 Federal And State Policy Analysis **Credit Hours: 3**

Designed for those interested in federal and state policy as related to higher education. Students will investigate specific federal and state legislation and regulatory issues.

HED8210 The Community College **Credit Hours: 3**

A study of the history, distinguishing characteristics (mission, functions, organization, curriculum, finances), and current issues facing community colleges, including marginalization of students and institutions, and transfer and articulation policy.

HED8250 Technical Higher Education **Credit Hours: 3**

Technical, occupational and career education account for over 40 percent of community college enrollments. This course examines the development, mission, functions and assessment of technical education, including community needs assessment.

HED8270 Learning and Teaching in Higher Education **Credit Hours: 3**

Course facilitates application of theory to practice of teaching in higher education. Students explore diverse pedagogical approaches, professional faculty roles effective learning and teaching.

HED8410 College & University Curriculum **Credit Hours: 3**

Introduction to patterns of curriculum development and organization in post-secondary education. Addresses issues governing curriculum planning, including social, economic, political, historical and philosophical contexts influencing curriculum formation and operation.

HED8440 General Education In Higher Education **Credit Hours: 3**

This course will examine the meaning and purposes of general education in the United States. Students will become acquainted with the design, analysis and evaluation of general education curricula.

HED8510 The American College Student **Credit Hours: 3**

This course explores the character and nature of student populations in contemporary American colleges and universities and considers the impact of campus environments and experiences on development, interaction and learning.

HED8520 Org & Mgmt Of Student Affairs **Credit Hours: 3**

A brief overview of functional areas and philosophies is followed by a comprehensive examination of student affair's organization and management from the perspective of the Chief Student Affairs Officer.

HED8530 Theories Of Student Development **Credit Hours: 3**

Students will critically examine traditional and contemporary theories of college student development, identify methods of assessing that development, and explore ways to apply the theories to everyday practice.

HED8570 Research In Higher Education **Credit Hours: 3**

Introduces students to the research literature in higher education; historical, qualitative and sociological research approaches are discussed. Introduces students to many of the major scholarly figures and modern research controversies within the field of higher education.

HED8580 Leadership Theory **Credit Hours: 3**

Focuses on historical and philosophical aspects of leadership theory, as well as on personalized models for the students' future leadership roles in higher education. Other emphases include the importance of vision and values in the leadership process and development of analytical and communication abilities.

HED8610 Issues Of Access In Higher Education **Credit Hours: 3**

This course explores access issues that result from the changing educational needs of society and analyzes the application of democratic ideals of American education to current educational policies affecting access.

HED8630 Faculty Issues In Higher Education **Credit Hours: 3**

Course focuses on faculty issues in higher education, and addresses academic and student freedom, developing effective promotion and tenure policies appropriate to different types of institutions, and faculty development programs.

HED8640 Governance And Administration In Higher Education **Credit Hours: 3**

Course focuses on internal administrative organization and governance that supports the academic enterprise. Purposes and development of mission and functions, centralization and decentralization, accreditation, appraisal, accountability, and assessment are discussed.

HED8660 Building Academic Culture **Credit Hours: 3**

An examination of institutional culture and the interplay of student, faculty and administrative subcultures. Critical perspectives are used to analyze and understand cultural inquiry, conflict and collaboration in post secondary institutions.

HED8700 Finance Of Higher Education **Credit Hours: 3**

This course discusses issues related to the expenditure of funds for higher education within institutions and systems. issues addressed include capital funding, endowment management and budget preparation.

HED8710 Economics Of Higher Education **Credit Hours: 3**

This course discusses issues related to the revenue sources of higher education and discussion of the social worth of public and private sector investment in higher education. Issues include the connection of educational outcomes to educational budget making and how sources of funds drive educational policymaking.

HED8730 Legal Aspects Of Higher Education **Credit Hours: 3**

Law, its history, philosophy and practical application to and effect on the creation and administration of public and private higher education is examined in the context of court decisions.

HED8750 Strategic Planning And Decision Making **Credit Hours: 3**

Engages students in development of model strategic plans applicable to academic and nonacademic programs. Students learn how "big strategic decisions are made right," by focusing on strategic mission, analysis, goals, objectives, implementation and evaluation. Policies and practices regarding how institutions create internal climates for data-driven decision-making are discussed.

HED8770 Evaluation And Outcomes Assessment In Higher Education **Credit Hours: 3**

Historical concepts and basis for evaluation of college and university programs, emphasizing criteria and procedure and how evaluation and outcomes assessment through regional accrediting bodies, state and federal agencies contribute to public confidence in higher education.

HED8790 Managing College And University Personnel **Credit Hours: 3**

This course acquaints students with key concepts regarding how to effectively manage human resources within large, medium-sized, small, public and private institutions of higher education. topics covered will include collective bargaining in higher education.

HED8810 Women In Higher Education **Credit Hours: 3**

This course will study the history of women's college education in the United States with special emphases on the influence of cultural and social events that shape this history.

HED8820 Institutional Advancement In Higher Education **Credit Hours: 3**

Overview of the field of development and introduction to the knowledge, research, and theory emerging in the field. Focus on practical skill enhancement as it applies to building development programs.

HED8830 The Independent College **Credit Hours: 3**

This course details the role, place and function of the four year independent colleges, focusing on their development, organization, funding and evaluation.

HED8840 Adult Continuing Education **Credit Hours: 3**

Course assists student in interpreting the highly diversified field of adult continuing education from the point of view of the student's current or anticipated involvement. Intended for teachers of adults.

HED8850 Critical Issues In Higher Education **Credit Hours: 3**

Focus on critical issues facing administrators in post-secondary education in the United States. Issues discussed change yearly. Students will read widely and prepare a research paper or a project.

HED8870 Econonomic Development And Higher Education **Credit Hours: 3**

How do institutions of higher education impact their local economies? This course examines various roles and methods by which institutions of higher education add to economic development.

HED8920 Advanced Seminar **Credit Hours: 3**

An in-depth review of key issues related to campus leadership are discussed in seminar form. Students may work with professor on cutting-edge research project.

HED8930 Doctoral Research Seminar In Higher Education **Credit Hours: 3**

This course examines research findings and research methodology in Higher Education as they are pertinent to the development of dissertation proposals. Dissertation proposal development is encouraged.

HED8940 Doctoral Internship In Higher Education **Credit Hours: 1-3**

Designed specifically for doctoral students in the higher education program who are interested in an actual supervised experience in teaching or administration.

HED8960 Dissertation **Credit Hours: 1-12**

Original and specific research problem of a scholarly nature, requiring the application of advanced research skills and techniques to study. Students must take a minimum of 10 semester dissertation hours and may count a maximum of 12 hours towards the degree.

HED8990 Independent Study In Higher Education **Credit Hours: 1-3**

Provides student the opportunity to work independently on professional problem under direction of Higher Education Program faculty member. Student meets individually with instructor rather than through formal class meetings.

HHS1000 Health And Human Services/College Orientation **Credit Hours: 1**

Acquaints the new student with the services, policies, procedures and layout of the university, college and department. Establishes relationships between new students, full-time professors and peer mentors during this time of adjustment. Must be taken first semester of enrollment.

HHS2980 Special Topics In Health & Human Services **Credit Hours: 1-3**

Selected subjects in the field of Health and/or Human Service of special interest to the class and the professor - lower division.

HHS4980 Special Topics In Health & Human Services **Credit Hours: 1-3**

Selected subjects in the field of Health and/or Human Service of special interest to the class and the professor - upper division.

HIM1110 Basic Medical Terminology **Credit Hours: 3**

This course introduces medical word building, prefixes, suffixes and special endings. The medical terms relating to body structure are presented. The following systems are explored in detail: musculoskeletal, respiratory, cardiovascular, genitourinary and blood and lymph systems.

HIM1220 Ambulatory Office Practices **Credit Hours: 3**

Course addresses service and quality in ambulatory medical office policies and standards, personnel, patient satisfaction and financial management. Course focuses on office management, problem solving and effectiveness of office systems.

Prerequisites: HEAL 1800 FOR LEVEL UG WITH MIN. GRADE OF D-

HIM2200 Ambulatory Documentation & Billing **Credit Hours: 3**

Course covers documentation in an ambulatory medical office and focuses on accurate billing for payment of services, as well as compliance to federal regulations and electronic submission of claims.

Prerequisites: HEAL 1800 FOR LEVEL UG WITH MIN. GRADE OF D-

HIM2210 Medical Linguistics In Ancillary Services **Credit Hours: 3**

Expanded medical linguistics utilized in coding, classification systems and ancillary services, especially surgery, medical imaging, anesthesiology, medical tests and laboratory procedures. Linguistics of pharmacology, pathophysiology and infectious/parasitic diseases are analyzed.

Prerequisites: HEAL 1800 FOR LEVEL UG WITH MIN. GRADE OF D-

HIM2940 Professional Ambulatory Office Practice **Credit Hours: 3**

Guided professional practice experience in an ambulatory setting, such as a physician's office, hospital, clinic, etc.

HIM3200 Healthcare Resources, Payers, And Consumers **Credit Hours: 3**

Introduction to roles of professionals in meeting standards of regulatory agencies and voluntary organizations in healthcare delivery systems. Data collection, quality, access, retention, technology and impact on healthcare financing.

HIM3210 Acute Care Clinical Classification Systems And Services **Credit Hours: 3**

Principles of coding diseases, conditions and procedures with the International Classification of Disease System. Practice in the assignment of codes using both computerized and manual methods.

Prerequisites: HIM 2210 FOR LEVEL UG WITH MIN. GRADE OF D-

HIM3220 Ambulatory Clinical Classifications Systems And Services **Credit Hours: 3**

Principles of coding with the HCPCS classification system. Practice in the assignment of codes using both computerized and manual methods.

Prerequisites: HEAL 1800 FOR LEVEL UG WITH MIN. GRADE OF D-

HIM3230 Healthcare Documentation **Credit Hours: 3**

Inpatient and ambulatory health care data requirements will be identified and analyzed, including collection, analysis and implementation. Form design and screen design will be developed and reviewed.

Prerequisites: HEAL 1800 FOR LEVEL UG WITH MIN. GRADE OF D-

HIM3240 Health Information Administration Practices **Credit Hours: 4**

Theory and principles related to facilities, organizations and agencies in healthcare. Focus on HIM strategic planning, departmental responsibilities, marketing, training and development, privacy and security, compliance, and research and epidemiology.

HIM3940 Professional Practice Experience I **Credit Hours: 4**

Generalized health information administrative duties in regards to staffing, managing, record release, storage and retrieval, coding, abstracting, utilization management, quality improvement, computer applications in health information practice.

HIM4200 Reimbursement Methodologies And Compliance **Credit Hours: 2**

DRGs, APCs, RBRVs and reimbursement methods used by federal, state and private insurance. Compliance issues and case mix reviewed. Processes explored for providing and improving healthcare cost containment and quality.

Prerequisites: HIM 3210 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY) AND HIM 3220 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

HIM4210 Healthcare Statistics, Registries, Research **Credit Hours: 3**

Various procedures specific to health information practice will be addressed including medical information, calculation and interpretation of health care statistics, tumor registry and health care records.

Prerequisites: MATH 2600 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

HIM4220 Project Management In Healthcare **Credit Hours: 3**

This course provides an integrated approach to management of diverse projects encountered in acute care and ambulatory healthcare facilities. Software is utilized to simulate actual project management planning and development.

HIM4240 Topics in HIM: Professional Domains **Credit Hours: 3**

Topics of interest in health information management stressing solution/resolution of issues related to healthcare delivery, data management, statistics, biomedical research, information technology systems, quality and organizational management, and healthcare delivery. Junior Standing required.

HIM4260 Legal And Ethical Issues In Healthcare Services **Credit Hours: 3**

Medicolegal practice and professional ethics in healthcare. Overview of the legal system, identification of medicolegal topics, and related ethical concerns. Hardcopy and electronic health record legal issues examined in detail.

HIM4910 Integrative Capstone Experience **Credit Hours: 3**

Course consists of demonstrating proficiencies and competencies in HIM core course through project assignments.

Prerequisites: HIM 4200 FOR LEVEL UG WITH MIN. GRADE OF D-

HIM4940 Professional Practice Experience II **Credit Hours: 4**

Specialized administrative assignment within health information management in a facility, agency or organization. Students submit a major project for the site and members of the related HIM community of practice.

HIST1010 Europe To 1600 **Credit Hours: 3**

A survey of western Europe, including its ancient Jewish, Greco-Roman and Christian roots; the Middle Ages, Renaissance and Reformation.

HIST1020 Europe From 1600 **Credit Hours: 3**

A survey of European history from the 17th century to the present with emphasis on the major political, economic, social and cultural trends.

HIST1050 World History To 1500 **Credit Hours: 3**

A survey of the ancient world from the stone age to around 1500. Cultural and political topics are treated so as to compare the major civilizations.

HIST1060 World History From 1500 **Credit Hours: 3**

A survey of world history from 1500 to the present. Cultural and political topics are treated so as to draw comparisons between the most significant modern societies.

HIST1070 The Contemporary World **Credit Hours: 3**

This thematic survey of the 20th century from a historical and global perspective emphasizes the origins of the world in which we live and discusses some of our alternative futures.

HIST1080 East Asia To 1800 **Credit Hours: 3**

Multidisciplinary introduction to traditional East Asia (origins-1800) with emphasis on the historical development, political traditions, socio-economic patterns, religious and philosophical values, and cultural accomplishments of China and Japan.

HIST1090 East Asia From 1800 **Credit Hours: 3**

Multidisciplinary introduction to the history, civilization, political organization, international relations, social and economic patterns, and cultural trends of China and Japan since 1800.

HIST1100 Latin American Civilizations **Credit Hours: 3**

A thematic survey from pre-Columbian times to the present. Covers Native American cultures, European colonial policies and institutions, independence movements, the emergence of new nations and twentieth-century problems.

HIST1110 African Civilization **Credit Hours: 3**

General cultural and historical survey of Africa south of the Sahara from earliest times to the 20th century. Includes topics on art, literature, philosophy, religion and society.

HIST1120 Middle East Civilization **Credit Hours: 3**

General cultural and historical survey of the Middle East and Islam from 600 to the 20th century. Includes topics in historical movements, literature, religion, and social and intellectual history.

HIST1130 Introduction To Historical Thinking **Credit Hours: 3-4**

(Not for major credit) An introduction to the nature, concepts and skills of the discipline of history designed to improve historical awareness and the ability to think historically. Occasionally offered as a writing intensive course.

HIST1200 Main Themes In American History **Credit Hours: 3**

This thematic survey introduces students to historical theory, methods, and the primary sub-fields of American history from colonial conquest to the present day.

HIST2000 Methods Seminar **Credit Hours: 4**

Research techniques, writing of term papers and book reviews. Introduction to historiography. Offered as a writing intensive course.

HIST2010 America To 1865 **Credit Hours: 3**

The development of the United States from its Native American and immigrant roots through the Civil War.

HIST2020 America From 1865 **Credit Hours: 3**

Survey of American history since the Civil War, with special attention to political, social, economic and cultural developments.

HIST2030 Great Americans **Credit Hours: 3**

The careers of selected Americans in politics, business, science, religion and literature.

HIST2040 Ancient Near East **Credit Hours: 3**

Survey of the Sumerian, Babylonian, Hittite, Assyrian, Egyptian, Palestinian and Persian worlds.

HIST2050 Ancient Greece **Credit Hours: 3**

Survey of the Greek and Hellenistic world.

HIST2060 Ancient Rome **Credit Hours: 3**

Survey of the Roman Republic and Empire.

HIST2070 Ancient Jewish History **Credit Hours: 3**

Institutions, culture and religion from earliest times through the Biblical Period and the fall of the Temple in the 1st century.

HIST2090 Modern Jewish History **Credit Hours: 3**

Background to the contemporary Jewish community. Ghetto, emancipation, Zionism, Holocaust and third Jewish commonwealth in Israel.

HIST2170 Great Britain To 1714 **Credit Hours: 3**

An introductory course on British history from the Roman conquest to 1714. Emphasis on Anglo-Saxon and Norman invasions, the rise of Parliament, common law, and Puritan Revolution.

HIST2180 Great Britain From 1714 To The Present **Credit Hours: 3**

An introductory course on British history from the Hanoverian dynasty to the present. Emphasis on English maritime power, the industrial revolution and two world wars.

HIST2190 Britain And Ireland **Credit Hours: 3**

From the 17th to the 20th century, the mutual influences in literature and history of colony and colonizer are examined.

HIST2250 World War I **Credit Hours: 3**

World War I from origins to conclusion and its effect on the course of the 20th century. Political and diplomatic background, conduct, termination, technology, and the war's effect on society and the 20th century.

HIST2260 World War II On Film **Credit Hours: 3**

Analysis of contemporary and retrospective documentary film treatments of major aspects of World War II, with emphasis on their historical accuracy and authenticity.

HIST2280 Toledo: Emergence Of A City, 1750-1880 **Credit Hours: 3**

Early history of Toledo and the Maumee River Valley, including Indian settlement, imperial rivalries, Maumee Valley towns, economic growth, immigrant arrivals and the creation of neighborhoods.

HIST2290 Toledo: Metropolitan Era, 1880-1980 **Credit Hours: 3**

The growth of Toledo in the 20th century, including suburbanization, the city's leadership in the national Progressive Movement, Depression and New Deal, organized labor, individual suburbs, and recent problems.

HIST2340 American Indian History **Credit Hours: 3**

An introduction to Indian-White relations from pre-Columbian times to present. Emphasizes tribes of the United States, Mexico and Canada.

HIST2640 Medieval Russia **Credit Hours: 3**

Russia from the 9th century to 1700, including Kievan and Moscovite Russia.

HIST2650 Modern Russia **Credit Hours: 3**

Russia from 1700 to the present, including Imperial and Soviet Russia.

HIST2700 Japan And World War II **Credit Hours: 3**

A study of the factors behind Japan's entry into World War II with the United States and the Allied Powers and an in-depth treatment of Japan at war.

HIST2710 Postwar Japan **Credit Hours: 3**

This course examines the development of Japan since the war. It focuses on the political, economic, social and cultural changes since 1945 and relates these factors to Japan's international relations.

HIST2720 History Of Tokyo **Credit Hours: 3**

An examination of Japanese urban social and cultural history. Treats the foundations of Edo, transition to Tokyo, the modern rise, the great earthquake, the war, the Olympics and the present.

HIST2730 The Chinese Revolution **Credit Hours: 3**

This course examines the process by which Mao Zedong and the Chinese Communist Party came to power. It treats the political, economic and social forces behind the Chinese revolution (1900-49).

HIST2980 Special Topics **Credit Hours: 1-4**

Topics selected by various instructors. May be repeated when the topic varies.

HIST3100 European Middle Ages I **Credit Hours: 3**

The history of Western Europe from its beginnings to the eve of the First Crusade.

HIST3110 European Middle Ages II **Credit Hours: 3**

Europe from the First Crusade to the late 13th century.

HIST3130 Tudor England **Credit Hours: 3**

Tudor England from 1485 to the end of the reign of Elizabeth I, emphasizing political, economic and social developments.

HIST3160 The American West **Credit Hours: 3**

Settlement since the Civil War; mining rushes and Indian wars; violence and outlaws; farming and cattle ranching. Twentieth-century politics; ethnicity; and economics. Growth of California and the Sunbelt states.

HIST3190 Britain From 1763 To 1832 **Credit Hours: 3**

An intensive examination of the slave trade, factory system, radicalism, Parliamentary Reform, insurrection, by means of reading primary sources such as Tom Paine.

HIST3200 Colonial Latin America **Credit Hours: 3**

Latin American history to 1825. Covers pre-Columbian Indian civilizations; Spanish and Portuguese conquests, colonial policies and institutions; colonial life and independence movements.

HIST3210 Modern Latin America **Credit Hours: 3**

Major economic, political and social developments from independence to the present. In spite of the region's tremendous diversity, there is a shared "Latin American" experience.

HIST3250 African-American History To 1865 **Credit Hours: 3**

An examination of the historical experiences of African-Americans in the United States from 1619 to 1865.

HIST3260 African-American History From 1865 **Credit Hours: 3**

An examination of the historical experiences of African-Americans in the United States since 1865.

HIST3270 The City In American History, 1607-1850 **Credit Hours: 3**

Urbanization and the city in world history. The growth, planning and problems of American cities from colonial times until the mid-19th century.

HIST3280 City And Metropolis In Modern America, 1850 To The Present **Credit Hours: 3**

The growth of the 19th-century city and the emergence of the 20th- century American metropolis. Urban problems of the 20th century.

HIST3290 Ohio History **Credit Hours: 3**

From colonial times to the present.

HIST3310 Ethnic America **Credit Hours: 3**

American ethnic diversity from the colonial era to recent decades. A study of individuals and groups. Topics include American identity and Americanization, migration, legislation, nativism.

HIST3320 Indians In Eastern North America **Credit Hours: 3**

Native Americans in Eastern North America from prehistoric times through Jacksonian Indian Removal. Emphasis on intercultural interactions.

HIST3360 American Intellectual History I **Credit Hours: 3**

Development and influence of major ideas from the colonial period to 1865. Topics include Puritanism, the Enlightenment, Democracy and Transcendentalism.

HIST3370 American Intellectual History II **Credit Hours: 3**

Major developments in American thought from 1865, including Social Darwinism, pragmatism, ideological conflict, modern science, education.

HIST3380 Business And American Society **Credit Hours: 3**

The growth of American business enterprise and its relationship to culture, politics, technological developments and economic change.

HIST3400 American Social And Cultural History To 1850 **Credit Hours: 3**

American social and cultural patterns, institutions and forces from the colonial period to the mid-19th century.

HIST3410 American Social And Cultural History, 1850-The Present **Credit Hours: 3**

American social and cultural patterns, institutions and forces from the mid-19th century to the present.

HIST3420 American Military History **Credit Hours: 3**

The development of the strategy, tactics, organization, operation and policies of the armed forces of the U.S.; the interaction with technological factors, foreign policy goals, international problems and American society.

HIST3430 American Military History In The 20th Century **Credit Hours: 3**

Intensive examination of the history of land, sea, air and intelligence factors. Emphasizes the historical development of the strategy and tactics of wars, peacetime planning, technological developments and military-societal relationships.

HIST3440 American Radicalism **Credit Hours: 3**

Origins and development of radical social movements and their ideologies from the American Revolution to the New Left of the 1960s. Abolitionism, Feminism, Communitarianism, Marxism, Anarchism, Populism, Communism and the Peace Movement are among the topics to be studied.

HIST3480 American Labor And Working Class History **Credit Hours: 3**

Development of working class communities, cultures, organizations and ideology from colonial era to the present. Topics include industrialization, unionization, labor law, gender and race constructions.

HIST3500 European Diplomacy 1648-1815 **Credit Hours: 3**

The foreign policies and foreign relations of the great powers from 1648 to the Congress of Vienna, 1815.

HIST3510 European Diplomacy, 1815 To The Present **Credit Hours: 3**

The foreign policies and foreign relations of the great powers from the Congress of Vienna until the present.

HIST3520 Development Of Modern Germany To 1918 **Credit Hours: 3**

Development of modern German history from the late Middle Ages to the end of World War I with emphasis on the emergence of German nationalism and a united German state in the 18th-19th centuries.

HIST3530 20th Century Germany **Credit Hours: 3**

Germany's development from the end of World War I to the present with emphasis on the rise of Nazism, World War II, and the division and new unification of Germany.

HIST3550 History Of The Middle East Since 1500 **Credit Hours: 3**

History of the Middle East from the collapse of the Medieval Muslim States and the rise of the Ottoman Empire in the 16th century through the period of European intervention to the development of independent Middle Eastern states in the 20th century.

HIST3600 Women In American History **Credit Hours: 3**

This course presents American history from early settlement to the present by examining the contributions of women, in interaction with men, to the immensely complex fabric of American life.

HIST3630 Africa To 1800 **Credit Hours: 3**

Africa south of the Sahara from antiquity to 1800. Topics include the peopling of the continent, growth of centralized political institutions, stateless societies, Islamic penetration, African slave trade.

HIST3640 Africa Since 1800 **Credit Hours: 3**

Africa south of the Sahara from 1800 to the present. Subjects include 19th century, colonial and independent Africa. Specific topics: the rise of South Africa, imperialism, African resistance and nationalism and independent African political, cultural and economic systems.

HIST3770 American Foreign Relations To The Early 20th Century **Credit Hours: 3**

The foreign policy and international relations of the U.S. from the founding of the republic to the early 20th century.

HIST3780 American Foreign Relations From The Late 19th Century To The Present **Credit Hours: 3**

The foreign policy and international relations of the U.S. from the late 19th century to the present.

HIST3870 Junior Honors Research I **Credit Hours: 3**

Independent research on specific historical topics.

HIST3880 Junior Honors Research II **Credit Hours: 3**

Independent research on specific historical topics.

HIST3980 Special Topics **Credit Hours: 1-4**

Topics selected by various instructors. May be repeated when the topic varies.

HIST4010 Greek History **Credit Hours: 3**

Selected topics on the political and social institutions of Greece in the classical and Hellenistic periods.

HIST4020 Roman History **Credit Hours: 3**

Selected topics on the political and social institutions of Rome during the Republic and Empire.

HIST4030 Europe In The 14th-15th Centuries **Credit Hours: 3**

The waning of the Middle Ages and the development of the Renaissance in Western Europe with emphasis on Italy.

HIST4040 Europe In The 16th-17th Centuries **Credit Hours: 3**

Society, culture and politics in early modern Europe with emphasis on culture north of the Alps, the Reformation and the nation-state.

HIST4060 Age Of Absolutism **Credit Hours: 3**

The growth and decline of the absolute monarchies in Europe and the development of a world market economy, c.1550-1715.

HIST4080 Age Of Revolution **Credit Hours: 4**

The age of the French Revolution and Napoleon, c.1785-1848.

HIST4090 Europe, 1850-1918 **Credit Hours: 3**

Internal and international development of the major European states from the mid-19th century to World War I with emphasis on nationalism, industrialization, imperialism, the origins and course of war.

HIST4100 Europe Since World War I **Credit Hours: 3**

Internal and international development of the major European states from World War I to the end of the twentieth century.

HIST4150 Critics Of Victorian Society **Credit Hours: 3**

Principal critics of society like Ruskin, Carlyle, Cobbett, Marx, Engels, Morris, Mill are read with a view to understanding capitalism, industrialism and England.

HIST4170 The British Empire: For And Against **Credit Hours: 3**

The emergence of England as a maritime power, as an empire, and as a financial force, with emphasis upon resistances and decolonization.

HIST4180 Topics In English Social And Economic History **Credit Hours: 3**

Selected topics of modern English society and economy will be covered, such as urbanization, family and gender relations, enclosures, work and crafts.

HIST4200 Colonial Foundations Of U.s. **Credit Hours: 3**

This course analyzes the colonial experience of the United States prior to 1763. It stresses the various cultures and social groups in America and how they related with one another.

HIST4210 Women In Early America **Credit Hours: 3**

A survey of the history of women in America up to 1860. Special focus on the divergent experiences of Native American, European American and African American women, including the forced and voluntary migrations of women to and across North America.

HIST4220 The American Revolution **Credit Hours: 3**

The background and progress of the War for Independence.

HIST4230 The Early Republic **Credit Hours: 3**

American politics and culture in the Federalist and Jeffersonian periods, 1789-1819.

HIST4240 The Age Of Jackson **Credit Hours: 3**

Jacksonian democracy in politics and as a reform movement; the sectional controversy; the Mexican-American War.

HIST4250 Civil War And Reconstruction **Credit Hours: 3**

Slavery and the Constitution in the sectional controversy, the political and military events of the Civil War, and the impact of the war on American society, 1848-1876.

HIST4260 Emergence Of Modern America, 1876-1919 **Credit Hours: 3**

American society in the late 19th and early 20th centuries including industrialization, urbanization, immigration, agrarian and labor revolts, politics, economic expansion, overseas initiatives, Progressive reform and involvement in World War I.

HIST4270 20th Century America, 1920-1945 **Credit Hours: 3**

Social, political and economic development of the United States, 1920-1945. The Republican ascendancy, the car culture, Great Depression, New Deal and World War II.

HIST4280 U.s. Since 1945: Affluence And Anxiety **Credit Hours: 3**

Social, economic and political development of the United States since 1945. The Cold War, McCarthyism, Eisenhower Equilibrium, the New Frontier and the Great Society, civil rights, Watergate and the Reagan Revolution.

HIST4310 History Of Native American Religious Movements **Credit Hours: 3**

History of Native American revitalization movements as a response to European colonization and Indian dispossession.

HIST4340 Far Western Frontier **Credit Hours: 3**

Native Americans; Spanish conquistadors and missionaries; American scientific and military exploration; mountain men and fur trade; international rivalries and Mexican War; gold rush of '49.

HIST4430 Slavery In America **Credit Hours: 3**

Stresses the African continuum among slaves within the context of variations in goals and policies of slaveowners, slave trade, slave economics, demographics, slave labor and formation of slave culture.

HIST4450 The United States And Latin America **Credit Hours: 3**

Examines the 19h and 20th centuries: emphasizing events and movements defining political, economic, migratory, military, and cultural relations and the emergence of Latinos as largest minority group in the US.

HIST4470 People And Politics In Mexico **Credit Hours: 3**

Mexican history from pre-Hispanic times to the present. Emphasis on the political, social and economic changes imposed by the Spaniards; the legacy of colonialism on the modern nation; the Mexican Revolution and the "Mexican Miracle."

HIST4490 Witchcraft And Magic In Medieval And Early Modern Europe **Credit Hours: 3**

Witchcraft, religion and magic in western Europe from the 12th through 17th centuries, focusing on the origins of witchcraft belief, diabolical magic, the witchcraze and its decline.

HIST4620 Central Europe **Credit Hours: 3**

Central Europe from medieval times to the present. The Habsburg Empire, Poland, the Balkans, twentieth-century changes.

HIST4660 Imperial Russia, 1700-1917 **Credit Hours: 3**

Rise and fall of the Russian Empire. Politics and society from the time of Peter the Great to the 1917 Revolution.

HIST4680 20th Century Russia **Credit Hours: 3**

Russia from the 1917 Revolution to the present. Topics include Marxism, Communism, Stalinism, Cold War.

HIST4720 Modern Chinese History **Credit Hours: 3**

China in transition under the impact of the West; forces leading to the revolution of 1911, the Nationalists' struggle, the emergence of the People's Republic of China and aspects of post-revolutionary China.

HIST4740 Modern Japanese History **Credit Hours: 3**

Japan in transition under Western influence, forces leading to the Meiji Restoration, the modernization of Japan, Japan's rise as a world power, war and postwar developments.

HIST4750 Europe And Asia: Exploration And Exchange, 1415-1800 **Credit Hours: 3**

Motivation and process of European expansion to Africa and Asia from 1415-1800.

HIST4760 Colonialism And Imperialism In The 19th-20th Centuries **Credit Hours: 3**

The imposition of European political, cultural and economic hegemony over Africa and Asia in the 19th and 20th centuries; the resistance and reaction of indigenous non-western people to colonialism.

HIST4790 The Holocaust **Credit Hours: 3**

This advanced course deals with selected aspects of the history and memory of Nazi genocide against the Jews of Europe, with special emphasis on visual and survivor sources.

HIST4830 Theory Of Public History **Credit Hours: 3**

The definition, philosophy and evolution of public history as well as the current literature and debates within the field. Public history is the application of historical knowledge and methodology beyond academe.

HIST4840 Public History Practicum **Credit Hours: 3**

Course provides students with hands-on experience in the practice of public history by completing a project using specialized techniques, client-oriented research and teamwork. May be repeated for credit.

HIST4870 Senior Honors Research I **Credit Hours: 3**

Open to College Honors students, to History Honors students and to Honors students from other departments. Independent research in specific topics.

HIST4880 Senior Honors Research II **Credit Hours: 3**

Open to College Honors students, to History Honors students and to Honors students from other departments. Independent research in specific topics.

HIST4940 Public History Internship **Credit Hours: 2-4**

Supervised practical experience in the field of public history.

Prerequisites: (HIST 2000 FOR LEVEL UG WITH MIN. GRADE OF D- AND HIST 4830 FOR LEVEL UG WITH MIN. GRADE OF D-)

HIST4980 Special Topics **Credit Hours: 1-4**

Topics selected by various instructors.

HIST4990 Independent Studies **Credit Hours: 1-4**

Research and writing on topics designed to meet individual needs.

HIST5010 Greek History **Credit Hours: 3**

Selected topics on the political and social institutions of Greece in the classical and Hellenistic periods.

HIST5020 Roman History **Credit Hours: 3**

Selected topics on the political and social institutions of Rome during the Republic and Empire.

HIST5030 Europe In The 14th-15th Centuries **Credit Hours: 3**

The waning of the Middle Ages and the development of the Renaissance in Western Europe with emphasis on Italy.

HIST5040 Europe In The 16th-17th Centuries **Credit Hours: 3**

Society, culture and politics in early modern Europe with emphasis on culture north of the Alps, the Reformation and the nation-state.

HIST5060 Age Of Absolutism **Credit Hours: 3**

The growth and decline of the absolute monarchies in Europe and the development of a world market economy, c. 1550-1715.

HIST5080 Age Of Revolution **Credit Hours: 4**

The age of the French Revolution and Napoleon, c. 1785-1848.

HIST5090 Europe, 1850-1918 **Credit Hours: 3**

Internal and international development of the major European states from the mid-19th century to World War I with emphasis on nationalism, industrialization, imperialism, and the origins and course of war.

HIST5100 Europe Since World War I **Credit Hours: 3**

Internal and international development of the major European states from World War I to the end of the twentieth century.

HIST5150 Critics Of Victorian Society **Credit Hours: 3**

Principal critics of society like Ruskin, Carlyle, Cobbett, Marx, Engels, Morris and Mill are read with a view to understanding capitalism, industrialism and England.

HIST5170 The British Empire: For And Against **Credit Hours: 3**

The emergence of England as a maritime power, as an empire, and as a financial force, with emphasis upon resistances and decolonization.

HIST5200 Colonial Foundations Of The U.s. **Credit Hours: 3**

This course analyzes the colonial experience of the United States prior to 1763. It stresses the various cultures and social groups in America and how they related with one another.

HIST5220 The American Revolution **Credit Hours: 3**

The background and progress of the War for Independence.

HIST5230 The Early Republic **Credit Hours: 3**

American politics and culture in the Federalist and Jeffersonian periods, 1789-1819.

HIST5240 The Age Of Jackson **Credit Hours: 3**

Jacksonian democracy in politics and as a reform movement; the sectional controversy; the Mexican-American War.

HIST5250 Civil War And Reconstruction **Credit Hours: 3**

Slavery and the Constitution in the sectional controversy, the political and military events of the Civil War, and the impact of the war on American society, 1848-1876.

HIST5260 Emergence Of Modern America, 1876-1919 **Credit Hours: 3**

American society in the late 19th and early 20th centuries, including industrialization, urbanization, immigration, agrarian and labor revolts, politics, economic expansion, overseas initiatives, Progressive reform and involvement in World War I.

HIST5270 20th Century America, 1920-1945 **Credit Hours: 3**

Social, political and economic development of the United States, 1920-1945. The Republican ascendancy, the car culture, Great Depression, New Deal and World War II.

HIST5280 U.s. Since 1945: Affluence And Anxiety **Credit Hours: 3**

Social, economic and political development of the United States since 1945. The Cold War, McCarthyism, Eisenhower Equilibrium, the New Frontier and the Great Society, civil rights, Watergate and the Reagan Revolution.

HIST5310 History Of Native American Religious Movements **Credit Hours: 3**

History of Native American revitalization movements as a response to European colonization and Indian dispossession.

HIST5320 Indians In Eastern North America **Credit Hours: 3**

Native Americans in Eastern North America from prehistoric times through Jacksonian Indian Removal. Emphasis on intercultural interactions.

HIST5330 Western American Indians **Credit Hours: 3**

Native Americans of the Far West from prehistoric times through recent years. Emphasis on European contact and governmental policies.

HIST5340 Far Western Frontier **Credit Hours: 3**

Native Americans; Spanish conquistadors and missionaries; American scientific and military exploration; mountain men and fur trade; international rivalries and Mexican War; gold rush of '49.

HIST5360 American Intellectual History I **Credit Hours: 3**

Development and influence of major ideas from the colonial period to 1865. Topics include Puritanism, the Enlightenment, Democracy and Transcendentalism.

HIST5370 American Intellectual History II **Credit Hours: 3**

Major developments in American thought from 1865, including Social Darwinism, pragmatism, ideological conflict, modern science, education.

HIST5380 Business And American Society **Credit Hours: 3**

The growth of American business enterprise and its relationship to culture, politics, technological developments and economic change.

HIST5390 American Foreign Relations To The Early 20th Century **Credit Hours: 3**

The foreign policy and international relations of the U.S. from the founding of the republic to the early 20th century.

HIST5400 American Foreign Relations From The Late 19th Century To The Present **Credit Hours: 3**

The foreign policy and international relations of the U.S. from the late 19th century to the present.

HIST5430 Slavery In America **Credit Hours: 3**

Stresses the African continuum among slaves within the context of variations in goals and policies of slaveowners, slave trade, slave economics, demographics, slave labor and formation of slave culture.

HIST5450 United States and Latin Amer **Credit Hours: 3**

HIST5460 Women In American History **Credit Hours: 3**

This course presents American history from early settlement to the present by examining the contributions of women, in interaction with men, to the immensely complex fabric of American life.

HIST5470 Mexico **Credit Hours: 3**

Mexican history from pre-Hispanic times to the present. Emphasis on the political, social and economic changes imposed by the Spaniards; the legacy of colonialism on the modern nation; the Mexican Revolution and the "Mexican Miracle."

HIST5480 American Labor And Working Class History **Credit Hours: 3**

Development of working class communities, cultures, organizations and ideology from colonial era to the present. Topics include industrialization, unionization, labor law, gender and race constructions.

HIST5490 Witchcraft And Magic In Medieval And Early Modern Europe **Credit Hours: 3**

Witchcraft, religion and magic in western Europe from the 12th through 17th centuries, focusing on the origins of witchcraft belief, diabolical magic, the witchcraze and its decline.

HIST5500 European Diplomacy, 1648-1815 **Credit Hours: 3**

The foreign policies and foreign relations of the great powers from 1648 to the Congress of Vienna, 1815.

HIST5510 European Diplomacy, 1815 To The Present **Credit Hours: 3**

The foreign policies and foreign relations of the great powers from the Congress of Vienna until the present.

HIST5530 History Of The Middle East Since 1500 **Credit Hours: 3**

History of the Middle East from the collapse of the Medieval Muslim States and the rise of the Ottoman Empire in the 16th century through the period of European intervention to the development of independent Middle Eastern States in the 20th century.

HIST5570 Africa To 1800 **Credit Hours: 3**

Africa south of the Sahara from antiquity to 1800. Topics include the peopling of the continent, growth of centralized political institutions, stateless societies, Islamic penetration, African slave trade.

HIST5580 Africa Since 1800 **Credit Hours: 3**

Africa south of the Sahara from 1800 to the present. Subjects include 19th century, colonial and independent Africa. Specific topics: the rise of South Africa, imperialism, African resistance and nationalism and independent African political, cultural and economic systems.

HIST5620 Central Europe **Credit Hours: 3**

Central Europe from medieval times to the present. The Habsburg Empire, Poland, the Balkans, twentieth-century changes.

HIST5660 Imperial Russia, 1700-1917 **Credit Hours: 3**

Rise and fall of the Russian Empire. Politics and society from the time of Peter the Great to the 1917 Revolution.

HIST5680 20th Century Russia **Credit Hours: 3**

Russia from the 1917 Revolution to the present. Topics include Marxism, Communism, Stalinism, Cold War.

HIST5720 Modern Chinese History **Credit Hours: 3**

China in transition under the impact of the West; forces leading to the revolution of 1911, the Nationalists' struggle, the emergence of the People's Republic of China and aspects of post-revolutionary China.

HIST5740 Modern Japanese History **Credit Hours: 3**

Japan in transition under Western influence, forces leading to the Meiji Restoration, the modernization of Japan, Japan's rise as a world power, war and postwar developments.

HIST5750 Europe And Asia: Exploration And Exchange, 1415-1800 **Credit Hours: 3**

Motivation and process of European expansion to Africa and Asia from 1415-1800.

HIST5760 Colonialism And Imperialism In The 19th-20th Centuries **Credit Hours: 3**

The imposition of European political, cultural and economic hegemony over Africa and Asia in the 19th and 20th centuries; the resistance and reaction of indigenous non-western people to colonialism.

HIST5790 The Holocaust **Credit Hours: 3**

This advanced course deals with selected aspects of the history and memory of Nazi genocide against the Jews of Europe, with special emphasis on visual and survivor sources.

HIST5830 Theory Of Public History **Credit Hours: 3**

The definition, philosophy and evolution of public history as well as the current literature and debates within the field. Public history is the application of historical knowledge and methodology beyond academe.

HIST5840 Public History Practicum **Credit Hours: 3**

Course provides students with hands-on experience in the practice of public history by completing a project using specialized techniques, client-oriented research and teamwork. May be repeated for credit.

HIST5940 Public History Internship **Credit Hours: 2-4**

Supervised practical experience in the field of public history.

HIST5980 Special Topics **Credit Hours: 1-4**

Topics selected by various instructors.

HIST6600 Historiography **Credit Hours: 4**

The nature of historical writing. Concepts of the historical method. The history of the writing of history from the beginning to the present.

HIST6930 Seminar **Credit Hours: 4**

Focus on primary research and writing in various fields: 01: 17th and 18th century America, 05: 19th century America, 06: American Urban, 07: American West, 08: American Intellectual, 10: Local History, 11: American Labor, 12: American Foreign Relations, 15: 20th century America, 16: Public History, 17: U. S. Bibliography to 1865, 18: U. S. Bibliography since 1865, 35: Latin America, 39: Ancient, 40: Medieval Europe, 45: Early Modern Europe, 50: Modern Europe, 55: Central Europe and Balkans, 60: England, 65: British Empire, 70: Russia, 75: Modern East Asia, 80: Africa, 90: Special Topics

HIST6960 Thesis **Credit Hours: 1-16**

M.A. thesis topic to be selected by the student with the approval of the thesis adviser.

HIST6990 Independent Study **Credit Hours: 1-4**

Readings: 01: 17th and 18th Century America, 05: 19th Century America, 06: American Urban, 07: American West, 08: American Intellectual, 10: Local History, 11: American Labor, 12: American Foreign Relations, 13: Public History, 15: 20th Century America, 16: Business, 17: Peace Movements, 18: Social, 35: Latin America, 40: Medieval Europe, 41: Renaissance and Reformation, 45: Early Modern Europe, 50: Modern Europe, 55: Central Europe and Balkans, 60: England, 65: British Empire, 70: Russia, 75: Modern East Asia, 80: Ancient Greece, 90: Ancient Rome, 92: Africa, 99: Any Title

HIST7980 Special Topics **Credit Hours: 1-4**

Study of secondary and primary sources in various fields: 01: Colonial and Revolutionary, 02: 19th century America, 03: 20th century America, 04: American South, 05: American West, 06: American Intellectual, 07: American Foreign Relations, 08: American Constitutional, 09: American Labor, 10: American Urban, 11: American Social, 12: American Urban Progressive Reform, 13: Public History, 16: American Business, 17: Peace Movements, 18: Ethnic, 19: Ancient, 20: Medieval Europe, 21: Renaissance and Reformation, 22: Europe, 1648-1815, 23: Europe, 1815-present, 24: Russia, 25: Great Britain, 26: Traditional East Asia to 1800, 27: Modern East Asia, 1800 to present, 28: Latin America, 29: Middle East, 30: Africa, 99: Any Title

HIST8600 Historiography **Credit Hours: 4**

The nature of historical writing. Concepts of the historical method. The history of the writing of history from the beginning to the present: 01: America 02: Asia 03: Europe 04: Latin America 05: Africa 06: Special Topics

HIST8930 Seminar **Credit Hours: 4**

Focus on primary research and writing in various fields: 01: 17th and 18th century America, 05: 19th century America, 06: American Urban, 07: American West, 08: American Intellectual, 10: Local History, 11: American Labor, 12: American Foreign Relations, 15: 20th century America, 16: Public History, 17: U. S. Bibliography to 1865, 18: U. S. Bibliography since 1865, 35: Latin America, 39: Ancient, 40: Medieval Europe, 45: Early Modern Europe, 50: Modern Europe, 55: Central Europe and Balkans, 60: England, 65: British Empire, 70: Russia, 75: Modern East Asia, 80: Africa, 90: Special Topics

HIST8960 Dissertation **Credit Hours: 1-16**

Ph.D. dissertation topic to be selected by the student with the approval of the dissertation adviser.

HIST8990 Independent Study **Credit Hours: 1-4**

Readings: 01: 17th and 18th Century America, 05: 19th Century America, 06: American Urban, 07: American West, 08: American Intellectual, 10: Local History, 11: American Labor, 12: American Foreign Relations, 13: Public History, 15: 20th Century America, 16: Business, 17: Peace Movements, 18: Social, 35: Latin America, 40: Medieval Europe, 41: Renaissance and Reformation, 45: Early Modern Europe, 50: Modern Europe, 55: Central Europe and Balkans, 60: England, 65: British Empire, 70: Russia, 75: Modern East Asia, 80: Ancient Greece, 90: Ancient Rome, 92: Africa, 99: Any Title

HON1010 Honors Readings Conference I **Credit Hours: 3**

This reading, writing and discussion course examines Great Books and formative ideas, primarily from the Western tradition. Readings Conference 1010 focuses on selected works from ancient times through the Middle Ages.

HON1020 Honors Readings Conference II **Credit Hours: 3**

This reading, writing and discussion course examines Great Books and formative ideas, primarily from the Western tradition. Readings Conference 1020 focuses on selected works from the Renaissance through the 20th Century.

Prerequisites: HON FOR MIN. SCORE OF 1

HON2020 Multicultural Literatures: The North American Experience-Honors-WAC **Credit Hours: 3**

This reading, writing and discussion course examines selected literatures of the North American experience: for example, texts by African American, Arab American, Asian American, Hispanic or Native American authors.

HON2030 Multicultural Literatures: The Non-European World-Honors-WAC **Credit Hours: 3**

This reading, writing and discussion course examines selected non-European literatures.

HON2990 Independent Study **Credit Hours: 1-5**

Supervised independent study.

HON4950 Honors Seminar **Credit Hours: 3**

These interdisciplinary seminars are organized around a variety of subjects and intellectual concerns.

HON4960 Honors Seminar **Credit Hours: 3**

These interdisciplinary seminars are organized around a variety of subjects and intellectual concerns.

HON4990 Independent Study **Credit Hours: 1-5**

Supervised independent study.

HSHS6000 Statistics and Research for Health Science and Human Service Professions **Credit Hours: 3-5**

An interdisciplinary course covering basic statistics and related research design with specific applications in various health sciences and human service professions.

HSHS8000 Statistics and Research for Health Science and Human Service Professions **Credit Hours: 3-5**

An interdisciplinary course covering basic statistics and related research design with specific applications in various health sciences and human service professions.

HUM1010 Classical Humanities **Credit Hours: 3**

An introduction to the civilization of the Greeks and Romans in which history, literature, mythology, art and philosophy are interrelated and interpreted.

HUM1200 Framing Cultures, Building Communities **Credit Hours: 3**

This interdisciplinary course examines cultures and community difference and group identity through reading and discussing major texts from various world traditions, mainly Western civilization from antiquity to the present.

HUM2010 World Humanities Traditions I **Credit Hours: 3**

Study of major works of world literature, philosophy and the arts from ancient times to c. 1600. Inter-relationships among history, ideas and the arts are explored in lectures and discussions.

HUM2020 World Humanities Traditions II **Credit Hours: 3**

Study of major works of world-literature, philosophy and the arts from c. 1600 to the present day. Inter-relationships among history, ideas and the arts will be explored in lectures and discussions.

HUM2220 Telling Stories, Valuing Lives **Credit Hours: 3**

Drawing connections between literature and philosophy, this course examines issues of self-representation, human values in literature, canon formation and the cultural contexts of literature.

HUM2980 Special Topics In The Humanities **Credit Hours: 1-4**

This course is devoted to any topic or topics in the humanities that the instructor sees fit. The instructor and topic will alternate from semester to semester according to student and departmental interest in certain topics.

HUM3010 The Transformation Of Memory **Credit Hours: 3**

This course explores a range of private, public and professional memory and how these contribute to a sense of historical literacy and to the structures of the larger American experience.

HUM3020 Reason's Culture **Credit Hours: 3**

An examination of what education has meant and can mean in our present context. Topics will include the nature of culture, how it is evaluated and what the cultivation of critical reasoning involves.

HUM3100 Classical Mythology **Credit Hours: 3**

A survey of Greek and Roman mythology in classical literature, sculpture and art.

HUM4950 Humanities Senior Thesis I **Credit Hours: 4**

This seminar provides senior humanities majors with an opportunity to pursue creative/research projects and to discuss them with their adviser and their peers.

HUM4960 Humanities Senior Thesis II **Credit Hours: 4**

This seminar provides senior humanities majors with the opportunity to pursue creative/research projects and to discuss them with their adviser and their peers.

HURM3220 Human Resource Management **Credit Hours: 3**

Introduction to the field of human resource management. It is designed for students planning careers in human resources or those who simply wish to supplement their skills in personnel matters commonly of concern to all managers.

Prerequisites: BUAD 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

HURM3630 Conflict Management: Mediation & Negotiations **Credit Hours: 3**

Course is designed to develop negotiation and conflict management skills. Students will learn to apply these skills in distributive and integrative negotiation situations using cases, role-plays and exercises.

HURM4640 Benefits, Health & Wellness **Credit Hours: 3**

Includes planning and administering mandatory and voluntary benefit programs, cost containment strategies and benefit communication programs. Development and administration of Employee Assistance Programs and employee wellness programs are also covered.

Prerequisites: HURM 3220 FOR LEVEL UG WITH MIN. GRADE OF D-

HURM4650 Compensation **Credit Hours: 3**

Design and administration of compensation systems, including job evaluation, skill-based pay, salary surveys, pay level decisions, pay structures, executive and special employee group compensation programs, and budget and administrative issues.

Prerequisites: HURM 3220 FOR LEVEL UG WITH MIN. GRADE OF D-

HURM4660 Planning, Selection, And Recruitment **Credit Hours: 3**

Covers aspects of human resource planning, including Affirmative Action and succession planning, developing legally defensible selection and recruitment methods, and career development.

Prerequisites: HURM 3220 FOR LEVEL UG WITH MIN. GRADE OF D-

HURM4710 Training And Evaluation **Credit Hours: 3**

Theory, research, and practice related to the design and implementation of employee training programs and formal performance evaluation systems. Includes development of specific training programs.

Prerequisites: HURM 3220 FOR LEVEL UG WITH MIN. GRADE OF D-

HURM6700 Human Resource Management **Credit Hours: 3**

A survey of the functions and current trends in human resources management. Special emphasis on research methods, tools and techniques for in-depth understanding of problems and challenges faced by medium-sized firms.

HURM6710 Employment And Labor Law **Credit Hours: 3**

This course introduces the objectives, activities and practices involved in employment and labor law. It is designed for those pursuing careers in human resources or managers wishing to understand their responsibilities in this area.

HURM6720 Advanced Negotiation and Conflict Management **Credit Hours: 3**

This course equips students to make more effective decisions in employee relations. Course emphasis is on active analysis of employee-employer relationships in terms of procedures, costs, and ramifications to both organizations and people.

HURM6730 Performance Management **Credit Hours: 3**

This course is designed to provide practical working knowledge of the processes of setting expectations, monitoring performance, coaching and developing employees, and assessing and rewarding good performance in rapidly changing organizations.

HURM6740 Human Resource Strategy And Metrics **Credit Hours: 3**

This course focuses on the integration of human resource strategies with the strategies of the firm. Students will learn how to assess and measure human resource processes, programs and outcomes.

HURM6750 Current Topics In Human Resource Management **Credit Hours: 3**

This course is designed to provide students with current viewpoints, challenges, practices and theories in human resource management. Conducted in a seminar format, the course will emphasize different aspects of HR management each time it is offered.

HURM6760 Recruitment and Retention **Credit Hours: 3**

Provides an in-depth analysis of the methods used in designing, administering, revising, and evaluating recruitment, selection, and retention programs that comply with government regulation as well as add value to the organization.

Prerequisites: HURM 6700 FOR LEVEL GR WITH MIN. GRADE OF D-

HURM6800 Tools And Techniques In Human Resource Management **Credit Hours: 3**

Course covers issues and techniques related to human resource planning, identifying and predicting HRM problems, and demonstrating the relationship between effective HRM practices and the bottom-line of the organization.

Prerequisites: (MGMT 5110 FOR LEVEL GR WITH MIN. GRADE OF D- AND HURM 6700 FOR LEVEL GR WITH MIN. GRADE OF D-)

HURM8700 Human Resource Management **Credit Hours: 3**

Intrduces the objectives, activities, and practices involved in human resource management. Designed for both those pursuing careers in human resources or managers who wish to supplement their skills in this area. (Prerequisite: None)

HURM8710 Employment and Labor Law **Credit Hours: 3**

Introduces the objectives, activities, and practices involved in employment and labor law. Designed for those pursuing careers in human resources or managers wishing to understand their responsibilities in this area.

HURM8720 Employer-Employee Relations **Credit Hours: 3**

The course aquips students to make more effective decisions in employee relations. Course emphasis is on active analysis of employee-employer relationships in terms of procedures, costs, and ramifications to both organizations and people. (Prerequisite: none)

HURM8730 Performance Management **Credit Hours: 3**

Course is designed to provide practical working knowledge of the processes of setting expectations, monitoring performance, coaching and developing employees, and assessing and rewarding good performance in rapidly changing organizations.

Prerequisites: HURM 6700 FOR LEVEL GR WITH MIN. GRADE OF D- AND HURM 8700 FOR LEVEL GR WITH MIN. GRADE OF D-

HURM8740 Human Resource Strategy and Metrics **Credit Hours: 3**

Focuses on the integration of human resource strategies with the strategies of the firm. Students will learn how to assess and measure human resource processes, programs, and outcomes.

Prerequisites: HURM 6700 FOR LEVEL GR WITH MIN. GRADE OF D- AND HURM 8700 FOR LEVEL GR WITH MIN. GRADE OF D-

HURM8750 Current Topics in Human Resource Management **Credit Hours: 3**

Course is designed to provide students with current viewpoints, challenges, practices, and theories in human resource management. Conducted in a seminar format, the course will emphasizes different aspects of HR management each time it is offered.

Prerequisites: HURM 6700 FOR LEVEL GR WITH MIN. GRADE OF D- AND HURM 8700 FOR LEVEL GR WITH MIN. GRADE OF D-

HURM8760 Recruitment and Retention **Credit Hours: 3**

Provides an in-depth analysis of the methods used in designing, administering, revising, and evaluating recruitment, selection and retention programs that comply with government regulation as well as add value to the organization.

Prerequisites: HURM 8700 FOR LEVEL GR WITH MIN. GRADE OF D-

IBUS3150 Understanding Cultural Differences For Business **Credit Hours: 3**

Course focuses on understanding cultures and managing cultural differences for competitive advantage.

IBUS3600 International Management **Credit Hours: 3**

An overview of management in different geographic regions of the world. Case studies will be used to compare and contrast national models of management.

Prerequisites: BUAD 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

IBUS3940 Internship In International Business I **Credit Hours: 3**

A course in which the student receives practical business experience working in a organization involved in International Business.

IBUS4100 Study Abroad Program **Credit Hours: 3**

Program includes travel abroad, study and written report of an industry, company, or issues of interest, cultural immersion, and visits to manufacturing, service and government organizations.

IBUS4180 North American Business Practices **Credit Hours: 3**

This course will examine the business environment in North America and compare business practices and trade relationships between Canada, Mexico and the United States.

IBUS4360 Global Business **Credit Hours: 3**

Students will learn to integrate international business functions, develop strategies that respond to environmental changes, and understand the challenges faced by small, mid-sized and multinational firms operating in a global environment.

IBUS4490 Global Management Systems **Credit Hours: 3**

A study of how management systems in various world regions evolve in response to the emerging global context. Focus will be on analyzing the determinants of similarities and contrasts in management systems.

Prerequisites: BUAD 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

IBUS4940 Internship In International Business II **Credit Hours: 3**

A course in which the student receives practical International Business experience working in a global organization either within the U.S. or overseas.

IBUS4980 Special Topics In International Business **Credit Hours: 3**

Analysis of current issues in International Business.

IBUS4990 Independent Study **Credit Hours: 1-3**

An individually supervised study in International Business. Students must submit a proposal to be approved by a department faculty member prior to enrolling in the course.

IBUS6100 Study Abroad Program **Credit Hours: 3**

Program includes travel abroad, study and written report of an industry, company, or issues of interest, cultural immersion, and visits to manufacturing, service and government organizations.

IBUS6360 Management Of Multinational Firms **Credit Hours: 3**

Analysis of the multinational firm, emphasizing the differences with domestic enterprises, with respect to strategic planning and capital allocation, marketing, production, supply, personnel and contract negotiation.

IBUS6490 Global Management Systems **Credit Hours: 3**

Compares the management philosophies, systems and methods of U.S. firms with those of firms from other countries, particularly the management systems of Japanese, German and other nationality firms that are competitors of U.S. firms.

Prerequisites: MGMT 5110 FOR LEVEL GR WITH MIN. GRADE OF D- OR BUAD 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

IBUS6980 Special Topics **Credit Hours: 3**

Current issues/developments in international business are discussed.

IBUS6990 Independent Study **Credit Hours: 1-3**

Independent study in international business. A proposal for the independent study must be approved by faculty member and department chair.

IBUS8360 Management of Multinational Firms **Credit Hours: 3**

Analysis of the multinational firm, emphasizing the differences with domestic enterprises, with respect to strategic planning and capital allocation, marketing, production, supply, personnel and contract negotiation. Ph.D. students are assigned additional readings from the academic literature.

IBUS8490 Global Management Systems **Credit Hours: 3**

Compares the management philosophies, systems and methods of U.S. firms with those of firms from other countries, particularly the management system of Japanese, German and other nationality firms that are competitors of U.S. firms. Ph.D. students are assigned additional readings from the academic literature.

IBUS8790 International Business Research Seminar **Credit Hours: 3**

A seminar in selected topics in International Business. PhD. students are assigned readings from the International Business academic literature. They will complete several research papers focusing on specific topics that advance the field and that are suitable for submission to an academic journal or conference.

IDS1000 Arts Living And Learning Forum **Credit Hours: 1**

This course will provede a framework for and supplement to the activities and objectives of the UT Arts Living and learning Community. It is required for participation in the Arts Living-Learning Community.

IDS2010 Interdisciplinary Studies **Credit Hours: 1-4**

IITP601 Infection Immunity Transplanta **Credit Hours: 1**

The course will introduce fundamental knowledge of the immune system and its defense mechanisms and the nature and role of microbial pathogens in human and animal diseases.

IITP689 Independent Study in IITP **Credit Hours: 1-15**

IITP801 Infection Immunity Transplanta **Credit Hours: 1**

The course will introduce fundamental knowledge of the immune system and its defense mechanisms and the nature and role of microbial pathogens in human and animal diseases.

IITP889 Independent Study in IITP **Credit Hours: 1-15**

INDI000 Transfer Free Elective **Credit Hours: 0-15**

INDI500 Struct/Funct Normal Individual **Credit Hours: 8**

INDI504 Contemporary Issues Comm Hlth **Credit Hours: 0**

Through community service, this course will expose graduate healthcare professional students to contemporary issues in community health care. The students will work under the direct supervision of a qualified preceptor. May be repeated.

INDI505 Medical Science Practicum **Credit Hours: 0-10**

Practical applications of theory in basic and clinical medical sciences. Practicum experience will be under the guidance of a faculty preceptor. May be repeated for credit.

INDI509 Acute Care Preceptorship **Credit Hours: 0-4**

INDI510 Complementary Care Interventio **Credit Hours: 2**

An interdisciplinary course that focuses on the holistic model integrating scientific knowledge and complementary modalities into clinical practice.

INDI515 Intro Anatomy and Physiology **Credit Hours: 6**

This course provides basic knowledge of anatomy and physiology.

INDI520 Cellular and Molecular Biology **Credit Hours: 11**

This course includes an introduction to cell structure, function and pathological changes, information about molecular structure of proteins, carbohydrates and lipids, basic human genetics.

INDI527 Health Care Aspect Human Sex **Credit Hours: 3**

INDI532 Statistical Methods I **Credit Hours: 3**

Introduction to statistical methods with emphasis on problems in the biomedical sciences. Included are descriptive statistics, probability theory, statistical inference, experimental design and simple statistical tests.

INDI555 Anatomy and Pathophysiology **Credit Hours: 3**

Introductory and foundational course designed to cover selected topics in human anatomy, embryology, physiology and pathophysiology.

INDI600 Intro to Biostatistical Method **Credit Hours: 3**

Focuses on descriptive and beginning inferential statistics, including normal and log normal distributions, hypothesis testing, confidence intervals, correlation, regression, ANOVA, and selected non-parametric procedures; with emphasis on the conceptualization of the procedures. Computational skills are presented to have a basic understanding of each procedure. Computer analysis of data will be introduced. Uses of multiple regression and MANOVA will be briefly discussed.

INDI602 "On Being a Scientist" **Credit Hours: 1**

A series of one-hour lectures dealing with the ethics, regulations, and issues facing a modern, biomedical research scientist.

INDI605 Bioethics I and II **Credit Hours: 3**

Basic ethics course for medical and graduate students with an interest in primarily clinical issues.

INDI608 Science Enrich Middle Sch Educ **Credit Hours: 3**

Course is designed to introduce the student to problem-based learning facilitation for science education/instruction. May be repeated for credit.

INDI609 Chemical Phys Prop Macromolec **Credit Hours: 3**

Topics covered will include spectroscopy, thermodynamics, magnetic resonance, sedimentation, diffusion protein sequence defermication analysis of protein secondary structure and nucleic acid structure.

INDI611 Human Genetics **Credit Hours: 0-3**

This course will provide an introduction to human genetics with an emphasis on medical aspects including common genetic disorders, cytogenetics, molecular genetics, cancer genetics, prenatal diagnosis, and genetic counseling.

INDI611M Human Genetics **Credit Hours: 3**

INDI614 HIV and AIDS **Credit Hours: 3**

Immunological, biomedical, testing, transmission, prevention, psychosocial and legal issues of HIV/AIDS.

INDI616 Lab Exercises in Enzymology **Credit Hours: 3**

Laboratory exercises will be conducted in the research laboratory of the instructor. The course will consist of training in the methods used to purify, to characterize and to determine the activity of enzymes.

INDI617 Behavioral Science **Credit Hours: 5**

This course considers the biological, cognitive and emotional aspects of human behavior. It focuses on normal and abnormal behavior throughout the life cycle and includes an introduction to psychopathology.

INDI621 Advanced Biostatistics **Credit Hours: 3**

Focus on advanced statistics, including: multiple regression, multi-factor analysis of variance and covariance, repeated measures, MANOVA, logistic regression, discriminant function analysis, and survival analysis. Computer data analysis is emphasized.

INDI627 Fundamentals of Oncology **Credit Hours: 2**

A discussion of: cancer epidemiology; the role of chemicals, viruses, and radiation in cancer induction; and mechanism(s) of conversion of normal cells to cancer cells including the activation of cellular proto-oncogenies, autocrine secretion of growth factors, and changes in signal transduction.

INDI629 Fundamentals of Oncology **Credit Hours: 2**

INDI651 Basic Science Interdepartment **Credit Hours: 1**

INDI660 Computer Apps Biomed Research **Credit Hours: 3**

Hands-on experience with desktop computer applications in biomedical research including: an introduction to computers; Macintosh and Windows operating systems; word processing, spreadsheets; illustration, scientific, and presentation graphics; and searching the Internet and online databases. Projects include creating a slide and poster presentation. Limited enrollment. May be repeated for credit.

INDI665 Trans Lead in Health Care **Credit Hours: 3**

This course is designed for leaders within democratic society. Functional, transactional, and transformative leadership are examined. Students work independently and together, online and in person, to learn about individual and group behavior in the creation of a democratic and enlightened environment.

INDI673 Research Biomedical Science **Credit Hours: 0-15**

Intensive study in field of interest, including theoretical and experimental work. May be repeated for credit.

INDI679 Basic and Adv Light Microscopy **Credit Hours: 4**

A lecture/laboratory course in the standard theories and techniques in histology and light microscopy. The emphasis is on preparation of samples, including histocytochemistry, immunocytochemistry and special staining for photo microscopy. Brightfield, fluorescence and confocal microscopy.

INDI684 Molecular Cell Biology I **Credit Hours: 4**

An introduction to the molecular basis of cell function. Topics include structure of proteins and nucleic acids, genetic analysis, gene regulation, cell structure and organization, and intercellular communication.

INDI686 Electron Microscopy **Credit Hours: 4**

A lecture/laboratory course in the standard theories and techniques employed in biological transmission and scanning electron microscopy.

INDI694 Res Mole Cell **Credit Hours: 0-15**

INDI695 MCB Independent Study **Credit Hours: 0-15**

INDI696 Readings in MCB **Credit Hours: 1**

INDI697 Methods in MCB **Credit Hours: 3**

INDI698 Scholarly Project **Credit Hours: 0-10**

Option to develop an in-depth scholarly project to fulfill the research requirements of the MSBS Degree Program. May be repeated for credit.

INDI699 Thesis Research **Credit Hours: 1-15**

Research in biomedical sciences or interdisciplinary investigation of significant problems at the master level, leading to the preparation of a scientific project for presentation as a thesis. May be repeated for credit.

INDI711 Categorical Data Analysis **Credit Hours: 3**

INDI713 Molecular Epidemiology **Credit Hours: 3**

INDI715 Intro Anatomy + Physiology **Credit Hours: 6**

INDI732 Statistical Methods I — **Credit Hours: 3**

INDI735 Statistical Methods in Bioinfo — **Credit Hours: 3**

INDI740 Health and Aging — **Credit Hours: 3**

INDI741 Issues in Contemporary Geronto — **Credit Hours: 3**

INDI802 "On Being a Scientist" **Credit Hours: 1**

A series of one-hour lectures dealing with the ethics, regulations, and issues facing a modern, biomedical research scientist.

INDI809 Chem Physical Prop Macromolec **Credit Hours: 3**

Topics covered will include spectroscopy, thermodynamics, magnetic resonance, sedimentation, diffusion protein sequence defermication analysis of protein secondary structure and nucleic acid structure.

INDI811 Human Genetics **Credit Hours: 3**

This course will provide an introduction to human genetics with an emphasis on medical aspects including common genetic disorders, cytogenetics, molecular genetics, cancer genetics, prenatal diagnosis, and genetic counseling.

INDI814 HIV and Aids **Credit Hours: 3**

Immunological, biomedical, testing, transmission, prevention, psychosocial and legal issues of HIV/AIDS.

INDI816 Lab Exercises in Enzymology **Credit Hours: 3**

Laboratory exercises will be conducted in the research laboratory of the instructor. The course will consist of training in the methods used to purify, to characterize and to determine the activity of enzymes.

INDI817 Behavioral Science **Credit Hours: 5**

This course considers the biological, cognitive and emotional aspects of human behavior. It focuses on normal and abnormal behavior throughout the life cycle and includes an introduction to psychopathology.

INDI821 Advanced Biostatistics **Credit Hours: 3**

Focus on advanced statistics, including: multiple regression, multi-factor analysis of variance and covariance, repeated measures, MANOVA, logistic regression, discriminant function analysis, and survival analysis. Computer data analysis is emphasized.

INDI827 Fundamentals of Oncology **Credit Hours: 2**

A discussion of: cancer epidemiology; the role of chemicals, viruses, and radiation in cancer induction; and mechanism(s) of conversion of normal cells to cancer cells including the activation of cellular proto-oncogenies, autocrine secretion of growth factors, and changes in signal transduction.

INDI829 Fundamentals of Oncology **Credit Hours: 3**

INDI850 Molecular Basis of Disease Lab **Credit Hours: 4**

INDI860 Computer Apps Biomed Research **Credit Hours: 3**

Hands-on experience with desktop computer applications in biomedical research including: an introduction to computers; Macintosh and Windows operating systems; word processing, spreadsheets; illustration, scientific, and presentation graphics; and searching the Internet and online databases. Projects include creating a slide and poster presentation. Limited enrollment. May be repeated for credit.

INDI873 Research Biomedical Sciences **Credit Hours: 0-15**

Intensive study in field of interest, including theoretical and experimental work. May be repeated for credit.

INDI879 Basic and Adv Light Microscopy **Credit Hours: 4**

A lecture/laboratory course in the standard theories and techniques in histology and light microscopy. The emphasis is on preparation of samples, including histocytochemistry, immunocytochemistry and special staining for photo microscopy. Brightfield, fluorescence and confocal microscopy.

INDI884 Molecular Cell Biology I **Credit Hours: 4**

An introduction to the molecular basis of cell function. Topics include structure of proteins and nucleic acids, genetic analysis, gene regulation, cell structure and organization, and intercellular communication.

INDI885 Trans Lead in Health Care **Credit Hours: 3**

This course is designed for leaders within democratic society. Functional, transactional, and transformative leadership are examined. Students work independently and together, online and in person, to learn about individual and group behavior in the creation of a democratic and enlightened environment.

INDI886 Electron Microscopy **Credit Hours: 4**

A lecture/laboratory course in the standard theories and techniques employed in biological transmission and scanning electron microscopy.

INDI894 Res Molec Cell — **Credit Hours: 0-15**

INDI895 MCB Independent Study — **Credit Hours: 0-15**

INDI896 Readings in MCB — **Credit Hours: 1**

INDI897 Methods in MCB — **Credit Hours: 3**

INDI999 Dissertation Research **Credit Hours: 1-15**

Disciplinary or interdisciplinary investigation of significant problems at the doctoral level under the guidance of a member of the Graduate Faculty, leading to the preparation of a scientific project for presentation as a dissertation. May be repeated for credit.

INFS3150 Principles Of Structured Computer Programming And Problem Solving **Credit Hours: 3**

Major topics include problem solving, event driven programming, control structures, data types, data structures, objects, properties, events and methods. Subroutines, functions, file processing, menu and application development will also be covered.

Prerequisites: BUAD 1020 FOR LEVEL UG WITH MIN. GRADE OF D- OR CMPT 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR BUSC FOR MIN. SCORE OF 39

INFS3160 Business Application Development **Credit Hours: 3**

Building on programming skills developed in INFS3150 this course emphasizes database connectivity, data retrieval, and business application development. The course will also survey an object oriented language like C++, Java.

Prerequisites: (INFS 3150 FOR LEVEL UG WITH MIN. GRADE OF D- AND INFS 3770 FOR LEVEL UG WITH MIN. GRADE OF D-)

INFS3240 Business Intelligence Systems **Credit Hours: 3**

Building data warehouses and using data mining techniques, the course focuses on extracting business intelligence and knowledge discovery from existing data sources to support decision-making in functional areas of business.

Prerequisites: (INFS 3770 FOR LEVEL UG WITH MIN. GRADE OF D- AND BUAD 3050 FOR LEVEL UG WITH MIN. GRADE OF D-)

INFS3250 Software Applications In Business **Credit Hours: 3**

This course is designed to acquaint students with the application of integrated software to business decisions, report writing and presentations. Student will gain hands-on experience with popular business software packages.

Prerequisites: BUAD 1020 FOR LEVEL UG WITH MIN. GRADE OF D- OR CMPT 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR BUSC FOR MIN. SCORE OF 39

INFS3370 Business Data Communications **Credit Hours: 3**

An introduction to data communications in business. Topics include local-area and wide-area networks, including the Internet; hardware and media; network topologies; client-server networks; and network operating system software.

Prerequisites: BUAD 1020 FOR LEVEL UG WITH MIN. GRADE OF D- OR CMPT 1100 FOR LEVEL UG WITH MIN. GRADE OF D- OR BUSC FOR MIN. SCORE OF 39

INFS3380 Web Application Development I **Credit Hours: 3**

An introduction to business application program development on the web using contemporary technologies with emphasis on client-side applications. Implications of information technology projects on organizations will be discussed.

Prerequisites: BUAD 1020 FOR LEVEL UG WITH MIN. GRADE OF D- OR CMPT 1100 FOR LEVEL UG WITH MIN. GRADE OF D-

INFS3770 Small Business Database Systems **Credit Hours: 3**

The design and implementation of database management systems are studied. Develop significant skills in form based input, report writing and data modeling. Students will work in teams developing database applications.

Prerequisites: BUAD 1020 FOR LEVEL UG WITH MIN. GRADE OF D- OR CMPT 1100 FOR LEVEL UG WITH MIN. GRADE OF D-

INFS3780 Enterprise Wide Information Systems Management **Credit Hours: 3**

Introduction to ERP, Roles of SCM and CRM in Business Environment, Major Business Processes relating to functional areas of Business in an integrated software environment. Extensive hands-on exercises using an ERP software.

Prerequisites: (BUAD 3050 FOR LEVEL UG WITH MIN. GRADE OF D- AND INFS 3770 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (BUAD 3050 FOR LEVEL UG WITH MIN. GRADE OF D- AND INFS 3250 FOR LEVEL UG WITH MIN. GRADE OF D-)

INFS3980 Contemporary Topics **Credit Hours: 3**

Selected current topics in Information Systems practice, trends and technology.

Prerequisites: BUAD 3050 FOR LEVEL UG WITH MIN. GRADE OF D-

INFS4300 Web Application Development II **Credit Hours: 3**

Address web architecture, web server administration and security issues; analyze, design, develop, and implement extensive database oriented business processes using server-side and client-side processing.

Prerequisites: (INFS 3770 FOR LEVEL UG WITH MIN. GRADE OF D- AND INFS 3380 FOR LEVEL UG WITH MIN. GRADE OF D-)

INFS4320 Information Systems Planning And Outsourcing Management **Credit Hours: 3**

Issues of planning, control, outsourcing management, and the organizational impact of computer systems will be studied. Challenges and opportuntities in outsourcing will also be the focus of the course.

Prerequisites: BUAD 3050 FOR LEVEL UG WITH MIN. GRADE OF D-

INFS4510 Business Systems Analysis & Design With Erp **Credit Hours: 3**

Analysis, design and implementation of business information systems will be studied using Case tools and ERP systems. Will also emphasize management of organizational change brought about by information technology projects.

Prerequisites: (BUAD 3050 FOR LEVEL UG WITH MIN. GRADE OF D- AND INFS 3770 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (BUAD 3050 FOR LEVEL UG WITH MIN. GRADE OF D- AND INFS 3250 FOR LEVEL UG WITH MIN. GRADE OF D-)

INFS4620 Enterprise Database Systems **Credit Hours: 3**

In-depth exposure to database concepts including relational and Obect Data Models, normalization, logical design, stored functions, procedures, triggers, forms and reports will be explored using a business database package.

Prerequisites: (INFS 3770 FOR LEVEL UG WITH MIN. GRADE OF D- AND BUAD 3050 FOR LEVEL UG WITH MIN. GRADE OF D-)

INFS4810 Enterprise Database Administration **Credit Hours: 3**

Designed for database administrators. Covers Physical Database Design, Indexing, performance monitoring and evaluation, partitioning databases, distributed and parallel processing. Exposure will be sufficient for certification exams.

Prerequisites: (INFS 3770 FOR LEVEL UG WITH MIN. GRADE OF D- AND INFS 4510 FOR LEVEL UG WITH MIN. GRADE OF D- AND INFS 4620 FOR LEVEL UG WITH MIN. GRADE OF D-)

INFS4940 Infs Internship **Credit Hours: 1-3**

A prearranged work-study program where students specializing in computer systems, operations management or decision sciences obtain on-the-job experience while learning and applying the basic concepts and techniques of their respective areas.

INFS4990 Independent Study: Readings And Research **Credit Hours: 1-3**

Individual student study of a topic of interest to both the faculty member and student. Students are responsible for finding a faculty member to sponsor readings and research.

INFS5400 Information Technology And Computer Programming **Credit Hours: 3**

Intensive exposure to technologies and concepts of business oriented information systems. Computer programming in a contemporary programming language. Applications development through programming projects.

INFS6460 Management Information Systems **Credit Hours: 3**

This course is designed for end-users of computers to understand and appreciate the role of information technology and end-user's role in the management of this technology in organizations.

INFS6470 Information Technology **Credit Hours: 3**

Discussion topics will be: Fundamentals of Information Technology, decision support systems, knowledge based/expert systems, data communication, database management and their applications in manufacturing. Will include implementation issues of Information Technology in manufacturing.

INFS6560 Systems Analysis And Design **Credit Hours: 3**

Concepts, tools, and techniques for information systems analysis, design and development will be discussed. Contemporary methodologies for systems development including CASE tools, prototyping and RAD project work will be included.

Prerequisites: INFS 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR INFS 5400 FOR LEVEL GR WITH MIN. GRADE OF D-

INFS6570 Information Systems Policy And Administration **Credit Hours: 3**

This course is designed for those who aspire to become managers of Information Technology (IT). Various aspects of IT Management will be discussed with real world examples/cases. PhD. Students enrolled in 8570 will be assigned additional Readings and required to complete a research paper.

Prerequisites: INFS 6560 FOR LEVEL GR WITH MIN. GRADE OF D-

INFS6610 Information Storage And Retrieval Structures **Credit Hours: 3**

This course will analyze the concepts and methods used in the management of organizational data resources. Covers data modeling, database design, administration and architecture. Hands-on applications of database development are provided.

INFS6750 Research In Information Systems, Operations Management Or Decision Sciences **Credit Hours: 1-3**

Individual study of topics of common interest to both student and faculty member.

INFS6810 Network Communications **Credit Hours: 3**

Applications of business data communication, basic electronic communications concepts, public networks, computer networks, the Internet, network management, regulatory environment.

INFS6930 Contemporary Topics Seminar - Outsourcing **Credit Hours: 3**

This seminar will focus on current topics in the fields of Information Systems and Operations Management.

INFS8460 Management Information Systems **Credit Hours: 3**

This course is designed for end-users of computers to understand and appreciate the role of information technology and end-user's role in the management of this technology in organizations.

INFS8470 Information Technology **Credit Hours: 3**

Discussion topics will be: Fundamentals of Information Technology, decision support systems, knowledge based/expert systems, data communication, database management and their applications in manufacturing. Will include implementation issues of Information Technology in manufacturing.

INFS8480 Information Systems Issues In Manufacturing **Credit Hours: 4**

This course examines theoretical frameworks and recent empirical research of information and manufacturing technology. Emphasis will be on developing an integrative perspective of both technologies.

INFS8570 Information Systems Policy and Administration **Credit Hours: 3**

This course is designed for those who aspire to become managers of Information Technology (IT). Various aspects of IT Management will be discussed with real world examples/cases. PhD. Students enrolled in 8570 will be assigned additional Readings and required to complete a research paper.

INFS8930 Contemporary Topics Seminar-Outsourcing **Credit Hours: 3**

The course will address issues in planning for, implementing and managing or just working in, outsourcing projects. PhD. students enrolled in 8930 will be assigned additional readings and required to complete a research paper.

INFS8990 Integrative Seminar in IT **Credit Hours: 3**

The seminar will investigate managerial issues in the field of information systems and technology management.

JAPN1080 Japanese Culture And Commerce **Credit Hours: 3**

Study of Japanese culture and society with emphasis on business and economics. Taught in English. (not for major credit).

JAPN1090 Introduction To Japanese Culture **Credit Hours: 3**

An introduction to principal social, artistic and literary aspects of modern Japanese culture. Taught in English. (Not for major credit.)

JAPN1110 Elementary Japanese I **Credit Hours: 4**

An introduction to Japanese language and culture through aural comprehension, speaking, reading and writing. Laboratory practice required. (not for major credit)

JAPN1120 Elementary Japanese II **Credit Hours: 4**

An introduction to Japanese language and culture through listening, speaking, reading and writing. Laboratory practice required. (not for major credit)

Prerequisites: JAPN 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNJP FOR MIN. SCORE OF 1120

JAPN2140 Intermediate Japanese I **Credit Hours: 3**

Further practice of the four language skills with grammar review and readings of a literary-cultural nature. Laboratory practice required. (not for major credit)

Prerequisites: JAPN 1120 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNJP FOR MIN. SCORE OF 2140

JAPN2150 Intermediate Japanese II **Credit Hours: 3**

Further practice of the four language skills with grammar review and readings of a literary-cultural nature. Laboratory practice required. (not for major credit)

Prerequisites: JAPN 2140 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNJP FOR MIN. SCORE OF 2150

JAPN2190 Study Abroad **Credit Hours: 1-3**

The course permits beginning students of Japanese to spend time in a country where Japanese is spoken. Credit awarded in accordance with established departmental procedures.

Prerequisites: JAPN 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

JAPN3010 Conversation And Composition I **Credit Hours: 3**

Work on advanced aural comprehension, speaking, reading and writing skills through intensive work with authentic texts dealing with contemporary issues relating to Japan. Laboratory practice required.

Prerequisites: JAPN 2150 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNJP FOR MIN. SCORE OF 3000

JAPN3020 Conversation And Composition II **Credit Hours: 3**

Further work on advanced aural comprehension, speaking, reading and writing skills through intensive work with authentic texts dealing with contemporary issues relating to Japan. Laboratory practice required. A writing-intensive course.

Prerequisites: JAPN 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

JAPN3170 Business Japanese **Credit Hours: 3**

An introduction to the language and practices of Japanese business and commerce.

JAPN3410 Survey Of Japanese Civilization I **Credit Hours: 3**

A study of different aspects of Japanese culture and civilization such as fine arts, history, science and philosophy.

Prerequisites: JAPN 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

JAPN4010 Japanese Syntax And Stylistics I **Credit Hours: 3**

A review of Japanese stylistic structures through the analysis of texts and written and oral exercises in Japanese.

Prerequisites: JAPN 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

JAPN4020 Japanese Syntax And Stylistics II **Credit Hours: 4**

Further review of Japanese stylistic structures through the analysis of texts and written and oral exercises in Japanese. The course includes an introduction to Japanese calligraphy. A writing-intensive course.

Prerequisites: JAPN 4010 FOR LEVEL UG WITH MIN. GRADE OF D-

JAPN4050 Advanced Conversation I **Credit Hours: 3**

Practice in speaking idiomatic Japanese.

JAPN4060 Advanced Conversation II **Credit Hours: 3**

Continued practice in speaking idiomatic Japanese.

JAPN4190 Study Abroad **Credit Hours: 1-12**

The course permits the student minoring in Japanese to spend time in a country where Japanese is spoken. Credit awarded in accordance with established departmental procedures.

Prerequisites: JAPN 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

JAPN4980 Special Topics In Japanese Studies **Credit Hours: 1-3**

Study of a selected topic in Japanese language, literature, or culture. May be repeated for credit when topic varies.

JAPN4990 Independent Study In Japanese **Credit Hours: 1-3**

Independent research on special topics. May be repeated once for additional credit.

KINE1080 Exercise And Health **Credit Hours: 2**

The scientific basis and the health benefits of exercise and wellness activities are presented in lecture. Students undertake individualized exercise programs designed to improve physical fitness.

KINE1110 Introduction To Athletic Training **Credit Hours: 2**

Introduction to the profession of athletic training, practice settings, members of the sports medicine team; environmental issues; common athletic injuries; and the academic program at UT.

KINE1650 Care And Prevention Of Injuries **Credit Hours: 3**

Injury prevention; inflammation and tissue repair, physical conditioning; injury recognition; emergency procedures; protective equipment; ethical and legal considerations, and therapeutic modalities relating to athletic training.

Prerequisites: KINE 1110 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE1660 Athletic Training Taping Techniques **Credit Hours: 1**

Intended for those intending to be athletic training concentration majors. Taping, wrapping, and bracing techniques to support various areas of the human body.

Corequisites: KINE1650

KINE1700 Introduction To Exercise Science **Credit Hours: 2**

An introduction to the professions involving exercise science; sports science, rehabilitation therapy and physical education. Emphasis is on basic concepts of physiological, biomechanical and psychological function in human movement. Programmatic and career opportunities are discussed.

KINE2460 Human Anatomy And Physiology I Lab **Credit Hours: 1**

Laboratory exercises in histology, dissection, identification, and physiology of the axial and appendicular skeletal system, the skeletal muscle system, the central and peripheral nervous system, tissues, the eye, and cell transport.

Corequisites: KINE2560

KINE2470 Human Anatomy And Physiology II Lab **Credit Hours: 1**

Laboratory exercises in endocrine, cardiovascular, respiratory, digestive, lymphatic, urinary, and reproductive anatomy, histology, physiology, including computer assisted experiments.

Corequisites: KINE2570

KINE2510 Human Anatomy **Credit Hours: 3**

An integrated study of both regional anatomy and musculoskeletal, cardiovascular, lymphatic, respiratory, neurologic, digestive, renal, endocrine and reproductive systems. Required for students in exercise science and allied health professional programs.

Corequisites: KINE2520

KINE2520 Human Anatomy Laboratory **Credit Hours: 1**

Laboratory exercises in musculoskeletal, neurological, cardiovascular and respiratory anatomy.

Corequisites: KINE2510

KINE2530 Human Physiology **Credit Hours: 3**

An integrated study of physiology with emphasis on musculoskeletal, cardiovascular, lymphatic, respiratory, neurologic, digestive, renal, endocrine and reproductive systems. Required for students in exercise science and allied health professional program.

Prerequisites: (KINE 2510 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1090 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOL 2150 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (KINE 2510 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOL 2150 FOR LEVEL UG WITH MIN. GRADE OF D-)

KINE2540 Human Physiology Laboratory **Credit Hours: 1**

Laboratory exercises in musculoskeletal, neurological, cardiovascular and respiratory physiology.

Corequisites: KINE2530

KINE2560 Anatomy And Physiology I **Credit Hours: 3**

Structure and function of the human body. Study of cells, tissues, special senses, and the skeletal, muscle, and nervous systems. Natural science core course.

Corequisites: KINE2460

KINE2570 Human Anatomy And Physiology II **Credit Hours: 3**

Structure and function of human endocrine, blood, cardiovascular, lymphatic, respiratory, digestive, urinary and electrolyte, and reproductive systems.

Corequisites: KINE2470

KINE2580 Human Pathophysiology For Health Care **Credit Hours: 3**

Topics include the cellular perspective and fluid environment, genetic disorders, and pathophysiology of organ systems, concentrating on cardiovascular, respiratory, renal-urinary, endocrine, gastrointestinal and nervous.

KINE2590 Microbiology And Infectious Diseases **Credit Hours: 3**

Structure and function of bacteria and viruses; antigen-antibody reactions, immunology, serology, growth and inhibition of microorganisms. Pathologic responses to infection; pathogenesis and disease, principal infectious diseases of man.

Prerequisites: KINE 2560 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE2610 Evaluation Of Lower Extremity Injuries **Credit Hours: 3**

Study of the pathology, etiology and physiology of lower extremity injuries common in athletics as well as life-threatening head and neck injuries. Signs, symptoms and specific tests will be discussed.

Prerequisites: KINE 1650 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE2620 Evaluation Of Upper Extremity Injuries **Credit Hours: 3**

Study of the pathology, etiology and physiology of Upper extremity injuries common in athletics as well as non-life-threatening head and neck injuries. Signs, symptoms and specific tests for the upper extremity and trunk will be discussed.

Prerequisites: KINE 2610 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE2650 Modalities-Athletic Trainers **Credit Hours: 3**

KINE2670 Modalities-Athletic Trng Lab **Credit Hours: 1**

KINE2710 Clinical Skills Development I **Credit Hours: 2**

Laboratory experience to review and test the clinical skills taught during the first year of the athletic training curriculum and clinical skill development experiences provided in the athletic training room with intercollegiate athletic teams.

Prerequisites: KINE 1650 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE2720 Clinical Skills Development II **Credit Hours: 2**

Laboratory experience to review and test the clinical skills taught during the lower extremity evaluation course in the athletic training curriculum and clinical skill development experiences provided in the athletic training room with intercollegiate athletic teams.

Prerequisites: KINE 2610 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE2960 Growth, Development And Motor Learning **Credit Hours: 4**

Lecture, discussion and laboratory based course concerning growth and development characteristics spanning birth through elderly life. Theory and practical applications of motor skill acquisition will be stressed.

KINE3200 Advanced Human Anatomy **Credit Hours: 2**

An electilve course that applies musculoskeletal anatomy to human movement, function, injury evaluation and rehabilitation through in cadaver observation and dissection.

Prerequisites: KINE 2510 FOR LEVEL UG WITH MIN. GRADE OF D- AND KINE 2530 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE3510 Introduction To Kinesiotherapy **Credit Hours: 3**

This course is designed to introduce the student to the scope of practice for kinesiotherapy. Emphasis will be placed on standards of practice for the registered kinesiotherapist. Practicum hours included.

Prerequisites: (KINE 2510 FOR LEVEL UG WITH MIN. GRADE OF D- AND KINE 2520 FOR LEVEL UG WITH MIN. GRADE OF D- AND HEAL 1500 FOR LEVEL UG WITH MIN. GRADE OF D-)

KINE3520 Applied Exercise Physiology **Credit Hours: 3**

This course will provide information related to the physiological responses of the human organism to exercise and exercise training. Emphasis will also be placed on the role exercise plays in health and disease prevention.

Prerequisites: KINE 2510 FOR LEVEL UG WITH MIN. GRADE OF D- OR KINE 2530 FOR LEVEL UG WITH MIN. GRADE OF D- OR KINE 2570 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE3530 Applied Exercise Physiology Laboratory **Credit Hours: 1**

This course is the laboratory component of the applied exercise physiology course. Emphasis will be placed on the concepts learned in lecture. This will occur through hands-on activities and experiments involving various forms of exercise testing and the use of standardized equipment.

Corequisites: KINE3520

KINE3610 General Medical Conditions For Athletic Trainers **Credit Hours: 2**

Knowledge and skills that entry-level athletic trainers must possess to recognize, treat and refer, when appropriate, the general medical conditions and disabilities of people involved in physical activity.

Prerequisites: KINE 2620 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE3630 Therapeutic Modalities For Athletic Trainers **Credit Hours: 3**

Physiological, mechanical and bio-electrical principles and techniques of application for electrical, thermal, high frequency radiation and traction modalities used in the treatment of athletic injuries.

Prerequisites: KINE 2620 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE3640 Modalities For Athletics Training Laboratory **Credit Hours: 1**

Techniques of application for electrical, thermal, high frequency radiation and mechanical modalities used in the treatment of injuries to physically active individuals.

Prerequisites: KINE 1650 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE3650 Athletic Injury Evaluation **Credit Hours: 3**

KINE3660 Rehabilitation Of Athletic Injuries **Credit Hours: 3**

A systematic approach to exercise program development, techniques, indications and contraindications of exercise, and exercise progression as related to athletic injuries, prevention, reconditioning and return to play guidelines.

Prerequisites: KINE 3630 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE3670 Rehabilitation Of Athletic Injuries Laboratory **Credit Hours: 1**

Application of rehabilitation techniques for injuries to physically active individuals.

Prerequisites: KINE 2680 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE3710 Clinical Skills Development III **Credit Hours: 3**

Laboratory experience to review and test the clinical skills taught during the upper extremity evaluation course in the athletic training curriculum and clinical skill development experiences provided in the athletic training room with intercollegiate athletic teams.

Prerequisites: KINE 2620 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE3720 Clinical Skills Development IV **Credit Hours: 3**

Laboratory experience to review and test the clinical skills taught during the therapeutic modalities course in the athletic training curriculum and clinical skill development experiences provided in the athletic training room with intercollegiate athletic teams.

Prerequisites: (KINE 3610 FOR LEVEL UG WITH MIN. GRADE OF D- AND KINE 3630 FOR LEVEL UG WITH MIN. GRADE OF D-)

KINE3730 Fitness Assessment And Programming **Credit Hours: 2**

This course is designed to provide students with the knowledge and skills used in the development and implementation of fitness programming for school and community environments.

KINE3820 Sports Medicine For Coaches **Credit Hours: 3**

Survey of athletic training dealing with the care and prevention, evaluation and treatment, of athletic injuries. Emphasis on orthopedic evaluation and physician involvement. Preventive taping techniques.

Prerequisites: KINE 2510 FOR LEVEL UG WITH MIN. GRADE OF D- OR KINE 2570 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE3900 Seminar In Athletic Training **Credit Hours: 1**

Psychomotor skill development and assessment of NATA required student athletic trainer competencies in the athletic training room.

KINE4540 Applied Biomechanics **Credit Hours: 3**

This course focuses on the application of biomechanics concepts to the acquisition and refinement of fundamental movement patterns, basic functional skills and sport activities. Such topics as locomotion, balance and the biomechanical basis of injury are examined through lecture and lab activities.

Prerequisites: KINE 2510 FOR LEVEL UG WITH MIN. GRADE OF D- OR KINE 2530 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE4550 Applied Biomechanics Laboratory **Credit Hours: 1**

This course is the laboratory component of the applied biomechanics course. Emphasis will be placed on the application of the concepts learned in lecture to rehabilitation and sport situations. This will occur through hands-on activities and experiments involving contemporary forms of biomechanical instrumentation.

Corequisites: KINE4540

KINE4560 Laboratory Techniques In Exercise Physiology **Credit Hours: 3**

This course covers theoretical and practical knowledge for the assessment of exercise metabolism, cardiorespiratory function, body composition, thermoregulation, and skeletal muscle function. Hands-on data collection will be emphasized.

Prerequisites: (KINE 3520 FOR LEVEL UG WITH MIN. GRADE OF D- AND KINE 3530 FOR LEVEL UG WITH MIN. GRADE OF D-)

KINE4570 Theory And Practice Of Kinesiotherapy **Credit Hours: 3**

Kinesiotherapy principles underlying exercise prescription for those with physical disabilities. Emphasis will be placed on manual and active exercise and physical assessment of the musculoskeletal system.

Prerequisites: (KINE 1700 FOR LEVEL UG WITH MIN. GRADE OF D- AND KINE 2510 FOR LEVEL UG WITH MIN. GRADE OF D-)

KINE4580 Kinesiotherapy Lab **Credit Hours: 1**

The focus of this course is on gaining hands-on experience by assessment of a range of motion, strength, joint stabilization and functional movement of the musculoskeletal system. Students will emphasize manual exercise programming.

Prerequisites: KINE 2510 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE4620 Therapeutic Kinesiology **Credit Hours: 3**

A lecture, discussion and laboratory course designed to prepare students to work with patients on land and in the water. Emphasis will be placed on the rehabilitation and geriatric populations.

Prerequisites: (KINE 2510 FOR LEVEL UG WITH MIN. GRADE OF D- AND KINE 2530 FOR LEVEL UG WITH MIN. GRADE OF D-)

KINE4640 Neurological And Pathological Foundations Of Rehabilitation **Credit Hours: 3**

Study of neurological control of normal movement and the implications of various medical pathologies for rehabilitation. Emphasis on inflammatory processes, metabolic and vascular disturbances, traumatic injuries, nutritional deficiencies, neoplasms, degenerative conditions and congenital disorders.

Prerequisites: KINE 2510 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE4650 Organization And Administration Of Athletic Training Programs **Credit Hours: 3**

Administration of athletic training programs including athletic training room management, budgeting, staffing, insurance, medical records, emergency care planning, preparticipation physical examinations, athletic training room design, legal issues and public relations.

Prerequisites: KINE 3660 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE4680 Physiological Psychology Of Motor Behavior **Credit Hours: 3**

Study of the relationship of sensory input and motor activities, motor learning and other aspects of movement behavior through an integration of physiological and psychological principles.

Prerequisites: KINE 2510 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE4710 Clinical Skills Development V **Credit Hours: 3**

Laboratory experience to review and test the clinical skills taught during the rehabilitation of sports injuries course in the athletic training curriculum and clinical skill development experiences provided in the athletic training room with intercollegiate athletic teams.

Prerequisites: KINE 3660 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE4720 Clinical Skills Development Vi **Credit Hours: 4**

Emphasis on clinical experience in athletic training off-campus. Also includes a laboratory experience to review clinical skills.

Prerequisites: KINE 4650 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE4850 Exercise Testing And Programming **Credit Hours: 3**

The design and conduct of exercise testing and fitness programs for healthy subjects and those with pathologies will be the subject matter of the course.

Prerequisites: KINE 3520 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE4860 Exercise Testing And Programming Laboratory **Credit Hours: 1**

The practical techniques for administering tests and developing fitness programs for healthy subjects and those with pathologies will be the subject matter of the course.

Prerequisites: KINE 3520 FOR LEVEL UG WITH MIN. GRADE OF D-

KINE4870 Exercise Biology **Credit Hours: 3**

Examination of the cellular and molecular responses to changes in physical activity. Emphasis on exercise and disease; skeletal muscle growth and repair; and exercise metabolism.

Prerequisites: (KINE 3520 FOR LEVEL UG WITH MIN. GRADE OF D- AND KINE 3530 FOR LEVEL UG WITH MIN. GRADE OF D-)

KINE4900 Human Performance Seminar **Credit Hours: 1-3**

Classroom and laboratory analysis of current research in varied topic areas.

KINE4910 Senior Research Project **Credit Hours: 4**

Senior level students in exercise science will, with the assistance of their adviser, develop, plan and conduct a research project on a current problem in exercise science.

KINE4920 Readings In Exercise Biology **Credit Hours: 3**

Faculty and student directed readings of original research in Exercise Biology. Readings will focus on how changes in physical activity influence the biology of skeletal muscle.

KINE4940 Internship/Practicum **Credit Hours: 2-15**

Clinical experience in locations both inside and outside the university setting. Placement depends on area of study.

KINE4990 Independent Study In Exercise Science/Physical Education **Credit Hours: 1-3**

Directed individual study. Specialty title, seminar sheet and permission of instructor required.

KINE5010 Fitness And Conditioning Programs **Credit Hours: 3**

Theory and practice in development and administration of comprehensive fitness programs with special emphasis on the use of exercise as a health maintenance strategy.

KINE5110 Measurement And Statistical Inference In Human Performance **Credit Hours: 3**

Application of measurement and statistical inference to human performance testing and research. Includes descriptive and inferential statistics, principles of test construction and introduction to authentic assessment in public schools.

KINE5250 Readings In Exercise Biology **Credit Hours: 3**

Faculty and student directed readings of original research in Exercise Biology. Readings will focus on how changes in physical activity influence the biology of skeletal muscle.

KINE5560 Laboratory Techniques In Exercise Physiology **Credit Hours: 3**

This course covers theoretical and practical knowledge for the assessment of exercise metabolism, cardiorespiratory function, body composition, thermoregulation, and skeletal muscle function. Hands-on data collection will be emphasized.

Prerequisites: (KINE 3520 FOR LEVEL UG WITH MIN. GRADE OF D- AND KINE 3530 FOR LEVEL UG WITH MIN. GRADE OF D-)

KINE5950 Workshop In Exercise Science **Credit Hours: 1-4**

Topical workshops developed around areas of interest and concern to those involved in academic programs and careers that relate to exercise science. May not be included in a graduate plan of study without prior approval of the student's adviser.

KINE6100 Physiology Of Exercise **Credit Hours: 3**

This course is designed to provide an understanding of the mechanisms of the physiological responses to exercise. Emphasis will be placed on adaptations to exercise training and the role of exercise in health and disease.

KINE6130 Biomechanics Of Human Motion **Credit Hours: 3**

This course provides a basic overview of the principles of biomechanics as they apply to human movement. In-depth discussion and lab activities focus on the application of these principles to such topics as muscle function, locomotion, balance, mechanisms of injury and ergonomics.

KINE6200 Biomechanical Instrumentation **Credit Hours: 3**

Provides students with experience in the research and clinical use of videography, force and pressure plates, electromyography and other systems in applied biomechanics. Emphasis on hands-on lab experience and topics related to data collection and signal processing.

KINE6230 Scientific Writing And Research Methods **Credit Hours: 3**

Principles and issues involved in the design and conduct of research in exercise science: critical evaluation, research design, development of a research proposal, grant acquisition, and compliance with institutional and federal guidelines on the use of humans and animals.

KINE6300 Human Locomotion **Credit Hours: 3**

This course focuses on an examination of the characteristics of normal locomotion and the effects on locomotion of common pathologies and disabilities. The role of biomechanics in evaluating locomotion, and the appropriate techniques for accomplishing this will be discussed, with respect to sport, surgical and rehabilitative applications.

Prerequisites: KINE 6130 FOR LEVEL GR WITH MIN. GRADE OF D-

KINE6400 Kinesiological Electromyography **Credit Hours: 3**

This focus of this course is on the principles involved in the generation and control of muscle contraction, and the electromyographical techniques used to evaluate muscle function. Emphasis is placed on gaining hands-on experience with contemporary EMG technology and analysis techniques.

Prerequisites: KINE 6130 FOR LEVEL GR WITH MIN. GRADE OF D-

KINE6420 Cardiopulmonary Exercise Physiology **Credit Hours: 3**

The responses and adaptations of the cardiovascular and pulmonary systems to exercise in healthy individuals.

Prerequisites: KINE 6100 FOR LEVEL GR WITH MIN. GRADE OF D-

KINE6440 Exercise Metabolism And Endocrinology **Credit Hours: 3**

This course will provide the student with an advanced understanding of various concepts of cellular metabolism in response to exercise. Emphasis will be placed on biochemical, molecular and endocrinological mechanisms regulating human metabolism.

Prerequisites: KINE 6100 FOR LEVEL GR WITH MIN. GRADE OF D-

KINE6500 Biomechanics Of Posture And Balance **Credit Hours: 3**

Focus on the mechanical and sensory-motor factors involved in the control of balance and posture. Emphasis on the theories, the influence of pathology and techniques for the assessment of balance.

Prerequisites: KINE 6130 FOR LEVEL GR WITH MIN. GRADE OF D-

KINE6520 Clinical Kinesiology **Credit Hours: 3**

Kinesiological principles underlying the assessment and treatment of individuals with normal and pathological conditions. Emphasis will be placed on clinical applications of mechanical principles, motor control and muscle activity to improve performance and prevent further injury.

KINE6530 Prevention, Evaluation, And Emergency Care Of Athletic Injuries **Credit Hours: 3**

Advanced study of prevention, evaluation and care of athletic injuries with an emphasis on orthopedic and neurological problems and guidelines for return to competition.

KINE6540 Laboratory Techniques In Exercise Physiology **Credit Hours: 3**

This course covers theoretical and practical knowledge for the assessment of exercise metabolism, cardiorespiratory function, body composition, thermoregulation and skeletal muscle function. Hands-on data collection will be emphasized.

KINE6550 Lab Techniques In Exercise Biology **Credit Hours: 3**

The course provides students with theoretical and practical knowledge for assessing cellular and molecular responses to exercise and inactivity. Emphasis will be placed on laboratory safety, reagent preparation, cell culture techniques, and tissue analysis.

Prerequisites: (KINE 6100 FOR LEVEL GR WITH MIN. GRADE OF D- AND KINE 6540 FOR LEVEL GR WITH MIN. GRADE OF D-)

KINE656 Skeletal Muscle Biology **Credit Hours: 3**

KINE6560 Skeletal Muscle Biology **Credit Hours: 3**

This course is designed to provide students with advanced instruction of the cellular and molecular adaptations in skeletal muscle following changes in physical activity.

Prerequisites: KINE 6100 FOR LEVEL GR WITH MIN. GRADE OF D-

KINE6590 Treatment, Rehabilitation And Reconditioning Of Athletic Injuries **Credit Hours: 3**

Psychological, mechanical and bioelectrical principles for modifying the inflammatory response in athletic injuries. Various rehabilitation techniques to return an athlete to competition and the relationship with modalities.

KINE6600 Issues And Management In Athletic Training **Credit Hours: 3**

This course addresses current issues that affect the profession of Athletic Training. Topics cover issues that influence clinical practice as well as political issues related to the profession.

KINE6660 Evidence-Based Approach To Physical Rehabilitation **Credit Hours: 3**

An investigation into the science and theories of therapeutic rehabilitation and its impact of clinical practice using current literature and databases from areas of evidence based medicine.

KINE6670 Pathomechanics Of Musculoskeletal Injury **Credit Hours: 3**

An in-depth investigation into the basic structure and mechanisms of injury of various musculoskeletal tissue applied to the recognition and prevention of specific orthopedic injuries and conditions.

KINE6680 Interventions in Ath Train/SM **Credit Hours: 3**

Students will be introduced to advanced techniques that impact clinical practice in Athletic Training, including manual therapy, advanced orthopedic evaluation s, and advanced management and planning related to emergency medicine.

KINE6710 Organization And Administration Of Athletic Training Programs **Credit Hours: 3**

Administration of athletic training programs including legal issues, athletic training room management, budgeting, staffing, insurance, medical records, emergency care planning, preparticipation physical examinations, athletic training room design and public relations.

KINE6930 Kinesiology Seminar **Credit Hours: 1-4**

Seminar course on a selected topic in exercise physiology. Course will typically involve a review of current research and will include laboratory experiences/assignments.

KINE6940 Internship In Exercise Science **Credit Hours: 1-12**

A field internship designed to supplement classroom experience by providing participation in the area of exercise science through participant-observer experience.

KINE6960 Masters Thesis In Exercises Science **Credit Hours: 1-4**

Independence research in Exercise Science completed as part of the requirements for the Master of Science in Exercise Science degree.

KINE6990 Independent Study In Exercise Science **Credit Hours: 1-4**

Faculty supervised independent reading, laboratory research, field experience and other activities not suited for class instruction.

KINE7010 Fitness And Conditioning Programs **Credit Hours: 3**

Theory and practice in development and administration of comprehensive fitness programs with special emphasis on the use of exercise as a health maintenance strategy.

KINE7110 Measurement And Statistical Inference In Human Performance **Credit Hours: 3**

Application of measurement and statistical inference to human performance testing and research. Includes descriptive and inferential statistics, principles of test construction and introduction to authentic assessment in public schools.

KINE7250 Readings In Exercise Biology **Credit Hours: 3**

Faculty and student directed readings of original research in Exercise Biology. Readings will focus on how changes in physical activity influence the biology of skeletal muscle.

KINE7950 Workshop In Exercise Science **Credit Hours: 1-4**

Topical workshops developed around areas of interest and concern to those involved in academic programs and careers that relate to exercise science. May not be included in a graduate plan of study without prior approval of the student's adviser.

KINE8100 Physiology Of Exercise **Credit Hours: 3**

This course is designed to provide an understanding mechanisms of the physiological responses to exercise. Emphasis will be placed on adaptations to exercise training and the role of exercise in health and disease.

KINE8130 Biomechanics Of Human Motion **Credit Hours: 3**

This course provides a basic overview of the principles of biomechanics as they apply to human movement. In-depth discussion and lab activities focus on the application of these principles to such topics as muscle function, locomotion, balance, mechanisms of injury and ergonomics.

KINE8200 Biomechanical Instrumentation **Credit Hours: 3**

Provides students with experience in the research and clinical use of videography, force and pressure plates, electromyography and other systems in applied biomechanics. Emphasis on hands-on lab experience and topics related to data collection and signal processing.

KINE8230 Scientific Writing And Research Methods **Credit Hours: 3**

Principles and issues involved in the design and conduct of research in exercise science: critical evaluation, research design, development of a research proposal, grant acquisition, and compliance with institutional and federal guidelines on the use of humans and animals.

KINE8300 Human Locomotion **Credit Hours: 3**

This course focuses on an examination of the characteristics of normal locomotion and the effects on locomotion of common pathologies and disabilities. The role of biomechanics in evaluating locomotion, and the appropriate techniques for accomplishing this will be discussed, with respect to sport, surgical, and rehabilitative applications.

Prerequisites: KINE 8130 FOR LEVEL GR WITH MIN. GRADE OF D-

KINE8400 Kinesiological Electromyography **Credit Hours: 3**

This focus of this course is on the principles involved in the generation and control of muscle contraction, and the electromyographical techniques used to evaluate muscle function. Emphasis is placed on gaining hands-on experience with contemporary EMG technology and analysis techniques.

Prerequisites: KINE 8130 FOR LEVEL GR WITH MIN. GRADE OF D-

KINE8420 Cardiopulmonary Exercise Physiology **Credit Hours: 3**

The responses and adaptations of the cardiovascular and pulmonary systems to exercise in healthy individuals.

Prerequisites: KINE 8100 FOR LEVEL GR WITH MIN. GRADE OF D-

KINE8440 Exercise Metabolism And Endocrinology **Credit Hours: 3**

This course will provide the student with an advanced understanding of various concepts of cellular metabolism in response to exercise. Emphasis will be placed on biochemical, molecular and endocrinological mechanisms regulating human metabolism.

Prerequisites: KINE 8100 FOR LEVEL GR WITH MIN. GRADE OF D-

KINE8500 Biomechanics Of Posture And Balance **Credit Hours: 3**

Focus on the mechanical and sensory-motor factors involved in the control of balance and posture. Emphasis on the theories, the influence of pathology, and techniques for the assessment of balance.

Prerequisites: KINE 8130 FOR LEVEL GR WITH MIN. GRADE OF D-

KINE8520 Clinical Kinesiology **Credit Hours: 3**

Kinesiological principles underlying the assessment and treatment of individuals with normal and pathological conditions. Emphasis will be placed on clinical applications of mechanical principles, motor control and muscle activity to improve performance and prevent further injury.

KINE8540 Laboratory Techniques In Exercise Physiology **Credit Hours: 3**

This course covers theoretical and practical knowledge for the assessment of exercise metabolism, cardiorespiratory function, body composition, thermoregulation and skeletal muscle function. Hands-on data collection will be emphasized.

KINE8550 Lab Techniques In Exercise Biology **Credit Hours: 3**

The course provides students with theoretical and practical knowledge for assessing cellular and molecular responses to exercise and inactivity. Emphasis will be placed on laboratory safety, reagent preparation, cell culture techniques, and tissue analysis.

Prerequisites: (KINE 8100 FOR LEVEL GR WITH MIN. GRADE OF D- AND KINE 8540 FOR LEVEL GR WITH MIN. GRADE OF D-)

KINE8560 Skeletal Muscle Biology **Credit Hours: 3**

This course is designed to provide students with advanced instruction of the cellular and molecular adaptations in skeletal muscle following changes in physical activity.

Prerequisites: KINE 8100 FOR LEVEL GR WITH MIN. GRADE OF D-

KINE8600 Issues And Management In Athletic Training **Credit Hours: 3**

This course addresses current issues that affect the profession of Athletic Training. Topics cover issues that influence clinical practice as well as political issues related to the profession.

KINE8660 Evidence Based Approach To Physical Rehabilitation **Credit Hours: 3**

An investigation into the science and theories of therapeutic rehabilitation and its impact on clinical practice using current literature and databases from the areas of evidence based medicine.

KINE8670 Pathomechanics Of Musculoskeletal Injury **Credit Hours: 3**

An in-depth investigation into the basic structure and mechanisms of injury of various musculosketetal tissue applied to the recognition and prevention of specific orthopedic injuries and conditions.

KINE8930 Kinesiology Seminar **Credit Hours: 1-4**

Seminar course on a selected topic in exercise physiology. Course will typically involve a review of current research and will include laboratory experiences/assignments.

KINE8940 Internship In Exercise Science **Credit Hours: 1-12**

A field internship designed to supplement classroom experience by providing participation in the area of exercise science through participant-observer experience.

KINE8960 Doctoral Dissertation In Exercise Science **Credit Hours: 1-12**

Directed research towards completion of the doctoral degree. Students may register for credit in more than one semester. Total dissertation credit toward the degree may not exceed 16 hours.

KINE8990 Independent Study In Exercise Science **Credit Hours: 1-4**

Faculty supervised independent reading, laboratory research, field experience and other activities not suited for class instruction.

LAT1110 Elementary Latin I **Credit Hours: 4**

Study of the fundamentals of Latin vocabulary, grammar and syntax. Translation of elementary readings. (not for major credit)

LAT1120 Elementary Latin II **Credit Hours: 4**

Continued study of fundamental Latin vocabulary, grammar and syntax. Translation of elementary readings. (not for major credit)

Prerequisites: LAT 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNLT FOR MIN. SCORE OF 1120

LAT2140 Intermediate Latin I **Credit Hours: 3**

Brief review of vocabulary, grammar and syntax. Readings in Latin prose by such authors as Sallust, Livy and Cicero. (not for major credit)

Prerequisites: LAT 1120 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNLT FOR MIN. SCORE OF 2140

LAT2150 Intermediate Latin II **Credit Hours: 3**

Intermediate level Latin poetry of the Republic and Augustan periods. (not for major credit)

Prerequisites: LAT 2140 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNLT FOR MIN. SCORE OF 2150

LAT3050 Survey of Latin Lit I **Credit Hours: 3**

LAT5210 Latin For Reading Knowledge I **Credit Hours: 3**

Elements of grammar and vocabulary appropriate to preparing graduate students to read effectively in Latin.

LAT5220 Latin For Reading Knowledge II **Credit Hours: 3**

Elements of pronunciation, structure and vocabulary most appropriate to preparing graduate students to read effectively in Latin.

LAWA6000 Legal Ethics And Professional Responsibility **Credit Hours: 2-3**

An introduction to legal and ethical principles governing lawyers, the legal profession and the practice of law. The course considers the principal ways in which lawyers are regulated through bar admission, professional codes, lawyer disciplinary actions and civil liability. The course explores the lawyer-client relationship and the scope and limits of duties to the client, the legal system and third parties.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWA6120 Constitutional Law II **Credit Hours: 3**

Constitutional Law II will cover issues of individual rights protected by the Equal Protection Clause of the Fourteenth Amendment. It will also cover First Amendment protections against governmental restrictions of speech and the press, with some coverage of First Amendment protections of religion.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWA6310 Evidence **Credit Hours: 3-4**

The rules and policies governing a trial court's fact-finding process, as exemplified by the Federal Rules of Evidence. Topics cover the full range of evidentiary issues at trial, including the content of admissible proof, the matter of presenting it and the respective roles of the judge and jury.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWA9000 Legal Ethics And Professional Responsibility **Credit Hours: 2-3**

An introduction to legal and ethical principles governing lawyers, the legal profession and the practice of law. The course considers the principal ways in which lawyers are regulated through bar admission, professional codes, lawyer disciplinary actions and civil liability. The course explores the lawyer-client relationship and the scope and limits of duties to the client, the legal system and third parties.

LAWA9120 Constitutional Law II **Credit Hours: 3**

Constitutional Law II will cover issues of individual rights protected by the Equal Protection Clause of the Fourteenth Amendment. It will also cover First Amendment protections against governmental restrictions of speech and the press, with some coverage of First Amendment protections of religion.

LAWA9310 Evidence **Credit Hours: 3-4**

The rules and policies governing a trial court's fact-finding process, as exemplified by the Federal Rules of Evidence. Topics cover the full range of evidentiary issues at trial, including the content of admissible proof, the matter of presenting it and the respective roles of the judge and jury.

LAWA9400 Advanced Research and Writing **Credit Hours: 1**

Independent study course involving intensive legal research and drafting under faculty supervision.

LAWC3FA Consortium - Full Time **Credit Hours: 0-5**

LAWC4FA Consortium - Part Time **Credit Hours: 0-5**

LAWC6010 International/Domestic Arbritration **Credit Hours: 3**

Arbitration permeates domestic dispute resolution and is the principal means of international commercial dispute resolution. To prepare students as advocates and/or arbitrators in the domestic and international arena, this course conveys a thorough understanding of the law and practice of arbitration. Students will learn the law of arbitration, participate in a mock international commercial arbitration, and be exposed to the emerging subject of online arbitration.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWC9010 International/Domestic Arbritration **Credit Hours: 3**

Arbitration permeates domestic dispute resolution and is the principal means of international commercial dispute resolution. To prepare students as advocates and/or arbitrators in the domestic and international arena, this course conveys a thorough understanding of the law and practice of arbitration. Students will learn the law of arbitration, participate in a mock international commercial arbitration, and be exposed to the emerging subject of online arbitration.

LAWD6010 Civil Procedure -- Jurisdiction **Credit Hours: 2-4**

The rules controlling the jurisdiction of courts and forum selection for civil litigation in state and federal systems are covered.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWD6020 Civil Procedure -- Pleading And Practice **Credit Hours: 2-4**

The rules controlling conduct and management of civil litigation in federal and state courts from the complaint to final judgment as well as issues involving the effect of judgments on subsequent litigation are covered.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWD6110 Constitutional Law I **Credit Hours: 3**

Constitutional Law I will cover structural issues focusing on the Supreme Court's interpretation of the nature and distribution of power within the federal government, the relationship between the federal government and the states in regulating commerce, and the meaning and scope of the due process and equal protection clauses of the fourteenth amendment. Constitutional Law II will cover Equal Protection and First Amendment.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWD6210 Contracts I **Credit Hours: 3**

A survey of the law of contracts including the creation, modification and termination of contract rights and obligations, the roles of reliance and restitution, capacity, conditions, third party rights and duties, and the effect of changed circumstances or mistake. Performance and breach of contractual obligations and remedies for breach are also examined in detail. The course includes a survey of the law relating to sales of goods under Article 2 of the Uniform Commercial Code.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWD6220 Contracts II **Credit Hours: 3**

A continued survey of the law of contracts including the creation, modification and termination of contract rights and obligations, the roles of reliance and restitution, capacity, conditions, third party rights and duties, and the effect of changed circumstances or mistake. Performance and breach of contractual obligations and remedies for breach are also examined in detail. The course includes a survey of the law relating to sales of goods under Article 2 of the Uniform Commercial Code.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWD6300 Criminal Law **Credit Hours: 3**

Substantive criminal law, focusing on general principles of liability and defenses, the definitional elements of certain crimes, particularly homicide, and principles of accessorial liability.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWD6410 Property I **Credit Hours: 2-4**

An introduction to the law of personal property and comprehensive coverage of the law of real property as it relates to estates and interests in land, landlord-tenant relationships, real estate transactions, private agreements respecting the use of land and public controls upon property use.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWD6420 Property II **Credit Hours: 2-4**

Continued study of the law of personal property and comprehensive coverage of the law of real property as it relates to estates and interests in land, landlord-tenant relationships, real estate transactions, private agreements respecting the use of land and public controls upon property use.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWD6510 Torts **Credit Hours: 4**

Torts explores civil claims for a variety of intentional harms and offenses to people and property, negligent harms and theories of strict liability (including products liability). The course studies both traditional principles and modern concepts.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWD6750 Legal Research, Writing And Appellate Advocacy I **Credit Hours: 2-3**

A foundation course providing intensive instruction in three major areas: using research resources and techniques of research; developing skills of legal analysis; presenting legal analysis in predictive and persuasive formats, both written and oral. Instruction is through class meetings, small group meetings and individual conferences.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWD6760 Legal Research, Writing And Appellate Advocacy II **Credit Hours: 1-2**

A continuation of Legal Research, Writing and Appellate Advocacy I, this course provides intensive instruction in three major areas: using research resources and techniques of research; developing skills of legal analysis; presenting legal analysis in predictive and persuasive formats, both written and oral. Instruction is through class meetings, small group meetings and individual conferences.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWD9010 Civil Procedure -- Jurisdiction **Credit Hours: 2-4**

The rules controlling the jurisdiction of courts and forum selection for civil litigation in state and federal systems are covered.

LAWD9020 Civil Procedure -- Pleading And Practice **Credit Hours: 2-4**

The rules controlling conduct and management of civil litigation in federal and state courts from the complaint to final judgment as well as issues involving the effect of judgments on subsequent litigation are covered.

LAWD9110 Constitutional Law I **Credit Hours: 3**

Constitutional Law I will cover structural issues focusing on the Supreme Court's interpretation of the nature and distribution of power within the federal government, the relationship between the federal government and the states in regulating commerce, and the meaning and scope of the due process and equal protection clauses of the fourteenth amendment. Constitutional Law II will cover Equal Protection and First Amendment.

LAWD9210 Contracts I **Credit Hours: 3**

A survey of the law of contracts including the creation, modification and termination of contract rights and obligations, the roles of reliance and restitution, capacity, conditions, third party rights and duties, and the effect of changed circumstances or mistake. Performance and breach of contractual obligations and remedies for breach are also examined in detail. The course includes a survey of the law relating to sales of goods under Article 2 of the Uniform Commercial Code.

LAWD9220 Contracts II **Credit Hours: 3**

A continued survey of the law of contracts including the creation, modification and termination of contract rights and obligations, the roles of reliance and restitution, capacity, conditions, third party rights and duties, and the effect of changed circumstances or mistake. Performance and breach of contractual obligations and remedies for breach are also examined in detail. The course includes a survey of the law relating to sales of goods under Article 2 of the Uniform Commercial Code.

LAWD9300 Criminal Law **Credit Hours: 3**

Substantive criminal law, focusing on general principles of liability and defenses, the definitional elements of certain crimes, particularly homicide, and principles of accessorial liability.

LAWD9410 Property I **Credit Hours: 2-4**

An introduction to the law of personal property and comprehensive coverage of the law of real property as it relates to estates and interests in land, landlord-tenant relationships, real estate transactions, private agreements respecting the use of land and public controls upon property use.

LAWD9420 Property II **Credit Hours: 2-4**

Continued study of the law of personal property and comprehensive coverage of the law of real property as it relates to estates and interests in land, landlord-tenant relationships, real estate transactions, private agreements respecting the use of land and public controls upon property use.

LAWD9510 Torts **Credit Hours: 4**

Torts explores civil claims for a variety of intentional harms and offenses to people and property, negligent harms and theories of strict liability (including products liability). The course studies both traditional principles and modern concepts.

LAWD9750 Legal Research, Writing And Appellate Advocacy I **Credit Hours: 2-3**

A foundation course providing intensive instruction in three major areas: using research resources and techniques of research; developing skills of legal analysis; presenting legal analysis in predictive and persuasive formats, both written and oral. Instruction is through class meetings, small group meetings and individual conferences.

LAWD9760 Legal Research, Writing And Appellate Advocacy II **Credit Hours: 1-2**

A continuation of Legal Research, Writing and Appellate Advocacy I, this course provides intensive instruction in three major areas: using research resources and techniques of research; developing skills of legal analysis; presenting legal analysis in predictive and persuasive formats, both written and oral. Instruction is through class meetings, small group meetings and individual conferences.

LAWG6010 Business Associations — Credit Hours: 3-4

Business Associations focuses on the legal entities commonly used to operate business enterprises, with an emphasis on closely held businesses. The course explores the major issues involved in formation and operation of agency relationships, corporations and limited liability companies. These include creation of business entities; financing for the small business; sharing in earnings; the roles of corporate officers, directors and shareholders; roles of LLC managers and members; doctrines of limited liability; fiduciary duties; and special statutory treatment of closely held corporations.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWG6030 Administrative Law — Credit Hours: 3

The law and operation of administrative agencies, including agency adjudication, rulemaking and other forms of policy implementation. The course covers agencies¿ place in the constitutional structure, legislative and executive controls on agency action, and judicial review of agency fact-finding, statutory interpretation, and exercise of discretion. The course examines state agencies as well as federal agencies and the federal Administrative Procedure Act.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWG6110 Commercial Paper — Credit Hours: 2-3

A study of payment systems. Initial emphasis is upon commercial paper (Article 3 of the Uniform Commercial Code) and bank deposits and collections (Article 4 of the Uniform Commercial Code), followed by credit cards (Truth in Lending, Consumer Credit Protection, and Fair Credit Billing Acts), commercial funds transfer (Article 4A of the Uniform Commercial Code) and consumer electronic funds transfer (Electronic Funds Transfers Act).

Prerequisites: LAWD 6210 FOR LEVEL GR WITH MIN. GRADE OF D- AND LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWG6210 Criminal Procedure-Investigations — Credit Hours: 2-3

A study of the constitutional and statutory limitations on the conduct of criminal investigations and related matters. Includes a discussion of the Fourth Amendment prohibition against unreasonable searches and seizures, the Fifth Amendment privilege against self-incrimination and the Sixth Amendment right to counsel.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWG6500 Federal Income Taxation **Credit Hours: 4**

After a brief consideration of the federal income taxation system, this course examines the conceptual problems in defining "income." A detailed treatment of the more significant personal and business deductions, exemptions and credits follows. Statutory methodology and policy consideration s (including the "tax expenditure" concept) are developed integrally with substantive topics. In addition, the course considers the tax treatment of gains and losses from the disposition of property, including the capital gains preference and deferral of taxation. Tax shelters and attempts by Congress and the Internal Revenue Service to limit their utilization may be explored as well.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWG6610 Secured Transactions **Credit Hours: 3**

The creation, enforcement, perfection and priority of security interests in personal property under Article Nine of the Uniform Commercial Code and the federal Bankruptcy Code.

Prerequisites: LAWD 6210 FOR LEVEL GR WITH MIN. GRADE OF D- AND LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWG6710 Trusts And Estates **Credit Hours: 3-4**

The study of decedents' estates and trust law. Intestate succession, the law of wills, estate administration, formation and administration of trusts and future interests are studied. Common law approaches are contrasted with Ohio and Uniform Probate Code practices.

Prerequisites: LAWD 6410 FOR LEVEL GR WITH MIN. GRADE OF D- AND LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWG9010 Business Associations **Credit Hours: 3-4**

Business Associations focuses on the legal entities commonly used to operate business enterprises, with an emphasis on closely held businesses. The course explores the major issues involved in formation and operation of agency relationships, corporations and limited liability companies. These include creation of business entities; financing for the small business; sharing in earnings; the roles of corporate officers, directors and shareholders; roles of LLC managers and members; doctrines of limited liability; fiduciary duties; and special statutory treatment of closely held corporations.

LAWG9030 Administrative Law **Credit Hours: 3**

The law and operation of administrative agencies, including agency adjudication, rulemaking and other forms of policy implementation. The course covers agencies¿ place in the constitutional structure, legislative and executive controls on agency action, and judicial review of agency fact-finding, statutory interpretation, and exercise of discretion. The course examines state agencies as well as federal agencies and the federal Administrative Procedure Act.

LAWG9110 Commercial Paper **Credit Hours: 2-3**

A study of payment systems. Initial emphasis is upon commercial paper (Article 3 of the Uniform Commercial Code) and bank deposits and collections (Article 4 of the Uniform Commercial Code), followed by credit cards (Truth in Lending, Consumer Credit Protection, and Fair Credit Billing Acts), commercial funds transfer (Article 4A of the Uniform Commercial Code) and consumer electronic funds transfer (Electronic Funds Transfers Act).

Prerequisites: LAWD 9210 FOR LEVEL LW WITH MIN. GRADE OF D

LAWG9210 Criminal Procedure-Investigations **Credit Hours: 2-3**

A study of the constitutional and statutory limitations on the conduct of criminal investigations and related matters. Includes a discussion of the Fourth Amendment prohibition against unreasonable searches and seizures, the Fifth Amendment privilege against self-incrimination and the Sixth Amendment right to counsel.

LAWG9500 Federal Income Taxation **Credit Hours: 4**

After a brief consideration of the federal income taxation system, this course examines the conceptual problems in defining "income." A detailed treatment of the more significant personal and business deductions, exemptions and credits follows. Statutory methodology and policy consideration s (including the "tax expenditure" concept) are developed integrally with substantive topics. In addition, the course considers the tax treatment of gains and losses from the disposition of property, including the capital gains preference and deferral of taxation. Tax shelters and attempts by Congress and the Internal Revenue Service to limit their utilization may be explored as well.

LAWG9610 Secured Transactions **Credit Hours: 3**

The creation, enforcement, perfection and priority of security interests in personal property under Article Nine of the Uniform Commercial Code and the federal Bankruptcy Code.

Prerequisites: LAWD 9210 FOR LEVEL LW WITH MIN. GRADE OF D

LAWG9710 Trusts And Estates **Credit Hours: 3-4**

The study of decedents' estates and trust law. Intestate succession, the law of wills, estate administration, formation and administration of trusts and future interests are studied. Common law approaches are contrasted with Ohio and Uniform Probate Code practices.

Prerequisites: LAWD 9410 FOR LEVEL LW WITH MIN. GRADE OF D

LAWI6000 International Comparative Law **Credit Hours: 2-3**

This course introduces students to the major legal systems of the world. The first third of the course provides an overview of the major families of law encountered in various nations of the world today: common law (as exemplified by California and England); civil law (France and German7): religious law (Egypt): traditional/tribal law (Botswana): and the extra-legal approach seen in various Asian countries (China). The rest of the course examines how each of these systems handles the same types of common legal situation: inheritance and succession, criminal behavior and contracts.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6010 Accounting And Financial Statements **Credit Hours: 1-3**

An introduction for students without prior accounting experience to the terms and concepts necessary to an understanding of the financial affairs of a client and to the variety of legal contexts in which the lawyer is likely to encounter accounting problems. Students will learn to perform basic financial analysis.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6020 E-Commerce **Credit Hours: 1-3**

This course will examine critical information technologies that provide a basis for electronic commerce. Topics include problems surrounding electronic commerce such as security, privacy, content selection and rating, intellectual property rights, authentication, encryption, acceptable use policies, UETA, UCITA and E-Sign.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6040 Civil And Political Rights **Credit Hours: 2-3**

Civil and Political Rights focuses on a broad array of legal issues and rights in this area of law. Beginning with a history of the area, the course includes topics such as voting rights, religion, education, discrimination, police misconduct and prisoners' rights. Current issues are discussed using news articles and videos.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6050 Admiralty Law **Credit Hours: 2-3**

This course surveys admiralty jurisdiction, rights and liabilities of commercial and pleasure boat owners, rights of injured maritime workers and passengers, collision, salvage, maritime liens, cargo claims, and limitation of liability.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6060 Sales And Leases Of Goods **Credit Hours: 2-3**

A detailed study of sales of goods under Article 2 of the Uniform Commercial Code and a survey of both Article 2A of the Uniform Commercial Code (leases of goods) and the U.N. Convention on Contracts for the International Sale of Goods. Topics include contract formation and interpretation, warranties, express and implied terms, risk of loss, performance obligations and breach, and remedies for breach. Consideration may also be given to other state and federal laws affecting sales and leases of goods.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6070 Antitrust **Credit Hours: 2-3**

This course will cover the role of competition in a modern market economy, federal antitrust law, regulation and policies. Topics covered include horizontal restraints (price fixing, conspiracy, data dissemination, concerted refusals to deal, etc.); monopolization, attempts to monopolize, and oligopoly; problems concerning the relationship of antitrust to patent law; vertical restraints (restricted distribution, tying arrangements, exclusive dealing, etc); mergers (horizontal, vertical and conglomerate); selected Robinson-Patman Act problems, remedies and enforcement.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6080 Gender And The Law **Credit Hours: 2-3**

This course covers issues of gender and the law with a primary focus on how the law addresses sex discrimination. Students will discuss constitutional and statutory protections against sex discrimination from a doctrinal and theoretical perspective. Subjects covered in this class include employment discrimination, family law, public benefits, domestic violence and sexual orientation and the law.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6100 International Law **Credit Hours: 2-3**

This course focuses on the legal processes of the international community. The creation of law among nation states, the law-making activities of international organizations, the enforcement (and non-enforcement) of international law in both national and international forums, the limits of national jurisdiction, the responsibility of states for the injuries to the persons or property of aliens and the rules governing international agreements are surveyed. Particular attention is given to the law of treaties and the role of lawyers in foreign policy decision making.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6120 English Legal History **Credit Hours: 2-3**

A survey of the roots of American law, procedures, and such doctrines as real property, descents, contracts and corporations in the history of the English Common Law.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6130 Business Enterprise Tax **Credit Hours: 2-3**

An examination of the federal income tax treatment of business enterprises (including corporations, partnerships and limited liability companies) and their owners. The course considers the tax consequences of entity-owner transactions (formation and property contributions, distributions, redemptions and liquidations) as well as entity-level transactions (business operations, mergers, acquisitions and other business combinations).

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6140 Business Planning **Credit Hours: 2-3**

The course considers problems and transactions of business enterprises in a practical fashion. Projects requiring planning, drafting and negotiating, principally on behalf of smaller and closely held businesses, are an integral part of the course. Contractual arrangements typically examined include buy-sell agreements, close corporation/shareholder agreements and limited liability company operating agreements.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6160 Real Estate Finance **Credit Hours: 1-3**

The legal problems related to private financing and development of land. Emphasis is on the structuring of real estate transactions, tax considerations and problems of developers, lenders and other participants.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6170 Conflict Of Laws **Credit Hours: 2-3**

The problems encountered when a transaction or occurrence has a significant relationship to two or more states or countries. The jurisdiction of courts, the effect to be given to out-of-state judgments and the rules of decision in multi-state cases are studied. Both traditional rules and theories and modern developments are analyzed.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6180 Communications Law **Credit Hours: 2-3**

The class explores in detail legal and practical issues arising in connection with various media: newspaper, television and radio stations, cable television and other video providers, and the Internet, including Internet-service providers, web-hosting companies, and web-publishing. We will identify, analyze, and critique the legal doctrines ¿ constitutional, statutory, and common-law ¿ that apply to these media, either individually or collectively. We also study how those doctrines have evolved and will continue to change, as the means of mass communication evolve and converge.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6200 Jurisprudence **Credit Hours: 2-3**

Jurisprudence is the philosophy of law. The two primary goals of this class are 1) to give students a basic background and understanding of important legal thinkers and theory and 2) to stimulate critical thinking through assigned readings and rollicking in-class discussions about concepts of law from Plato to present day. We will philosophically analyze concepts of precedence, interpretation, rights, civil disobedience, semantics, and virtues such as justice, desert and compassion.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6210 Copyright Law **Credit Hours: 2-3**

A substantive examination of the Copyright Act. This course will cover the fundamentals of copyright law and practice and the challenges to the existing copyright regime by new technologies.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6230 Corporate Finance **Credit Hours: 1-3**

An advanced exploration of the legal and financial problems encountered in financing corporations, with emphasis on the corporate capital structure, including the rights of holders of various equity and debt securities; the valuation of businesses, as well as corporate equity and debt securities; and mergers and acquisitions, including tender offers.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6260 Race & The Law **Credit Hours: 2-3**

Primarily focuses on cases that have helped shape the law and history of race in the U.S., from early 19th century cases concerning slave law to recent United States Supreme Court decisions. The topics will include slavery, citizenship, segregation, voting, marriage, education, housing and criminal justice. The material and the discussion will move beyond the legal decisions to explore the culture that helped to produce and shape the decisions.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6270 Creditor/Debtor Law **Credit Hours: 2-3**

Explores creditors¿ rights under state law including judgment liens, execution liens, fraudulent conveyances, set off, assignments to benefit creditors and statutory liens. Debtor defenses under state and federal law including constitutional protections, exemptions and counterclaims are evaluated. Following this overview of general creditor execution, the majority of the course is devoted to resolution of claims in federal bankruptcy law.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6280 Criminal Procedure-Adjudications **Credit Hours: 2-3**

A study of the criminal processes from arrest through sentencing and appeal. Topics covered include bail, preliminary hearing, grand jury, plea bargaining and guilty pleas, discovery, fair trial-free press, jury trial, sentencing and double jeopardy.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6290 Cyberspace Law **Credit Hours: 2-3**

This course will explore issues related to the regulation of cyberspace. It is not a course in computer law, copyright, trademark, patent, or other forms of intellectual property law, except as intellectual property law is sui generis in cyberspace. Instead, it is an effort to understand the peculiar problems of Internet regulation. Subject areas will vary as the field develops, but will include such areas as tort liability, freedom of expression, crime and security, privacy, intellectual property rights and protection, regulation, jurisdiction and standards of ethics and propriety. A technical or scientific background is not required.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6300 Employment Discrimination **Credit Hours: 2-3**

This course focuses on the main federal statutes prohibiting employment discrimination and the policies underlying these laws, with the majority of time spent on Title VII of the Civil Rights Act of 1964, the Age Discrimination in Employment Act and the Americans With Disabilities Act. Additional topics and subtopics include sexual harassment, discrimination based on sexual orientation, defenses and reasonable accommodation of religion.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6310 Employment Law **Credit Hours: 2-3**

This course focuses on the major state and federal employment laws affecting individual employees, excluding laws on unions and employment discrimination. Coverage includes the legal regulation of the hiring and firing process, testing and privacy issues, wage and hour laws, occupational health and safety, workers¿ compensation, unemployment insurance, covenants not to compete, and related topics.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6320 Environmental Law Practicum **Credit Hours: 2-4**

The environmental law practicum allows students to choose their own semester-long, environmental law work project. Students are encouraged to find projects that allow them to participate directly in a legal or policy matter pending before an administrative agency. The class has two parts. The first part involves identifying and developing the project concept, and preparing a formal written document for submission to the appropriate agencies. The second part involves explaining their projects to other members of the class and brainstorming ideas for effective participation. Several substantive classes on the art of commenting and on the laws and rules relevant to the various student projects will also be held throughout the semester.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6330 Environmental Law **Credit Hours: 2-4**

This course introduces students to U.S. environmental law by examining common law environmental standards, major federal statutes and the policy goals underlying such statutes. Statutes to be examined include the Clean Air Act, the Clean Water Act, the Clean Air Act; the Comprehensive Environmental Response, Compensation and Liability Act; and the Resource Conservation and Recovery Act. By comparing and contrasting different environmental statutes, students will obtain an understanding of the current environmental framework as well as alternative approaches that may be employed to protect the environment.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6350 Estate Planning **Credit Hours: 1-3**

This course focuses on the practical aspects of will and trust drafting. Emphasis is placed on the application of estate planning and wealth preservation techniques to commonly encountered estate planning problems.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6360 Estate And Gift Tax **Credit Hours: 2-3**

A study of the federal estate and gift tax structure and its impact on the transfer of property and of income taxation of trusts and estates. The redistribution of wealth through taxation, whether or not stated as a goal, is also studied.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6370 Family Law **Credit Hours: 3**

The interaction of law and the family and the consequences of state intervention in family relationships. Some of the subjects surveyed are the marriage relationship, de facto marriage, adoption, the termination of marital status, economic consequences of divorce, child custody after divorce and the role of the lawyer as counselor.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6380 Federal Courts And Federal Rights **Credit Hours: 2-4**

An intensive examination of the jurisdiction of federal courts, the role of the federal courts within the federal government, and within our federalist system. Topics surveyed include the law applied by federal courts in civil actions, the original and removal jurisdiction of federal courts, the relationship of the federal courts to state courts, congressional power over federal courts, the enforceability of federal law against states, and states¿ sovereign immunity.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6390 Natural Resources Law **Credit Hours: 2-3**

This course will provide an introduction to natural resource law, including public lands issues (forestry, mining, grazing, recreation and preservation), cultural resources (historic and sacred sites), wildlife, water rights and energy resources. Policies governing resource use and protection will be explored by looking at case law, federal statutes and regulations, news articles, scholarly works and book excerpts. Students will have an opportunity to engage in "hands-on" application of the law by developing case strategy and motions related to an administrative agency¿s decision.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6400 American Legal History **Credit Hours: 2-3**

(The American Legal Profession) This seminar/course (students may elect either to write a paper or to take an examination) follows the profession¿s development from the American Revolution through the 1920¿s and the emergence of university-based professional education, the advent of new client constituencies including corporations, labor organizations, and anti-slavery and other social action groups, the development of standards of professional ethnics and racial minorities. The teaching approach emphasizes comparisons with current practice, critical use of original source materials and development of research and writing skills.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6410 Real Estate Transactions And Development **Credit Hours: 2-3**

This course emphasizes aspects of real estate law, such as real estate brokers, lawyers' professional responsibility, land contract remedies, time of performance, tender, assignment, contract contingencies, equitable conversion, escrows and closings. In addition, this course explores various aspects of real estate development, including obtaining entitlements for development, controlling subdivisions, paying for infrastructure, zoning, vested rights and project management.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6420 Transactional Health Law **Credit Hours: 1-2**

This course, taught by a medical doctor with a J.D., addresses the issues involved in providing legal services and counsel for a medical practice. Included among the issues are selection of the practice entity, selecting the legal structure for the practice as a business and the elements and options for the operating/partnership agreement, including provisions for dissolution and the question of terminating a partner/member's involvement in the practice.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6430 Legislation **Credit Hours: 2-3**

This course explores the legislative process, statutory construction and the role of statutes as a source of public policy. Students will systematically examine principles and techniques used by courts and agencies to interpret statutes.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6440 Immigration Law **Credit Hours: 2-3**

A study of United States citizenship and the admission and removal of noncitizens, including the bases for legal immigration, temporary presence, and the refugee and asylum system.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6450 International Intellectual Property **Credit Hours: 2-3**

This course reviews: the main international intellectual property instruments (such as TRIPS, Paris Convention, Patent Cooperation Treat, European Patent Convention; Madrid Agreement, Berne and Rome conventions, WIPO treaties), and European main legislative texts (mainly regulations and directives) and main case law on patent, trademark and copyright. We also review the principal differences between the common law based system of copyright and the civil law system based on "droit d¿auteur" (author¿s rights), with a special focus on electronic and Internet issues.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6460 Insurance Law **Credit Hours: 2-3**

A study of property, liability and life insurance, and the insurer-insured relationship from a legal vantage point. Numerous concepts are examined during the course, including insurable interest, concealment and misrepresentation, the duty of good faith and fair dealing, scope of coverage, policy interpretation, change of beneficiary, duty to defend, bad faith refusal to settle, measures of recovery, multiple interests coverage, subrogation and other insurance clauses. Several insurance policies are examined in detail.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6470 Intellectual Property and Licensing **Credit Hours: 2-3**

Focuses on managing an IP portfolio to maximize a client's return on investment in IP assets. Emphasizes the identification, valuation, and management of IP assets both as a source of revenue and as a part of a larger offensive or defensive litigation strategy. Topics also include identification of IP assets, management, and licensing in the context of tax and antitrust law.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6480 International Business Transactions **Credit Hours: 2-3**

This course introduces students to the issues, problems and legal norms applicable to International Business Transactions. The course will examine various problems that occur in international business as a means of discerning that pitfalls for the unwary, as well as the matters that must be considered to protect one¿s client. The course will begin with an examination of the issues arising in a basic international sale and will progress through increasingly complex types of business interaction, including distributorships, franchising, licensing, joint ventures and incorporating abroad. Throughout the course, there will be an emphasis on the U.S., foreign and international laws and standards that may affect the transaction.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6490 Juvenile Law **Credit Hours: 2-3**

An examination of the relationship among children, the family and the state in the lives of delinquent, neglected, and abused children. The course includes consideration of the history and theory of the juvenile court system and the role of the attorney in representing juveniles.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6500 Jewish Law **Credit Hours: 2-3**

Jewish law is a dynamic, vibrant legal system that includes many of the specialties of modern law. It developed through over three millennia from the days of the Hebrew Bible and has areas that are still operative. It passed through every historic era and matured in various jurisdictions. It has had a profound influence on European and Anglo-American legal systems. The course will focus on the political background and legal response in each historic period, the character of the literary and legal sources and examples of characteristic features of the substantive law.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6510 Labor Law **Credit Hours: 2-3**

This course focuses on the law governing and policy issues surrounding the major facets of union-management relations in the private sector under the National Labor Relations Act (NLRA). These include union organizing, collective bargaining, contract enforcement, picketing and the economic weapons of both sides, including strikes. The course also covers the procedural mechanisms by which rights under the NLRA are enforced and remedies for NLRA violations.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6530 Consumer Law **Credit Hours: 1-3**

Practical Consumer Law including student loan law, credit card and debt collection law, Fair Credit Reporting Act, Lemon Law, Predatory Lending, etc.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6540 Air Pollution Law **Credit Hours: 1-3**

Explore the legal and technical issues related to the regulation of air contaminant emissions. Navigate the Clean Air Act and the regulations adopted to implement the Act. Learn to recognize air contaminant sources, estimate emissions, and prepare permit applications. Discuss enforcement and compliance issues.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6560 Land Transactions **Credit Hours: 2-4**

Negotiating, structuring, performing, and closing the real estate transaction, remedies, methods of title assurance, the condominium and other forms of ownership. Course includes exercises in drafting, negotiating and closing a contract for the sale of land.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6580 Land Use Law **Credit Hours: 2-3**

This course covers both the conservation and preservation-oriented environmental land use regulations that have emerged in the recent years as well as the more traditional, developmentally-oriented controls that have been with us for some time. The environmental land use component of the course covers the regulation of: wetlands, coastal zones, floodplains, farmland, open space, critical areas, and groundwater. The developmental land use regulations component includes: zoning, flexible land use controls, subdivision controls, growth controls, aesthetic regulations, historic preservation, and transfer of developmental rights.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6590 Homeland Security Law **Credit Hours: 3**

This course addresses the legal aspects of homeland security policy. Particular attention will be paid to legal responses to terrorism, protection of classified information, and the regulation of contracting relationships with the government's various national security agencies.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6600 Law And Literature **Credit Hours: 2-3**

A study of the relationship between literary development and criticism and the law. The class studies great works of literature and examines their meaning for the law in general and the lawyer in particular.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6620 American Constitutional History **Credit Hours: 3**

This course will address the period from the end of the Revolution through the post-Civil War era, with special emphasis on the Constitutional Convention in 1787 and the adoption of the Fourteenth Amendment in 1866.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6640 Criminal Justice And Homeland Security **Credit Hours: 3**

Examines criminal justice under impact of post-9/11 law, e.g., the USA PATRIOT ACT, enemy combatants cases, and coercive interrogations. Students will read original sources as well as court decisions. Requires written briefs and arguments on two post-9/11 criminal justice issues.

Prerequisites: (LAWI 6280 FOR LEVEL GR WITH MIN. GRADE OF D- OR LAWG 6210 FOR LEVEL GR WITH MIN. GRADE OF D-) AND LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6680 State And Local Government Law And Taxation **Credit Hours: 2-3**

An overview of the law relating to the administration of municipalities and their dealings with other local governmental units. Topics include the powers and problems of urban governmental units, federalism, corporate powers and police powers. Coverage includes the basic law and rules relating to the financing of local government and the various sources of tax revenue for local governments.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6700 Patent Practice And Procedure **Credit Hours: 2-3**

A hands-on course focusing on both regulatory requirements and attorney skills relating to representation of investors before the Patent and Trademark Office. The course will follow a patent attorney's relationship with an inventor and the written PTO, responses, appeals and finally patent grant. There are no prerequisites.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6710 Patent Law **Credit Hours: 2-3**

A survey of the legal protection of inventions. This course covers the requirements for obtaining and enforcing a patent and the rights of a patentee with respect to licensing, assignment and patent misuse.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6720 Intellectual Property Survey **Credit Hours: 2-3**

A preparatory course covering Copyright, Patent, Trademark and Trade Secret Law. A broad coverage of intellectual property law is useful for those students who want to learn the fundamentals of intellectual property law either as basis for more advanced courses or to integrate intellectual property law into other substantive courses.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6730 Pension And Employee Benefits **Credit Hours: 2-3**

A study of the law regarding employment benefits, such as ERISA, focusing on various forms of pension plans, and health and welfare plans. The law will address issues of plan qualification under the tax code and also applicable labor laws and regulations. Some familiarity with tax concepts would be helpful but is not required.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6740 Public Sector Labor Law **Credit Hours: 2-3**

This course covers various models of public sector labor relations laws, including but not limited to the Ohio public sector labor statute. It focuses on the differing degrees to which public sector unions in different jurisdictions can bargain, resolve bargaining impasses (through strikes or mediation and arbitration), and enforce contracts with employers. This course also stresses issues unique to the public sector, including constitutional rules, civil service statutes and the rights of individual public employees.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6750 Products Liability **Credit Hours: 2-3**

Essential elements of common law and statutory theories of recovery pertinent to product liability claims for both personal injury and economic loss. Some attention given to the integration of substantive law and the rules of procedure controlling the litigation of product liability claims.

Prerequisites: LAWD 6220 FOR LEVEL GR WITH MIN. GRADE OF D- AND LAWD 6510 FOR LEVEL GR WITH MIN. GRADE OF D- AND LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6760 Publicly Held Corporations **Credit Hours: 2-3**

This course focuses on legal issues that are commonly faced by larger corporations, and the special concerns involved in protecting widely scattered shareholder constituencies. Topics covered include directors' role in large corporations, social responsibility of large businesses, the growing prominence of institutional investors, securities fraud, insider trading, shareholder meetings, proxy solicitations, shareholder litigation, mergers and tender offers.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6780 Remedies **Credit Hours: 2-3**

The course in Remedies is about the bottom line. It is about what a court can do for a litigant who has been wronged or is about to be wronged. The two most common remedies are judgments for money and injunctions against defendants to prevent them from wronging plaintiffs or to require them to undo wrongs. The course takes up questions such as the measure of relief, the relationship between legal and equitable remedies, declaratory remedies, benefit to the defendant as the measure of relief in restitution, punitive remedies, enforcing judgments, equitable defenses, immunities and federal interference with state law enforcement.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6800 Securities Regulation **Credit Hours: 2-3**

This course focuses on the disclosure requirements of the federal securities laws which apply when businesses raise capital and when their shares are publicly traded. It examines the requirements of the Securities Act of 1933, selected provisions of the Securities Exchange Act and state blue sky laws. It covers extensively the structuring of exempt transactions for small businesses. The course is taught primarily from a transactional, rather than a litigation, focus.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6810 Sentencing **Credit Hours: 2-3**

A survey of the law relating to the disposition of individuals convicted of crimes. Topics include sentencing authority, ex post facto laws, factual bases for sentencing, probation, parole, the death penalty and state and federal sentencing guidelines.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6830 Advanced Topics In Employment Law **Credit Hours: 1-3**

This course is an opportunity for students to take a closer look at current topics facing employment law practitioners and their clients. Several current and recurring issues will be addressed in class sessions. Additional topics of interest and relevance will be chosen by the students for their individual research and study.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6850 Shakespeare And The Law **Credit Hours: 1-3**

This course looks at the legal issues presented in seven of Shakespeare's plays. These issues are considered from both the standpoint of Elizabeth English Common Law and how these issues would be treated in the United States at this time. Shakespeare's "legal" plays are of particular relevance to lawyers. Shakespeare, by a magnitude, is the most commonly quoted author in judicial opinions in the United States.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6860 Sports And Entertainment Law **Credit Hours: 2-3**

A substantive examination of concepts and cases from legal disciplines which affect professional sports including antitrust law, labor law, contracts, tax and civil procedure. Course includes exercises in negotiating, drafting and tax planning.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6870 Sports Law **Credit Hours: 1-3**

This course surveys the law of sports, considering legal issues raised in high school, amateur, collegiate, professional, and international athletics.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6890 Toxic Substances **Credit Hours: 2-3**

This course addresses policies and law governing toxic substances and wastes. We will analyze federal statutes dealing with pesticides, chemical wastes and other toxic substances, as well as alternatives to the use of toxics, such as biotechnology and the regulation of genetically modified organisms. Common law theories arising in toxic tort litigation (such as the cases addressed in A Civil Action and Erin Brockovich) will also be explored. Students will gain familiarity with risk assessment, the health sciences and environmental science in order to assess and understand legislative and regulatory goals and choices in controlling toxic substances.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6900 Trademark-Tradesecret Unfair Competition Law **Credit Hours: 2-3**

A survey of business torts covering such topics as trademark infringement, trade secret misappropriation, product disparagement, right to publicity and false advertising. This course will also study the regulation of advertising by the Federal Trade Commission.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6930 Water Law **Credit Hours: 2-3**

The study of surface and ground water allocation systems throughout the United States, including allocation issues that arise among states, and between the United States and other countries. This course will also address federal authority over water resources and federal acquisition of water rights.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI6940 White Collar Crime **Credit Hours: 2-3**

A survey of the federal criminal law relating to crimes committed by corporations and non-traditional criminals. Topics include corporate criminal liability, wire and mail fraud, RICO, money laundering, false claims and false statements, tax crimes, environmental crimes, perjury and obstruction of justice.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWI9000 International Comparative Law **Credit Hours: 2-3**

This course introduces students to the major legal systems of the world. The first third of the course provides an overview of the major families of law encountered in various nations of the world today: common law (as exemplified by California and England); civil law (France and German7): religious law (Egypt): traditional/tribal law (Botswana): and the extra-legal approach seen in various Asian countries (China). The rest of the course examines how each of these systems handles the same types of common legal situation: inheritance and succession, criminal behavior and contracts.

LAWI9010 Accounting And Financial Statements **Credit Hours: 1-3**

An introduction for students without prior accounting experience to the terms and concepts necessary to an understanding of the financial affairs of a client and to the variety of legal contexts in which the lawyer is likely to encounter accounting problems. Students will learn to perform basic financial analysis.

LAWI9020 E-Commerce **Credit Hours: 1-3**

This course will examine critical information technologies that provide a basis for electronic commerce. Topics include problems surrounding electronic commerce such as security, privacy, content selection and rating, intellectual property rights, authentication, encryption, acceptable use policies, UETA, UCITA and E-Sign.

LAWI9040 Civil And Political Rights **Credit Hours: 2-3**

Civil and Political Rights focuses on a broad array of legal issues and rights in this area of law. Beginning with a history of the area, the course includes topics such as voting rights, religion, education, discrimination, police misconduct and prisoners' rights. Current issues are discussed using news articles and videos.

LAWI9050 Admiralty Law **Credit Hours: 2-3**

This course surveys admiralty jurisdiction, rights and liabilities of commercial and pleasure boat owners, rights of injured maritime workers and passengers, collision, salvage, maritime liens, cargo claims, and limitation of liability.

LAWI9060 Sales And Leases Of Goods **Credit Hours: 2-3**

A detailed study of sales of goods under Article 2 of the Uniform Commercial Code and a survey of both Article 2A of the Uniform Commercial Code (leases of goods) and the U.N. Convention on Contracts for the International Sale of Goods. Topics include contract formation and interpretation, warranties, express and implied terms, risk of loss, performance obligations and breach, and remedies for breach. Consideration may also be given to other state and federal laws affecting sales and leases of goods.

LAWI9070 Antitrust **Credit Hours: 2-3**

This course will cover the role of competition in a modern market economy, federal antitrust law, regulation and policies. Topics covered include horizontal restraints (price fixing, conspiracy, data dissemination, concerted refusals to deal, etc.); monopolization, attempts to monopolize, and oligopoly; problems concerning the relationship of antitrust to patent law; vertical restraints (restricted distribution, tying arrangements, exclusive dealing, etc); mergers (horizontal, vertical and conglomerate); selected Robinson-Patman Act problems, remedies and enforcement.

LAWI9080 Gender And The Law **Credit Hours: 2-3**

This course covers issues of gender and the law with a primary focus on how the law addresses sex discrimination. Students will discuss constitutional and statutory protections against sex discrimination from a doctrinal and theoretical perspective. Subjects covered in this class include employment discrimination, family law, public benefits, domestic violence and sexual orientation and the law.

LAWI9100 International Law **Credit Hours: 2-3**

This course focuses on the legal processes of the international community. The creation of law among nation states, the law-making activities of international organizations, the enforcement (and non-enforcement) of international law in both national and international forums, the limits of national jurisdiction, the responsibility of states for the injuries to the persons or property of aliens and the rules governing international agreements are surveyed. Particular attention is given to the law of treaties and the role of lawyers in foreign policy decision making.

LAWI9120 English Legal History **Credit Hours: 2-3**

A survey of the roots of American law, procedures, and such doctrines as real property, descents, contracts and corporations in the history of the English Common Law.

LAWI9130 Business Enterprise Tax **Credit Hours: 2-3**

An examination of the federal income tax treatment of business enterprises (including corporations, partnerships and limited liability companies) and their owners. The course considers the tax consequences of entity-owner transactions (formation and property contributions, distributions, redemptions and liquidations) as well as entity-level transactions (business operations, mergers, acquisitions and other business combinations).

LAWI9140 Business Planning **Credit Hours: 2-3**

The course considers problems and transactions of business enterprises in a practical fashion. Projects requiring planning, drafting and negotiating, principally on behalf of smaller and closely held businesses, are an integral part of the course. Contractual arrangements typically examined include buy-sell agreements, close corporation/shareholder agreements and limited liability company operating agreements.

LAWI9150 Bioethics And Law **Credit Hours: 2-3**

This course addresses the evolving relationship between medicine, law and ethics. The course focuses on individual topics including the definition of death, decision-making about death and dying, physician-assisted suicide, access to health care, research involving human subjects and genetic engineering.

LAWI9160 Real Estate Finance **Credit Hours: 1-3**

The legal problems related to private financing and development of land. Emphasis is on the structuring of real estate transactions, tax considerations and problems of developers, lenders and other participants.

LAWI9170 Conflict Of Laws **Credit Hours: 2-3**

The problems encountered when a transaction or occurrence has a significant relationship to two or more states or countries. The jurisdiction of courts, the effect to be given to out-of-state judgments and the rules of decision in multi-state cases are studied. Both traditional rules and theories and modern developments are analyzed.

LAWI9180 Communications Law **Credit Hours: 2-3**

The class explores in detail legal and practical issues arising in connection with various media: newspaper, television and radio stations, cable television and other video providers, and the Internet, including Internet-service providers, web-hosting companies, and web-publishing. We will identify, analyze, and critique the legal doctrines ¿ constitutional, statutory, and common-law ¿ that apply to these media, either individually or collectively. We also study how those doctrines have evolved and will continue to change, as the means of mass communication evolve and converge.

LAWI9200 Jurisprudence **Credit Hours: 2-3**

Jurisprudence is the philosophy of law. The two primary goals of this class are 1) to give students a basic background and understanding of important legal thinkers and theory and 2) to stimulate critical thinking through assigned readings and rollicking in-class discussions about concepts of law from Plato to present day. We will philosophically analyze concepts of precedence, interpretation, rights, civil disobedience, semantics, and virtues such as justice, desert and compassion.

LAWI9210 Copyright Law **Credit Hours: 2-3**

A substantive examination of the Copyright Act. This course will cover the fundamentals of copyright law and practice and the challenges to the existing copyright regime by new technologies.

LAWI9230 Corporate Finance **Credit Hours: 1-3**

An advanced exploration of the legal and financial problems encountered in financing corporations, with emphasis on the corporate capital structure, including the rights of holders of various equity and debt securities; the valuation of businesses, as well as corporate equity and debt securities; and mergers and acquisitions, including tender offers.

LAWI9260 Race & The Law **Credit Hours: 2-3**

Primarily focuses on cases that have helped shape the law and history of race in the U.S., from early 19th century cases concerning slave law to recent United States Supreme Court decisions. The topics will include slavery, citizenship, segregation, voting, marriage, education, housing and criminal justice. The material and the discussion will move beyond the legal decisions to explore the culture that helped to produce and shape the decisions.

LAWI9270 Creditor/Debtor Law **Credit Hours: 2-3**

Explores creditors¿ rights under state law including judgment liens, execution liens, fraudulent conveyances, set off, assignments to benefit creditors and statutory liens. Debtor defenses under state and federal law including constitutional protections, exemptions and counterclaims are evaluated. Following this overview of general creditor execution, the majority of the course is devoted to resolution of claims in federal bankruptcy law.

LAWI9280 Criminal Procedure-Adjudications **Credit Hours: 2-3**

A study of the criminal processes from arrest through sentencing and appeal. Topics covered include bail, preliminary hearing, grand jury, plea bargaining and guilty pleas, discovery, fair trial-free press, jury trial, sentencing and double jeopardy.

LAWI9290 Cyberspace Law **Credit Hours: 2-3**

This course will explore issues related to the regulation of cyberspace. It is not a course in computer law, copyright, trademark, patent, or other forms of intellectual property law, except as intellectual property law is sui generis in cyberspace. Instead, it is an effort to understand the peculiar problems of Internet regulation. Subject areas will vary as the field develops, but will include such areas as tort liability, freedom of expression, crime and security, privacy, intellectual property rights and protection, regulation, jurisdiction and standards of ethics and propriety. A technical or scientific background is not required.

LAWI9300 Employment Discrimination **Credit Hours: 2-3**

This course focuses on the main federal statutes prohibiting employment discrimination and the policies underlying these laws, with the majority of time spent on Title VII of the Civil Rights Act of 1964, the Age Discrimination in Employment Act and the Americans With Disabilities Act. Additional topics and subtopics include sexual harassment, discrimination based on sexual orientation, defenses and reasonable accommodation of religion.

LAWI9310 Employment Law **Credit Hours: 2-3**

This course focuses on the major state and federal employment laws affecting individual employees, excluding laws on unions and employment discrimination. Coverage includes the legal regulation of the hiring and firing process, testing and privacy issues, wage and hour laws, occupational health and safety, workers¿ compensation, unemployment insurance, covenants not to compete, and related topics.

LAWI9330 Environmental Law **Credit Hours: 2-4**

This course introduces students to U.S. environmental law by examining common law environmental standards, major federal statutes and the policy goals underlying such statutes. Statutes to be examined include the Clean Air Act, the Clean Water Act, the Clean Air Act; the Comprehensive Environmental Response, Compensation and Liability Act; and the Resource Conservation and Recovery Act. By comparing and contrasting different environmental statutes, students will obtain an understanding of the current environmental framework as well as alternative approaches that may be employed to protect the environment.

LAWI9340 Intellectual Property Research **Credit Hours: 1**

This course introduces students to print and digital information resources for researching patent, copyright, trademark and trade secret law.

LAWI9350 Estate Planning **Credit Hours: 1-3**

This course focuses on the practical aspects of will and trust drafting. Emphasis is placed on the application of estate planning and wealth preservation techniques to commonly encountered estate planning problems.

LAWI9360 Estate And Gift Tax **Credit Hours: 2-3**

A study of the federal estate and gift tax structure and its impact on the transfer of property and of income taxation of trusts and estates. The redistribution of wealth through taxation, whether or not stated as a goal, is also studied.

LAWI9370 Family Law **Credit Hours: 3**

The interaction of law and the family and the consequences of state intervention in family relationships. Some of the subjects surveyed are the marriage relationship, de facto marriage, adoption, the termination of marital status, economic consequences of divorce, child custody after divorce and the role of the lawyer as counselor.

LAWI9380 Federal Courts And Federal Rights **Credit Hours: 2-4**

An intensive examination of the jurisdiction of federal courts, the role of the federal courts within the federal government, and within our federalist system. Topics surveyed include the law applied by federal courts in civil actions, the original and removal jurisdiction of federal courts, the relationship of the federal courts to state courts, congressional power over federal courts, the enforceability of federal law against states, and states¿ sovereign immunity.

LAWI9390 Natural Resources Law **Credit Hours: 2-3**

This course will provide an introduction to natural resource law, including public lands issues (forestry, mining, grazing, recreation and preservation), cultural resources (historic and sacred sites), wildlife, water rights and energy resources. Policies governing resource use and protection will be explored by looking at case law, federal statutes and regulations, news articles, scholarly works and book excerpts. Students will have an opportunity to engage in "hands-on" application of the law by developing case strategy and motions related to an administrative agency¿s decision.

LAWI9400 American Legal History **Credit Hours: 2-3**

(The American Legal Profession) This seminar/course (students may elect either to write a paper or to take an examination) follows the profession¿s development from the American Revolution through the 1920¿s and the emergence of university-based professional education, the advent of new client constituencies including corporations, labor organizations, and anti-slavery and other social action groups, the development of standards of professional ethnics and racial minorities. The teaching approach emphasizes comparisons with current practice, critical use of original source materials and development of research and writing skills.

LAWI9410 Real Estate Transactions And Development **Credit Hours: 2-3**

This course emphasizes aspects of real estate law, such as real estate brokers, lawyers' professional responsibility, land contract remedies, time of performance, tender, assignment, contract contingencies, equitable conversion, escrows and closings. In addition, this course explores various aspects of real estate development, including obtaining entitlements for development, controlling subdivisions, paying for infrastructure, zoning, vested rights and project management.

LAWI9420 Transactional Health Law **Credit Hours: 1-2**

This course, taught by a medical doctor with a J.D., addresses the issues involved in providing legal services and counsel for a medical practice. Included among the issues are selection of the practice entity, selecting the legal structure for the practice as a business and the elements and options for the operating/partnership agreement, including provisions for dissolution and the question of terminating a partner/member's involvement in the practice.

LAWI9430 Legislation **Credit Hours: 2-3**

This course explores the legislative process, statutory construction and the role of statutes as a source of public policy. Students will systematically examine principles and techniques used by courts and agencies to interpret statutes.

LAWI9440 Immigration Law **Credit Hours: 2-3**

A study of United States citizenship and the admission and removal of noncitizens, including the bases for legal immigration, temporary presence, and the refugee and asylum system.

LAWI9450 International Intellectual Property **Credit Hours: 2-3**

This course reviews: the main international intellectual property instruments (such as TRIPS, Paris Convention, Patent Cooperation Treat, European Patent Convention; Madrid Agreement, Berne and Rome conventions, WIPO treaties), and European main legislative texts (mainly regulations and directives) and main case law on patent, trademark and copyright. We also review the principal differences between the common law based system of copyright and the civil law system based on "droit d¿auteur" (author¿s rights), with a special focus on electronic and Internet issues.

LAWI9460 Insurance Law **Credit Hours: 2-3**

A study of property, liability and life insurance, and the insurer-insured relationship from a legal vantage point. Numerous concepts are examined during the course, including insurable interest, concealment and misrepresentation, the duty of good faith and fair dealing, scope of coverage, policy interpretation, change of beneficiary, duty to defend, bad faith refusal to settle, measures of recovery, multiple interests coverage, subrogation and other insurance clauses. Several insurance policies are examined in detail.

LAWI9470 Intellectual Property and Licensing **Credit Hours: 2-3**

Focuses on managing an IP portfolio to maximize a client's return on investment in IP assets. Emphasizes the identification, valuation, and management of IP assets both as a source of revenue and as a part of a larger offensive or defensive litigation strategy. Topics also include identification of IP assets, management, and licensing in the context of tax and antitrust law.

LAWI9480 International Business Transactions **Credit Hours: 2-3**

This course introduces students to the issues, problems and legal norms applicable to International Business Transactions. The course will examine various problems that occur in international business as a means of discerning that pitfalls for the unwary, as well as the matters that must be considered to protect one¿s client. The course will begin with an examination of the issues arising in a basic international sale and will progress through increasingly complex types of business interaction, including distributorships, franchising, licensing, joint ventures and incorporating abroad. Throughout the course, there will be an emphasis on the U.S., foreign and international laws and standards that may affect the transaction.

LAWI9490 Juvenile Law **Credit Hours: 2-3**

An examination of the relationship among children, the family and the state in the lives of delinquent, neglected, and abused children. The course includes consideration of the history and theory of the juvenile court system and the role of the attorney in representing juveniles.

LAWI9500 Jewish Law **Credit Hours: 2-3**

Jewish law is a dynamic, vibrant legal system that includes many of the specialties of modern law. It developed through over three millennia from the days of the Hebrew Bible and has areas that are still operative. It passed through every historic era and matured in various jurisdictions. It has had a profound influence on European and Anglo-American legal systems. The course will focus on the political background and legal response in each historic period, the character of the literary and legal sources and examples of characteristic features of the substantive law.

LAWI9510 Labor Law **Credit Hours: 2-3**

This course focuses on the law governing and policy issues surrounding the major facets of union-management relations in the private sector under the National Labor Relations Act (NLRA). These include union organizing, collective bargaining, contract enforcement, picketing and the economic weapons of both sides, including strikes. The course also covers the procedural mechanisms by which rights under the NLRA are enforced and remedies for NLRA violations.

LAWI9530 Consumer Law **Credit Hours: 1-3**

Practical Consumer Law including student loan law, credit card and debt collection law, Fair Credit Reporting Act, Lemon Law, Predatory Lending, etc.

LAWI9540 Air Pollution Law **Credit Hours: 1-3**

Explore the legal and technical issues related to the regulation of air contaminant emissions. Navigate the Clean Air Act and the regulations adopted to implement the Act. Learn to recognize air contaminant sources, estimate emissions, and prepare permit applications. Discuss enforcement and compliance issues.

LAWI9560 Land Transactions **Credit Hours: 2-4**

Negotiating, structuring, performing, and closing the real estate transaction, remedies, methods of title assurance, the condominium and other forms of ownership. Course includes exercises in drafting, negotiating and closing a contract for the sale of land.

LAWI9580 Land Use Law **Credit Hours: 2-3**

This course covers both the conservation and preservation-oriented environmental land use regulations that have emerged in the recent years as well as the more traditional, developmentally-oriented controls that have been with us for some time. The environmental land use component of the course covers the regulation of: wetlands, coastal zones, floodplains, farmland, open space, critical areas, and groundwater. The developmental land use regulations component includes: zoning, flexible land use controls, subdivision controls, growth controls, aesthetic regulations, historic preservation, and transfer of developmental rights.

LAWI9590 Homeland Security Law **Credit Hours: 3**

This course addresses the legal aspects of homeland security policy. Particular attention will be paid to legal responses to terrorism, protection of classified information, and the regulation of contracting relationships with the government's various national security agencies.

LAWI9600 Law And Literature **Credit Hours: 2-3**

A study of the relationship between literary development and criticism and the law. The class studies great works of literature and examines their meaning for the law in general and the lawyer in particular.

LAWI9620 American Constitutional History **Credit Hours: 3**

This course will address the period from the end of the Revolution through the post-Civil War era, with special emphasis on the Constitutional Convention in 1787 and the adoption of the Fourteenth Amendment in 1866.

LAWI9640 Criminal Justice And Homeland Security **Credit Hours: 3**

Examines criminal justice under impact of post-9/11 law, e.g., the USA PATRIOT ACT, enemy combatants cases, and coercive interrogations. Students will read original sources as well as court decisions. Requires written briefs and arguments on two post-9/11 criminal justice issues.

Prerequisites: LAWI 9280 FOR LEVEL LW WITH MIN. GRADE OF D OR LAWG 9210 FOR LEVEL LW WITH MIN. GRADE OF D

LAWI9680 State And Local Government Law And Taxation **Credit Hours: 2-3**

An overview of the law relating to the administration of municipalities and their dealings with other local governmental units. Topics include the powers and problems of urban governmental units, federalism, corporate powers and police powers. Coverage includes the basic law and rules relating to the financing of local government and the various sources of tax revenue for local governments.

LAWI9700 Patent Practice And Procedure **Credit Hours: 2-3**

A hands-on course focusing on both regulatory requirements and attorney skills relating to representation of investors before the Patent and Trademark Office. The course will follow a patent attorney's relationship with an inventor and the written PTO, responses, appeals and finally patent grant. There are no prerequisites.

LAWI9710 Patent Law **Credit Hours: 2-3**

A survey of the legal protection of inventions. This course covers the requirements for obtaining and enforcing a patent and the rights of a patentee with respect to licensing, assignment and patent misuse.

LAWI9720 Intellectual Property Survey **Credit Hours: 2-3**

A preparatory course covering Copyright, Patent, Trademark and Trade Secret Law. A broad coverage of intellectual property law is useful for those students who want to learn the fundamentals of intellectual property law either as basis for more advanced courses or to integrate intellectual property law into other substantive courses.

LAWI9730 Pension And Employee Benefits **Credit Hours: 2-3**

A study of the law regarding employment benefits, such as ERISA, focusing on various forms of pension plans, and health and welfare plans. The law will address issues of plan qualification under the tax code and also applicable labor laws and regulations. Some familiarity with tax concepts would be helpful but is not required.

LAWI9740 Public Sector Labor Law **Credit Hours: 2-3**

This course covers various models of public sector labor relations laws, including but not limited to the Ohio public sector labor statute. It focuses on the differing degrees to which public sector unions in different jurisdictions can bargain, resolve bargaining impasses (through strikes or mediation and arbitration), and enforce contracts with employers. This course also stresses issues unique to the public sector, including constitutional rules, civil service statutes and the rights of individual public employees.

LAWI9750 Products Liability **Credit Hours: 2-3**

Essential elements of common law and statutory theories of recovery pertinent to product liability claims for both personal injury and economic loss. Some attention given to the integration of substantive law and the rules of procedure controlling the litigation of product liability claims.

Prerequisites: (LAWD 9510 FOR LEVEL LW WITH MIN. GRADE OF D AND LAWD 9220 FOR LEVEL LW WITH MIN. GRADE OF D)

LAWI9760 Publicly Held Corporations **Credit Hours: 2-3**

This course focuses on legal issues that are commonly faced by larger corporations, and the special concerns involved in protecting widely scattered shareholder constituencies. Topics covered include directors' role in large corporations, social responsibility of large businesses, the growing prominence of institutional investors, securities fraud, insider trading, shareholder meetings, proxy solicitations, shareholder litigation, mergers and tender offers.

LAWI9780 Remedies **Credit Hours: 2-3**

The course in Remedies is about the bottom line. It is about what a court can do for a litigant who has been wronged or is about to be wronged. The two most common remedies are judgments for money and injunctions against defendants to prevent them from wronging plaintiffs or to require them to undo wrongs. The course takes up questions such as the measure of relief, the relationship between legal and equitable remedies, declaratory remedies, benefit to the defendant as the measure of relief in restitution, punitive remedies, enforcing judgments, equitable defenses, immunities and federal interference with state law enforcement.

LAWI9800 Securities Regulation **Credit Hours: 2-3**

This course focuses on the disclosure requirements of the federal securities laws which apply when businesses raise capital and when their shares are publicly traded. It examines the requirements of the Securities Act of 1933, selected provisions of the Securities Exchange Act and state blue sky laws. It covers extensively the structuring of exempt transactions for small businesses. The course is taught primarily from a transactional, rather than a litigation, focus.

LAWI9810 Sentencing **Credit Hours: 2-3**

A survey of the law relating to the disposition of individuals convicted of crimes. Topics include sentencing authority, ex post facto laws, factual bases for sentencing, probation, parole, the death penalty and state and federal sentencing guidelines.

LAWI9830 Advanced Topics In Employment Law **Credit Hours: 1-3**

This course is an opportunity for students to take a closer look at current topics facing employment law practitioners and their clients. Several current and recurring issues will be addressed in class sessions. Additional topics of interest and relevance will be chosen by the students for their individual research and study.

LAWI9850 Shakespeare And The Law **Credit Hours: 1-3**

This course looks at the legal issues presented in seven of Shakespeare's plays. These issues are considered from both the standpoint of Elizabeth English Common Law and how these issues would be treated in the United States at this time. Shakespeare's "legal" plays are of particular relevance to lawyers. Shakespeare, by a magnitude, is the most commonly quoted author in judicial opinions in the United States.

LAWI9860 Sports And Entertainment Law **Credit Hours: 2-3**

A substantive examination of concepts and cases from legal disciplines which affect professional sports including antitrust law, labor law, contracts, tax and civil procedure. Course includes exercises in negotiating, drafting and tax planning.

LAWI9870 Sports Law **Credit Hours: 1-3**

This course surveys the law of sports, considering legal issues raised in high school, amateur, collegiate, professional, and international athletics.

LAWI9890 Toxic Substances **Credit Hours: 2-3**

This course addresses policies and law governing toxic substances and wastes. We will analyze federal statutes dealing with pesticides, chemical wastes and other toxic substances, as well as alternatives to the use of toxics, such as biotechnology and the regulation of genetically modified organisms. Common law theories arising in toxic tort litigation (such as the cases addressed in A Civil Action and Erin Brockovich) will also be explored. Students will gain familiarity with risk assessment, the health sciences and environmental science in order to assess and understand legislative and regulatory goals and choices in controlling toxic substances.

LAWI9900 Trademark-Tradesecret Unfair Competition Law **Credit Hours: 2-3**

A survey of business torts covering such topics as trademark infringement, trade secret misappropriation, product disparagement, right to publicity and false advertising. This course will also study the regulation of advertising by the Federal Trade Commission.

LAWI9930 Water Law **Credit Hours: 2-3**

The study of surface and ground water allocation systems throughout the United States, including allocation issues that arise among states, and between the United States and other countries. This course will also address federal authority over water resources and federal acquisition of water rights.

LAWI9940 White Collar Crime **Credit Hours: 2-3**

A survey of the federal criminal law relating to crimes committed by corporations and non-traditional criminals. Topics include corporate criminal liability, wire and mail fraud, RICO, money laundering, false claims and false statements, tax crimes, environmental crimes, perjury and obstruction of justice.

LAWL6110 Law Review I **Credit Hours: 2**

Course is graded on a Satisfactory/Unsatisfactory basis. Course requires the successful completion of a publishable manuscript as determined by the editor-in-chief and faculty adviser of the Law Review. With the approval of the faculty member assigned to the manuscript, it also counts as 2 writing units which include a research component toward the student¿s Upper Level Writing Requirement.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWL6120 Law Review II **Credit Hours: 2**

Only students who have successfully completed Law Review I and who are serving as editors of the Law Review will be permitted to register for Law Review II. Enrollment is selective.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWL6150 Moot Court I **Credit Hours: 1-2**

Students participate in interscholastic Moot Court and Trial Advocacy competitions, each of which deals with a particular area of law, such as: international law, family law, corporate law, sports law, tax, intellectual property, criminal law and constitutional law. Those participating on moot court teams will prepare a brief for and present an appellate argument at a competition at another school. Students on the trial advocacy team will conduct trial against counsel from other schools; including making opening and closing statements, introducing evidence and examining and cross-examining witnesses.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWL6160 Moot Court II **Credit Hours: 1-2**

Students participate in interscholastic Moot Court and Trial Advocacy competitions, each of which deals with a particular area of law, such as: international law, family law, corporate law, sports law, tax, intellectual property, criminal law and constitutional law. Those participating on moot court teams will prepare a brief for and present an appellate argument at a competition at another school. Students on the trial advocacy team will conduct trial against counsel from other schools; including making opening and closing statements, introducing evidence and examining and cross-examining witnesses.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWL6180 Trial Advocacy I **Credit Hours: 1-2**

Students participate in interscholastic trial advocacy competitions; conduct trials against counsel from other schools including making opening and closing statements, introducing evidence, and examining and cross-examining witnesses.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWL6190 Trial Advocacy II **Credit Hours: 1-2**

Students participate in interscholastic trial advocacy competitions; conduct trials against counsel from other schools including making opening and closing statements, introducing evidence, and examining and cross-examining witnesses.

Prerequisites: LAWL 6180 FOR LEVEL GR WITH MIN. GRADE OF D- AND LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWL9110 Law Review I **Credit Hours: 2**

Course is graded on a Satisfactory/Unsatisfactory basis. Course requires the successful completion of a publishable manuscript as determined by the editor-in-chief and faculty adviser of the Law Review. With the approval of the faculty member assigned to the manuscript, it also counts as 2 writing units which include a research component toward the student¿s Upper Level Writing Requirement.

LAWL9120 Law Review II **Credit Hours: 2**

Only students who have successfully completed Law Review I and who are serving as editors of the Law Review will be permitted to register for Law Review II. Enrollment is selective.

LAWL9150 Moot Court I **Credit Hours: 1-2**

Students participate in interscholastic Moot Court and Trial Advocacy competitions, each of which deals with a particular area of law, such as: international law, family law, corporate law, sports law, tax, intellectual property, criminal law and constitutional law. Those participating on moot court teams will prepare a brief for and present an appellate argument at a competition at another school. Students on the trial advocacy team will conduct trial against counsel from other schools; including making opening and closing statements, introducing evidence and examining and cross-examining witnesses.

LAWL9160 Moot Court II **Credit Hours: 1-2**

Students participate in interscholastic Moot Court and Trial Advocacy competitions, each of which deals with a particular area of law, such as: international law, family law, corporate law, sports law, tax, intellectual property, criminal law and constitutional law. Those participating on moot court teams will prepare a brief for and present an appellate argument at a competition at another school. Students on the trial advocacy team will conduct trial against counsel from other schools; including making opening and closing statements, introducing evidence and examining and cross-examining witnesses.

LAWL9180 Trial Advocacy I **Credit Hours: 1-2**

Students participate in interscholastic trial advocacy competitions; conduct trials against counsel from other schools including making opening and closing statements, introducing evidence, and examining and cross-examining witnesses.

LAWL9190 Trial Advocacy II **Credit Hours: 1-2**

Students participate in interscholastic trial advocacy competitions; conduct trials against counsel from other schools including making opening and closing statements, introducing evidence, and examining and cross-examining witnesses.

Prerequisites: LAWL 9180 FOR LEVEL LW WITH MIN. GRADE OF D

LAWM5000 Law And The Legal System **Credit Hours: 3**

U.S. legal system at trial and appellate levels in state and federal courts. Case and statutory sources of law; legal reasoning; introduction to contracts, torts, property, criminal and constitutional law.

LAWN6000 Trial Practice **Credit Hours: 3**

Simulated exercises and trials, including such matters as pretrial motions, jury selection, opening statement, presentation of evidence, cross-examination, witness impeachment, closing argument and jury instructions. Emphasis is given to developing and proving a theory of the case.

Prerequisites: LAWA 6310 FOR LEVEL GR WITH MIN. GRADE OF D- AND LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6020 Advanced Legal Research **Credit Hours: 2-3**

An in-depth view of legal bibliography in both print and electronic formats. Detailed attention given to encyclopedias, treatises, and various general and topical indexes, digests, and citators as well as web based compilations of legal materials.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6030 Law Practice **Credit Hours: 1-3**

An introduction to management of a law practice. This course will develop concepts related to four areas: Business Management, Practice Management, Client Management and Life Management. In the area of Business Management, students will be exposed to business start-up considerations, including choice of entity, financing, bookkeeping and trust accounting. In the area of Practice Management, the students will cover administrative and substantive systems, including conflicts of interest, docket management, form files and employee management. In Client Management, the students will be exposed to issues related to client acceptance, declination, disengagement, client satisfaction and malpractice to name a few.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6040 Mediation And Settlement **Credit Hours: 2-3**

This course explores the theory and practice of mediation from the standpoint of both the mediator and the attorney-advocate. The course includes several mediation simulations that require preparation of post-mediation evaluations. Other topics include mediator roles and functions, agenda setting, issue identification, communication skills, power balancing, the caucus, ethical issues and the place of mediation in the larger context of Alternative Dispute Resolution.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6050 Negotiation And Settlement **Credit Hours: 2-3**

This course focuses on developing an analytical framework for preparing, conducting and evaluating negotiations. A variety of negotiation strategies and tactics are explored including cooperative, problem-solving and competitive, positional approaches. Students conduct approximately ten negotiations that explore a variety of deal-making and dispute resolution fact situations.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6070 Pretrial Practice - Discovery **Credit Hours: 1-3**

One-half of the course concentrates on learning the rules of discovery and developing practical skill in drafting interrogatories, requests for production, requests for admission and requests for physical examination. The other half focuses on the practical aspects of preparing for, taking and defending depositions.

Prerequisites: LAWD 6020 FOR LEVEL GR WITH MIN. GRADE OF D- AND LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6080 Pretrial Practice - Motions **Credit Hours: 2-3**

This course teaches students to "talk to the judge" in legal writing by using plain, persuasive language. Topics include the rules and practice of many types of motions from the usually mundane motion for extension of time to motions in limine and for summary judgment. A large portion of the course will be spent writing and editing a persuasive motion for summary judgment.

Prerequisites: LAWD 6020 FOR LEVEL GR WITH MIN. GRADE OF D- AND LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6090 Alternative Dispute Resolution **Credit Hours: 2-3**

This survey course starts with a comparison of various adjudicatory and non-adjudicatory methods of dispute resolution and then proceeds to an in-depth study of negotiation, mediation and arbitration as well as various hybrid dispute resolution processes such as the mini-trial, the summary jury trial, early neutral evaluation, mediation-arbitration and ombudsmen. Attention is also given to client interviewing and counseling.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6100 Negotiation: Theory And Strategy — Credit Hours: 1-3

This course will provide structures to organize the complex features of negotiation into manageable categories. This course is based on a three-pronged approach: 1) Communicating the theoretical insights, conceptual basics, and strategic approaches of the negotiation process. 2) Giving students opportunities to apply these concepts and strategies to new situations so as to deepen their understanding of negotiation. 3) Providing students opportunities to apply the concepts and strategies in actual negotiation situations.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6150 Advanced Negotiation — Credit Hours: 1-2

This advanced course builds upon Negotiation and Settlement; it develops the theories, strategies, and conceptual models of negotiation and gives students opportunities to apply these theories, strategies, and conceptual models to actual negotiation problems.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6160 Pretrial Practice — Credit Hours: 1-3

This course concentrates on the practical application of the rules of discovery and motions. Students will develop practical skills in drafting associated with pretrial practice.

Prerequisites: LAWD 6020 FOR LEVEL GR WITH MIN. GRADE OF D- AND LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6190 Interviewing And Counseling — Credit Hours: 2-3

Most lawyers in both litigation and transactional practice spend substantial amounts of their time interviewing and counseling clients. The goals of this course are to develop understanding of theories and techniques of client interviewing and counseling and to assist students to develop skills in performance of interviewing and counseling. Readings and class discussion impart knowledge of theory and techniques. Mere understanding, however, is insufficient to develop performance competence. To develop competence in performance of these skills, students participate in simulations based on case files that will be distributed. Simulations will be recorded on videotape and will be evaluated by the performer, classmates and the instructor.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6310 Prosecutor Clinic — Credit Hours: 3-7

The Prosecutor Clinic trains law students in basic prosecutorial skills and values. Students serve externships in local prosecutor offices trying cases, plea-bargaining and interviewing witnesses. The clinic may be taken for either six or four credit hours.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6330 Advanced Prosecutor Clinic — Credit Hours: 3-4

The Advanced Prosecutor Clinic trains students in advanced skills of prosecution. Students undertake more challenging tasks than those typically undertaken in the basic clinic. For example, students may conduct jury trials, make appellate arguments, or draft clinical training manuals.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6410 Dispute Resolution Clinic — Credit Hours: 2-4

In the Dispute Resolution Clinic, second and third year students have the unique opportunity to learn mediation skills and apply those skills mediating in the Lucas County Juvenile Court and Toledo Municipal Court. This fieldwork experience provides hands-on training in the area of alternative dispute resolution. Skills such as listening, communication and negotiation are stressed in both the fieldwork and weekly classroom component. Students are taught theoretical techniques and are exposed to a variety of topics and speakers in the Alternative Dispute Resolution field. This clinical program is designed to teach practical skills and give the students an opportunity to interact in the legal community in a new and emerging area of law.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6420 Advanced Dispute Resolution Clinic — Credit Hours: 2-4

The Advanced Dispute Resolution Clinic emphasizes development of skills beyond those achieved in the basic clinic. The course provides students with the opportunity to become involved in mediations in a number of courts throughout Lucas County and Northwest Ohio.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6610 Public Service Externship **Credit Hours: 1-6**

The Public Service Externship Clinic is a field placement program in which students are placed in structured legal settings with public service attorneys and programs. There is a required classroom component in which issues relating to learning from experience are explored. The program is available year round with out-of-town placements available in the summer term.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6910 Legal Clinic **Credit Hours: 2-7**

The clinic focuses on development of legal skills such as interviewing, counseling, negotiation, drafting, trial and appellate work and the application of those skills to the problems of individuals. Typical practice includes probate, domestic relations, administrative law, landlord and tenant, consumer and civil rights cases. Students in the clinic are given responsibility for work on all aspects of the case, under the close supervision of clinic faculty. Classroom meetings focus on substantive, procedural and ethical aspects of the cases handled by the clinic. Admission is by the permission of the co-directors.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6930 Advanced Legal Clinic **Credit Hours: 2-4**

The advanced clinic emphasizes development of skills beyond those achieved in the basic clinic in the context of complex litigation or other more involved representation.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6940 Domestic Violence Clinic **Credit Hours: 3-7**

Students enrolled in the domestic violence clinic provide direct legal representation to persons who experience domestic abuse. Readings, classroom lectures, videos, and guest speakers complement live-client legal practice. Eight hours of casework and 4 hours in class required each week.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN6950 Advanced Domestic Violence Clinic **Credit Hours: 2-4**

The advanced clinic development of skills beyond those achieved in the basic clinic in the context of complex domestic violence prosecution.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWN9000 Trial Practice **Credit Hours: 3**

Simulated exercises and trials, including such matters as pretrial motions, jury selection, opening statement, presentation of evidence, cross-examination, witness impeachment, closing argument and jury instructions. Emphasis is given to developing and proving a theory of the case.

Prerequisites: LAWA 9310 FOR LEVEL LW WITH MIN. GRADE OF D

LAWN9020 Advanced Legal Research **Credit Hours: 2-3**

An in-depth view of legal bibliography in both print and electronic formats. Detailed attention given to encyclopedias, treatises, and various general and topical indexes, digests, and citators as well as web based compilations of legal materials.

LAWN9030 Law Practice **Credit Hours: 1-3**

An introduction to management of a law practice. This course will develop concepts related to four areas: Business Management, Practice Management, Client Management and Life Management. In the area of Business Management, students will be exposed to business start-up considerations, including choice of entity, financing, bookkeeping and trust accounting. In the area of Practice Management, the students will cover administrative and substantive systems, including conflicts of interest, docket management, form files and employee management. In Client Management, the students will be exposed to issues related to client acceptance, declination, disengagement, client satisfaction and malpractice to name a few.

LAWN9040 Mediation And Settlement **Credit Hours: 2-3**

This course explores the theory and practice of mediation from the standpoint of both the mediator and the attorney-advocate. The course includes several mediation simulations that require preparation of post-mediation evaluations. Other topics include mediator roles and functions, agenda setting, issue identification, communication skills, power balancing, the caucus, ethical issues and the place of mediation in the larger context of Alternative Dispute Resolution.

LAWN9050 Negotiation And Settlement **Credit Hours: 2-3**

This course focuses on developing an analytical framework for preparing, conducting and evaluating negotiations. A variety of negotiation strategies and tactics are explored including cooperative, problem-solving and competitive, positional approaches. Students conduct approximately ten negotiations that explore a variety of deal-making and dispute resolution fact situations.

LAWN9070 Pretrial Practice - Discovery **Credit Hours: 1-3**

One-half of the course concentrates on learning the rules of discovery and developing practical skill in drafting interrogatories, requests for production, requests for admission and requests for physical examination. The other half focuses on the practical aspects of preparing for, taking and defending depositions.

Prerequisites: LAWD 9020 FOR LEVEL LW WITH MIN. GRADE OF D

LAWN9080 Pretrial Practice - Motions **Credit Hours: 2-3**

This course teaches students to "talk to the judge" in legal writing by using plain, persuasive language. Topics include the rules and practice of many types of motions from the usually mundane motion for extension of time to motions in limine and for summary judgment. A large portion of the course will be spent writing and editing a persuasive motion for summary judgment.

Prerequisites: LAWD 9020 FOR LEVEL LW WITH MIN. GRADE OF D

LAWN9090 Alternative Dispute Resolution **Credit Hours: 2-3**

This survey course starts with a comparison of various adjudicatory and non-adjudicatory methods of dispute resolution and then proceeds to an in-depth study of negotiation, mediation and arbitration as well as various hybrid dispute resolution processes such as the mini-trial, the summary jury trial, early neutral evaluation, mediation-arbitration and ombudsmen. Attention is also given to client interviewing and counseling.

LAWN9100 Negotiation: Theory And Strategy **Credit Hours: 1-3**

This course will provide structures to organize the complex features of negotiation into manageable categories. This course is based on a three-pronged approach: 1) Communicating the theoretical insights, conceptual basics, and strategic approaches of the negotiation process. 2) Giving students opportunities to apply these concepts and strategies to new situations so as to deepen their understanding of negotiation. 3) Providing students opportunities to apply the concepts and strategies in actual negotiation situations.

LAWN9150 Advanced Negotiation **Credit Hours: 1-2**

This advanced course builds upon Negotiation and Settlement; it develops the theories, strategies, and conceptual models of negotiation and gives students opportunities to apply these theories, strategies, and conceptual models to actual negotiation problems.

LAWN9160 Pretrial Practice **Credit Hours: 1-3**

This course concentrates on the practical application of the rules of discovery and motions. Students will develop practical skills in drafting associated with pretrial practice.

Prerequisites: LAWD 9020 FOR LEVEL LW WITH MIN. GRADE OF D

LAWN9190 Interviewing And Counseling — Credit Hours: 2-3

Most lawyers in both litigation and transactional practice spend substantial amounts of their time interviewing and counseling clients. The goals of this course are to develop understanding of theories and techniques of client interviewing and counseling and to assist students to develop skills in performance of interviewing and counseling. Readings and class discussion impart knowledge of theory and techniques. Mere understanding, however, is insufficient to develop performance competence. To develop competence in performance of these skills, students participate in simulations based on case files that will be distributed. Simulations will be recorded on videotape and will be evaluated by the performer, classmates and the instructor.

LAWN9310 Prosecutor Clinic — Credit Hours: 3-7

The Prosecutor Clinic trains law students in basic prosecutorial skills and values. Students serve externships in local prosecutor offices trying cases, plea-bargaining and interviewing witnesses. The clinic may be taken for either six or four credit hours.

LAWN9330 Advanced Prosecutor Clinic — Credit Hours: 3-4

The Advanced Prosecutor Clinic trains students in advanced skills of prosecution. Students undertake more challenging tasks than those typically undertaken in the basic clinic. For example, students may conduct jury trials, make appellate arguments, or draft clinical training manuals.

LAWN9410 Dispute Resolution Clinic — Credit Hours: 2-4

In the Dispute Resolution Clinic, second and third year students have the unique opportunity to learn mediation skills and apply those skills mediating in the Lucas County Juvenile Court and Toledo Municipal Court. This fieldwork experience provides hands-on training in the area of alternative dispute resolution. Skills such as listening, communication and negotiation are stressed in both the fieldwork and weekly classroom component. Students are taught theoretical techniques and are exposed to a variety of topics and speakers in the Alternative Dispute Resolution field. This clinical program is designed to teach practical skills and give the students an opportunity to interact in the legal community in a new and emerging area of law.

LAWN9420 Advanced Dispute Resolution Clinic **Credit Hours: 2-4**

The Advanced Dispute Resolution Clinic emphasizes development of skills beyond those achieved in the basic clinic. The course provides students with the opportunity to become involved in mediations in a number of courts throughout Lucas County and Northwest Ohio.

LAWN9610 Public Service Externship **Credit Hours: 1-6**

The Public Service Externship Clinic is a field placement program in which students are placed in structured legal settings with public service attorneys and programs. There is a required classroom component in which issues relating to learning from experience are explored. The program is available year round with out-of-town placements available in the summer term.

LAWN9910 Legal Clinic **Credit Hours: 2-7**

The clinic focuses on development of legal skills such as interviewing, counseling, negotiation, drafting, trial and appellate work and the application of those skills to the problems of individuals. Typical practice includes probate, domestic relations, administrative law, landlord and tenant, consumer and civil rights cases. Students in the clinic are given responsibility for work on all aspects of the case, under the close supervision of clinic faculty. Classroom meetings focus on substantive, procedural and ethical aspects of the cases handled by the clinic. Admission is by the permission of the co-directors.

LAWN9930 Advanced Legal Clinic **Credit Hours: 2-4**

The advanced clinic emphasizes development of skills beyond those achieved in the basic clinic in the context of complex litigation or other more involved representation.

LAWN9940 Domestic Violence Clinic **Credit Hours: 3-7**

Students enrolled in the domestic violence clinic provide direct legal representation to persons who experience domestic abuse. Readings, classroom lectures, videos, and guest speakers complement live-client legal practice. Eight hours of casework and 4 hours in class required each week.

LAWN9950 Advanced Domestic Violence Clinic **Credit Hours: 2-4**

The advanced clinic development of skills beyond those achieved in the basic clinic in the context of complex domestic violence prosecution.

LAWP6000 Advanced Seminar **Credit Hours: 1-3**

Seminars are offered in a wide variety of subject areas. In addition to class work, seminars require a substantial research project.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWP6010 Honors Research Program I **Credit Hours: 2**

A student who has completed 32 semester hours in the College of Law and who has a cumulative grade point average of 3.0 or higher may apply to undertake honors research. The student must submit a topic and detailed research proposal four weeks prior to enrollment to a faculty member who agrees to take primary responsibility to supervise the student¿s work. Two other faculty members are appointed by the Dean to serve on the student¿s advisory committee. The research and writing take place over two semesters and culminate in a written thesis intended for publication. The student must orally defend his or her thesis before the advisory committee and interested members of the University community.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWP6020 Honors Research Program II — Credit Hours: 2

A student who has completed 32 semester hours in the College of Law and who has a cumulative grade point average of 3.0 or higher may apply to undertake honors research. The student must submit a topic and detailed research proposal four weeks prior to enrollment to a faculty member who agrees to take primary responsibility to supervise the student¿s work. Two other faculty members are appointed by the Dean to serve on the student¿s advisory committee. The research and writing take place over two semesters and culminate in a written thesis intended for publication. The student must orally defend his or her thesis before the advisory committee and interested members of the University community.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWP6030 Advanced Appellate Advocacy — Credit Hours: 2-3

The course focuses on teaching advanced advocacy skills for practice before the appellate courts. It covers advanced persuasive writing, the rules of appellate court procedure, as well as advanced research and oral argument techniques.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWP6040 Advanced Legal Writing — Credit Hours: 1-3

This is a practicum course that develops the theory and practice of cognitive legal writing, i.e., legal writing that is well-organized, precise, effective and persuasive. This approach to legal writing is applicable to briefs, memoranda, opinion letters and letters to clients.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWP6050 Independent Research Program — Credit Hours: 2

A student who has completed at least 32 semester hours in the College of Law and who has a grade point average of 2.0 or higher may undertake and complete individual research and writing for credit under an Independent Research Program. To enroll in the program, a student must submit a written proposal to the faculty member agreeing to take primary responsibility for that student. If the faculty member and the Dean approve the proposal, the student may then enroll for two hours of credit for one semester. The supervising faculty member decides how many Upper Level Writing Requirement units and what grade will be awarded to the project.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWP6060 Practical Legal Writing **Credit Hours: 1-3**

This course focuses on writing skills necessary for the legal practitioner, including client letters, complaints, answers, interrogatories and motions. It is aimed at those students interested in learning the nuts and bolts of practice and how to prepare essential litigation documents.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWP6210 Writing For Law Review **Credit Hours: 1**

This is a practicum course that develops the theory and practice of cognitive legal writing, i.e. legal writing that is well-organized, precise, effective, persuasive, and reader-centered. This approach to legal writing is applicable to law review notes and comments as well as briefs, memoranda, opinion letters, and letters to clients.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWP6400 Drafting Wills And Trusts **Credit Hours: 2-3**

The course¿s primary goals are to improve student drafting skills in general and to provide practical experience in will and trust drafting. Students design drafting solutions to a series of particular exercises. A final, comprehensive drafting project is required.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWP6460 Legal Drafting **Credit Hours: 1-3**

This is a practicum course that develops the theory and practice of preparing clear, consistent, well-organized and readable legal instruments (e.g., contracts, leases, regulations and statutory provisions).

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWP9000 Advanced Seminar **Credit Hours: 1-3**

Seminars are offered in a wide variety of subject areas. In addition to class work, seminars require a substantial research project.

LAWP9010 Honors Research Program I **Credit Hours: 2**

A student who has completed 32 semester hours in the College of Law and who has a cumulative grade point average of 3.0 or higher may apply to undertake honors research. The student must submit a topic and detailed research proposal four weeks prior to enrollment to a faculty member who agrees to take primary responsibility to supervise the student¿s work. Two other faculty members are appointed by the Dean to serve on the student¿s advisory committee. The research and writing take place over two semesters and culminate in a written thesis intended for publication. The student must orally defend his or her thesis before the advisory committee and interested members of the University community.

LAWP9020 Honors Research Program II **Credit Hours: 2**

A student who has completed 32 semester hours in the College of Law and who has a cumulative grade point average of 3.0 or higher may apply to undertake honors research. The student must submit a topic and detailed research proposal four weeks prior to enrollment to a faculty member who agrees to take primary responsibility to supervise the student¿s work. Two other faculty members are appointed by the Dean to serve on the student¿s advisory committee. The research and writing take place over two semesters and culminate in a written thesis intended for publication. The student must orally defend his or her thesis before the advisory committee and interested members of the University community.

LAWP9030 Advanced Appellate Advocacy **Credit Hours: 2-3**

The course focuses on teaching advanced advocacy skills for practice before the appellate courts. It covers advanced persuasive writing, the rules of appellate court procedure, as well as advanced research and oral argument techniques.

LAWP9040 Advanced Legal Writing **Credit Hours: 1-3**

This is a practicum course that develops the theory and practice of cognitive legal writing, i.e., legal writing that is well-organized, precise, effective and persuasive. This approach to legal writing is applicable to briefs, memoranda, opinion letters and letters to clients.

LAWP9050 Independent Research Program **Credit Hours: 2**

A student who has completed at least 32 semester hours in the College of Law and who has a grade point average of 2.0 or higher may undertake and complete individual research and writing for credit under an Independent Research Program. To enroll in the program, a student must submit a written proposal to the faculty member agreeing to take primary responsibility for that student. If the faculty member and the Dean approve the proposal, the student may then enroll for two hours of credit for one semester. The supervising faculty member decides how many Upper Level Writing Requirement units and what grade will be awarded to the project.

LAWP9060 Practical Legal Writing **Credit Hours: 1-3**

This course focuses on writing skills necessary for the legal practitioner, including client letters, complaints, answers, interrogatories and motions. It is aimed at those students interested in learning the nuts and bolts of practice and how to prepare essential litigation documents.

LAWP9210 Writing For Law Review **Credit Hours: 1**

This is a practicum course that develops the theory and practice of cognitive legal writing, i.e. legal writing that is well-organized, precise, effective, persuasive, and reader-centered. This approach to legal writing is applicable to law review notes and comments as well as briefs, memoranda, opinion letters, and letters to clients.

LAWP9400 Drafting Wills And Trusts **Credit Hours: 2-3**

The course¿s primary goals are to improve student drafting skills in general and to provide practical experience in will and trust drafting. Students design drafting solutions to a series of particular exercises. A final, comprehensive drafting project is required.

LAWP9460 Legal Drafting **Credit Hours: 1-3**

This is a practicum course that develops the theory and practice of preparing clear, consistent, well-organized and readable legal instruments (e.g., contracts, leases, regulations and statutory provisions).

LAWT6070 Complex Litigation **Credit Hours: 2-3**

A study of selected problems of complexity in litigation, in relation to subject matter, parties, forums, and pre-trial and trial procedures.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6120 European Union **Credit Hours: 2-3**

This course will begin with an examination of the history of and legal foundations for the European Union. It will then explore the relationship between individual sovereign states and the EU. Finally, the course will look at various particular bodies of EU law such as free movement of capital, goods and labor; freedom of establishment; harmonization of laws; antitrust and competition policy; currency unification; environmental protection; intellectual property protection; rights to privacy; and women's rights.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6130 Entertainment Law **Credit Hours: 2-3**

Course explores how legal doctrine, social and economic policy, and constitutional principles are reflected in the media and entertainment industries. Includes antitrust and telecommunications law, defamation, legal restraints on sex and violence, copyright, contracts, and labor law.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6150 Health Care Regulations **Credit Hours: 1-3**

Examines the legal structures that regulate the organization, delivery and financing of health care. Topics include Medicare and Medicaid, Antitrust and the structure of health care enterprises. Discussion includes the public policy objectives and effects of current regulatory schemes, as well as enacted and proposed reforms at state and federal levels.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6260 Health Care Finance **Credit Hours: 1-3**

This course will cover the different problems presented by government regulation versus the private market model focusing on managed care (risk allocation, standard of care, consumer information), insurance (basic models of insurance and underwriting), health care licensing, and related ERISA issues as they affect the delivery of health care services.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6270 Legislative Process And Drafting **Credit Hours: 2-3**

The Legislative Drafting course focuses on legislative drafting techniques and surveys legal drafting, limitations on legislation, statutory interpretation, legislative procedure and professional responsibility. Students will draft a bill for an actual client and write a scholarly paper in support of the bill.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6280 Death, Dying, And Decisionmaking **Credit Hours: 2**

This course explains the legal issues that surround death, dying, and decisionmaking. It examines topics such as bioethical decisionmaking, informed consent, capacity to make medical decisions, definitions of death, organ donation, the right to die, advanced directives, and assisted suicide. This course must elected at the same time as Bioethics Practicum.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6290 Bioethics Practicum **Credit Hours: 1-3**

This clinical course requires students to design and conduct a community workshop that explains the Ohio law of advanced directives. The clinical faculty will evaluate each student's professional competence, legal analysis, critical thinking, preparation and participation, productivity, resourcefulness, and collaboration. This course must be elected at the same time as Death, Dying, and Decisionmaking.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6350 Mental Health Law **Credit Hours: 2-3**

Mental Health Law deals with the rights of persons with mental disabilities. Topics considered are: civil commitment, right to treatment, right to refuse treatment, Americans with Disabilities Act, competence to stand trial, the doctrine of "not guilty by reason of insanity," and dangerous offender statutes.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6360 Medicine For Lawyers **Credit Hours: 1-2**

This course, taught by a medical doctor with a JD, addresses practical litigation issues involved in health care law. It focuses on the use and interpretation by the lawyer of the medical record. Regardless of the nature of the action brought, negligence, malpractice, toxic tort, worker¿s compensation or medical fraud and abuse claims, the medical record is a foundation document in the preparation of the case for both plaintiff and defendant. The attorney must understand both the medical content and meaning of the record, including anatomy and pathophysiology, as well as the documentation of the duty and delivery of care in the record to effectively sustain an argument.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6370 Health Care Provider Liability **Credit Hours: 2-3**

This advanced torts course covers quality control in health care, medical malpractice, informed consent, medical confidentiality and institutional liability for medical injury. It includes causes of action against individual and institutional health care providers as well as third party payors, including insurers and managed care organizations. Tort reform issues are also addressed.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6380 Native American Law **Credit Hours: 2-3**

This course will initially examine the legal concepts of "Native American" individual and tribe. The study of unique (and not so unique) aspects of the treatment of Native American individuals and tribes under the U.S. Constitution; treaties; and national, tribal and state law will form the heart of the course. Attention will be given to issues relating to tribal government and tribal courts, criminal and civil jurisdiction over Indians and non-Indians, environmental regulation on reservation lands, commercial trade in Indian art, casino gaming, the American Indian Religious Freedom Act and the Native American Graves Protection and Repatriation Act.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6400 Nafta **Credit Hours: 2-3**

This course will begin with an overview of free trade in North America. Then it will turn to an in-depth examination of different areas of commerce affected by the North American Free Trade Agreement (NAFTA): the movement of goods, the cross border provision of services, the treatment of foreign investments, the protection of intellectual property and dispute settlement procedures. Next, it will consider the labor and environmental side agreements. Finally, it will explore how the NAFTA may be expanded in the future.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6550 Securities Practice **Credit Hours: 2-3**

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6600 Special Topics **Credit Hours: 1-6**

Courses covering special topics and current events.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6630 Tax Procedure And Tax Fraud **Credit Hours: 2-3**

This course first considers civil tax cases, with emphasis upon negotiation between taxpayers¿ counsel and Internal Revenue Service personnel, and upon Tax Court procedure. The course then takes up criminal tax prosecutions, with emphasis upon the interaction of IRS civil and criminal investigatory powers, and upon defense of the typical tax prosecution.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6790 Advanced Criminal Procedure **Credit Hours: 2-3**

This course will combine in-depth study of the most important and current issues in criminal procedure with direct experience in oral and written advocacy. In the post 9/11 world, criminal procedure is in a state of change not seen in the last thirty years. We will therefore focus on issues that have arisen in the War on Terrorism: the USA PATRIOT Act, detentions of individuals as "enemy combatants," the use of immigration violations and material witness warrants as pretexts for terrorism investigation, profiling of potential terrorists, and the gathering of evidence under Foreign Intelligence Surveillance Act warrants. Students will brief and argue two Fourth, Fifth or Sixth Amendment problems. Both writing and oral arguments wil be extensively critiqued.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6800 International Environmental Law **Credit Hours: 2-3**

This course introduces students to issues, problems and legal norms applicable to environmental concerns in the international arena. The course begins with an examination of the various sources of international law and the applicability and affect that international legal norms have on domestic law (an introduction to basic international law). Next the course will consider the unique nature of environmental problems in the international context. The course will then explore the various norms, treaties and other sources of international law that exist to protect the environment in the context of various problems.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6900 Forensic Evidence Law **Credit Hours: 2-3**

A review of the law of scientific evidence and the underlying science employed in detecting and solving crimes and in the reconstruction of accidents. Topics include, accident and injury reconstruction, DNA matching, the identification and toxicology of drugs and alcohol, fingerprint identification, dental matching, the reconstruction of computer files, basics of forensic accounting and hair, fiber and similar matching techniques.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6910 Death Penalty **Credit Hours: 2**

This course addresses legal and policy aspects of state and federal death penalty practice. Both prosecutor and defense strategies will be explored. Students will take a final exam or write a paper in lieu of the exam.

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT6990 Distance Learning **Credit Hours: 2-3**

Prerequisites: LAWM 5000 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

LAWT9070 Complex Litigation **Credit Hours: 2-3**

A study of selected problems of complexity in litigation, in relation to subject matter, parties, forums, and pre-trial and trial procedures.

LAWT9120 European Union **Credit Hours: 2-3**

This course will begin with an examination of the history of and legal foundations for the European Union. It will then explore the relationship between individual sovereign states and the EU. Finally, the course will look at various particular bodies of EU law such as free movement of capital, goods and labor; freedom of establishment; harmonization of laws; antitrust and competition policy; currency unification; environmental protection; intellectual property protection; rights to privacy; and women's rights.

LAWT9130 Entertainment Law **Credit Hours: 2-3**

Course explores how legal doctrine, social and economic policy, and constitutional principles are reflected in the media and entertainment industries. Includes antitrust and telecommunications law, defamation, legal restraints on sex and violence, copyright, contracts, and labor law.

LAWT9150 Health Care Regulations **Credit Hours: 1-3**

Examines the legal structures that regulate the organization, delivery and financing of health care. Topics include Medicare and Medicaid, Antitrust and the structure of health care enterprises. Discussion includes the public policy objectives and effects of current regulatory schemes, as well as enacted and proposed reforms at state and federal levels.

LAWT9260 Health Care Finance **Credit Hours: 1-3**

This course will cover the different problems presented by government regulation versus the private market model focusing on managed care (risk allocation, standard of care, consumer information), insurance (basic models of insurance and underwriting), health care licensing, and related ERISA issues as they affect the delivery of health care services.

LAWT9270 Legislative Process And Drafting **Credit Hours: 2-3**

The Legislative Drafting course focuses on legislative drafting techniques and surveys legal drafting, limitations on legislation, statutory interpretation, legislative procedure and professional responsibility. Students will draft a bill for an actual client and write a scholarly paper in support of the bill.

LAWT9280 Death, Dying, And Decisionmaking **Credit Hours: 2**

This course explains the legal issues that surround death, dying, and decisionmaking. It examines topics such as bioethical decisionmaking, informed consent, capacity to make medical decisions, definitions of death, organ donation, the right to die, advanced directives, and assisted suicide. This course must elected at the same time as Bioethics Practicum.

LAWT9290 Bioethics Practicum **Credit Hours: 1-3**

This clinical course requires students to design and conduct a community workshop that explains the Ohio law of advanced directives. The clinical faculty will evaluate each student's professional competence, legal analysis, critical thinking, preparation and participation, productivity, resourcefulness, and collaboration. This course must be elected at the same time as Death, Dying, and Decisionmaking.

LAWT9350 Mental Health Law **Credit Hours: 2-3**

Mental Health Law deals with the rights of persons with mental disabilities. Topics considered are: civil commitment, right to treatment, right to refuse treatment, Americans with Disabilities Act, competence to stand trial, the doctrine of "not guilty by reason of insanity," and dangerous offender statutes.

LAWT9360 Medicine For Lawyers **Credit Hours: 1-2**

This course, taught by a medical doctor with a JD, addresses practical litigation issues involved in health care law. It focuses on the use and interpretation by the lawyer of the medical record. Regardless of the nature of the action brought, negligence, malpractice, toxic tort, worker¿s compensation or medical fraud and abuse claims, the medical record is a foundation document in the preparation of the case for both plaintiff and defendant. The attorney must understand both the medical content and meaning of the record, including anatomy and pathophysiology, as well as the documentation of the duty and delivery of care in the record to effectively sustain an argument.

LAWT9370 Health Care Provider Liability **Credit Hours: 2-3**

This advanced torts course covers quality control in health care, medical malpractice, informed consent, medical confidentiality and institutional liability for medical injury. It includes causes of action against individual and institutional health care providers as well as third party payors, including insurers and managed care organizations. Tort reform issues are also addressed.

LAWT9380 Native American Law **Credit Hours: 2-3**

This course will initially examine the legal concepts of "Native American" individual and tribe. The study of unique (and not so unique) aspects of the treatment of Native American individuals and tribes under the U.S. Constitution; treaties; and national, tribal and state law will form the heart of the course. Attention will be given to issues relating to tribal government and tribal courts, criminal and civil jurisdiction over Indians and non-Indians, environmental regulation on reservation lands, commercial trade in Indian art, casino gaming, the American Indian Religious Freedom Act and the Native American Graves Protection and Repatriation Act.

LAWT9400 Nafta **Credit Hours: 2-3**

This course will begin with an overview of free trade in North America. Then it will turn to an in-depth examination of different areas of commerce affected by the North American Free Trade Agreement (NAFTA): the movement of goods, the cross border provision of services, the treatment of foreign investments, the protection of intellectual property and dispute settlement procedures. Next, it will consider the labor and environmental side agreements. Finally, it will explore how the NAFTA may be expanded in the future.

LAWT9550 Securities Practice **Credit Hours: 2-3**

LAWT9600 Special Topics **Credit Hours: 1-6**

Courses covering special topics and current events.

LAWT9630 Tax Procedure And Tax Fraud **Credit Hours: 2-3**

This course first considers civil tax cases, with emphasis upon negotiation between taxpayers' counsel and Internal Revenue Service personnel, and upon Tax Court procedure. The course then takes up criminal tax prosecutions, with emphasis upon the interaction of IRS civil and criminal investigatory powers, and upon defense of the typical tax prosecution.

LAWT9790 Advanced Criminal Procedure **Credit Hours: 2-3**

This course will combine in-depth study of the most important and current issues in criminal procedure with direct experience in oral and written advocacy. In the post 9/11 world, criminal procedure is in a state of change not seen in the last thirty years. We will therefore focus on issues that have arisen in the War on Terrorism: the USA PATRIOT Act, detentions of individuals as "enemy combatants," the use of immigration violations and material witness warrants as pretexts for terrorism investigation, profiling of potential terrorists, and the gathering of evidence under Foreign Intelligence Surveillance Act warrants. Students will brief and argue two Fourth, Fifth or Sixth Amendment problems. Both writing and oral arguments wil be extensively critiqued.

LAWT9800 International Environmental Law **Credit Hours: 2-3**

This course introduces students to issues, problems and legal norms applicable to environmental concerns in the international arena. The course begins with an examination of the various sources of international law and the applicability and affect that international legal norms have on domestic law (an introduction to basic international law). Next the course will consider the unique nature of environmental problems in the international context. The course will then explore the various norms, treaties and other sources of international law that exist to protect the environment in the context of various problems.

LAWT9900 Forensic Evidence Law **Credit Hours: 2-3**

A review of the law of scientific evidence and the underlying science employed in detecting and solving crimes and in the reconstruction of accidents. Topics include, accident and injury reconstruction, DNA matching, the identification and toxicology of drugs and alcohol, fingerprint identification, dental matching, the reconstruction of computer files, basics of forensic accounting and hair, fiber and similar matching techniques.

LAWT9910 Death Penalty **Credit Hours: 2**

This course addresses legal and policy aspects of state and federal death penalty practice. Both prosecutor and defense strategies will be explored. Students will take a final exam or write a paper in lieu of the exam.

LAWT9990 Distance Learning **Credit Hours: 2-3**

LGL1010 Introduction To Law **Credit Hours: 3**

The course is designed to improve oral and written communication skills through the study of contracts, real property, torts and criminal law. The course includes the structure and operation of the state and federal court systems, as well as the status and uses of paralegals.

LGL1150 Tort Law **Credit Hours: 3**

This course covers the traditional areas of tort law, including negligence, trespass, mental distress and conversion as well as the defenses to these claims. The course is taught through the case study method.

LGL1160 Legal Research, Writing And Case Analysis **Credit Hours: 3**

Designed to provide the student with an understanding of the function of the law library and to develop research techniques and legal analysis and writing skills through use of traditional law library materials and computerized legal research techniques such as Lexis and Anderson CD-ROM Law on Disk.

Prerequisites: LGL 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

LGL1720 Law Practice Management **Credit Hours: 3**

This course exposes students to various management structures within and the administration of the law office and other legal environments. Critical thinking will be applied to management theories and applications.

LGL2020 Civil Procedure **Credit Hours: 3**

An in-depth study of the Rules of Civil Procedure, including application of rules of fact patterns. Students will draft litigation documents including complaint, answer and discovery pleadings.

Prerequisites: (LGL 1010 FOR LEVEL UG WITH MIN. GRADE OF D- AND LGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D-)

LGL2110 Estate & Probate Administration **Credit Hours: 3**

Study of the common forms of wills and trusts and a survey of the fundamental principles of law applicable to each; study of the organization and jurisdiction of the probate court, analysis of the administration of estates in probate court and a review of estate and inheritance taxes.

LGL2120 Real Estate Transactions **Credit Hours: 3**

The law of real property and common types of real estate transactions and conveyances, such as deeds, land installment contracts, sales contracts and leases, with emphasis on researching, drafting and recording of documents related thereto.

LGL2130 Family Law **Credit Hours: 3**

Study of the law and practice of divorce, dissolution and all matters relating to the termination of a marriage. Students will be trained to conduct client interviews, draft pleadings and associated court forms, and calculate support under state-mandated guidelines.

Prerequisites: (LGL 1010 FOR LEVEL UG WITH MIN. GRADE OF D- AND LGL 1160 FOR LEVEL UG WITH MIN. GRADE OF D-)

LGL2210 Practices And Procedures In Administrative Law **Credit Hours: 3**

This course takes a look at the substantive and procedural aspects of various administrative law agencies with emphasis on providing skills to practice in administrative law.

LGL2700 Advocacy: Mock Trial **Credit Hours: 3**

An in-depth survey of the trial process which exposes students to each step of a trial in a hands-on fashion. The course will be taught utilizing traditional lecture, reading and actual mock trial experience.

LGL2940 Legal Assisting Internship **Credit Hours: 3**

Field experience in law offices. Students will be placed in various legal assisting positions by the program director. Students will meet for job-related seminar once a week and will work at their assigned law office for 180 hours during the semester.

LGL2990 Independent Study **Credit Hours: 1-3**

This course is used for faculty-assisted independent study in the area of legal assisting.

LGL3010 Law Of Business Associations **Credit Hours: 3**

Study of business entities: sole proprietorships, partnerships and corporations. Critical analysis of business entities, de factor and de jure entities. Students will complete articles of incorporation, bylaws and minute books.

Prerequisites: (LGL 1010 FOR LEVEL UG WITH MIN. GRADE OF D- AND LGL 1720 FOR LEVEL UG WITH MIN. GRADE OF D-)

LGL3030 Advanced Legal Research & Writing **Credit Hours: 3**

Focus on advanced legal writing. Students will be challenged to master computer assisted legal research methods.

Prerequisites: (LGL 1010 FOR LEVEL UG WITH MIN. GRADE OF D- AND LGL 1160 FOR LEVEL UG WITH MIN. GRADE OF D-)

LGL3050 Bankruptcy Practices & Consumer Applications **Credit Hours: 3**

An analysis of consumer laws including landlord-tenant relationships, consumer sales practices, uniform commercial code transactions, credit card law, garnishment, fair debt collection practices act and the United States Bankruptcy Code.

Prerequisites: (LGL 1010 FOR LEVEL UG WITH MIN. GRADE OF D- AND LGL 1160 FOR LEVEL UG WITH MIN. GRADE OF D-)

LGL3110 Personal Law **Credit Hours: 3**

Through critical reasoning/collaborative learning, students will examine personal law issues and legal rights/responsibilities, enabling them to formulate analytical models readily transferable to legal issues in their present and future lives.

LGL3120 Personal Law II **Credit Hours: 3**

An analysis of current legal decisions on topics such as same sex marriage, home forced entry and theology studies subsidies through analogizing/distinguishing related fact patterns and criticizing judicial exposition/logic.

Prerequisites: LGL 3110 FOR LEVEL UG WITH MIN. GRADE OF D-

LGL3330 Litigation **Credit Hours: 3**

Focus on evidence and investigation, applying critical thinking skills to actual litigation cases. Analysis of court pleadings for appropriateness and alternative mechanisms. Study of post trial and appellate matters.

Prerequisites: (LGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- AND LGL 2020 FOR LEVEL UG WITH MIN. GRADE OF D-)

LGL3350 Alternative Dispute Resolution **Credit Hours: 3**

Students will overview conflict theory, resolution and its history. Students will focus on skills necessary for alternative dispute resolution: negotiation, mediation, arbitration, summary jury trial and mini trial.

Prerequisites: (LGL 1010 FOR LEVEL UG WITH MIN. GRADE OF D- AND LGL 1150 FOR LEVEL UG WITH MIN. GRADE OF D- AND LGL 2020 FOR LEVEL UG WITH MIN. GRADE OF D-)

LGL4030 Contract Law **Credit Hours: 3**

Focus on the laws concerning creation and termination of contracts. Students will analyze contractual terms including reliance, capacity, unconscionability, conditions, assignments, third-party beneficiaries and the effect of changed circumstances.

Prerequisites: (LGL 1010 FOR LEVEL UG WITH MIN. GRADE OF D- AND LGL 1160 FOR LEVEL UG WITH MIN. GRADE OF D-)

LGL4130 Clinic Experience **Credit Hours: 3**

Students will work in a clinical environment, such as: Court Appointed Special Advocates, the UT Center for Mediation and Legal Rights, the Toledo Bar Association's Pro Se Family Law Program.

Prerequisites: (LGL 1010 FOR LEVEL UG WITH MIN. GRADE OF D- AND LGL 1160 FOR LEVEL UG WITH MIN. GRADE OF D-)

LGL4230 Health Care And The Law **Credit Hours: 3**

An analysis of health care laws and legal issues, including treatment relationships, medical malpractice, the right to die, reproductive rights, bioethics, health care financing, public health, delivery systems and regulations.

LGL4330 Mediation: Topics And Techniques **Credit Hours: 3**

This service learning course teaches the facilitative approch to mediating disputes. Students break down disputed issues, role play, and observe actual mediations for the peaceful and cooperative resolution of disputes.

Prerequisites: LGL 3350 FOR LEVEL UG WITH MIN. GRADE OF D-

LGL4940 Advanced Paralegal Internship **Credit Hours: 3**

Field experience for seniors, placement within their specialty. Students meet for 1 hour seminar and work at assigned law office for 12 hours per week.

LGL4990 Independent Study **Credit Hours: 1-3**

This course is used for faculty-assisted independent study in this area of studies.

LGL6100 Legal Issues for the Elderly **Credit Hours: 3**

A comprehensive review of legal issues affecting elderly people, including estate planning, trusts, guardianships, powers of attorney, advance directives, social security, Medicare, Medicaid, grandparents' rights, and prenuptial agreements.

LGL6200 Elder Health Law and Ethical **Credit Hours: 3**

A study of elder health law and elder legal and ethical issues affecting our aging population including home, long term and hospice care, guardianship, housing, age discrimination and elder abuse.

LGL6980 Special Topics **Credit Hours: 3**

Content may vary, covering some aspect of the law or some area of special interest to the student and instructor. Students may repeat the course for credit as topics vary.

LING3000 Human Language **Credit Hours: 3**

A non-technical overview of the nature of human language, including issues relating to spoken and written language, language change and language development, and other aspects of language use in a variety of contexts.

LING3150 Linguistic Principles **Credit Hours: 3**

An introduction to modern linguistic theories about the nature and structure of language. Data from English as well as other languages will be used.

LING3160 Phonology **Credit Hours: 3**

Introduction to the study of patterns and rules which govern the production of human speech, including a review of phonetics and a study of various explanatory theories.

Prerequisites: LING 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 3150 FOR LEVEL UG WITH MIN. GRADE OF D-

LING3170 Syntax **Credit Hours: 3**

Introduction to syntax within the transformational-generative framework. Emphasis on data from a variety of languages as a basis for evaluating competing theories.

Prerequisites: LING 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 3150 FOR LEVEL UG WITH MIN. GRADE OF D-

LING3180 Morphology **Credit Hours: 3**

Theories of how morphemes combine to form structurally complex words; word formation rules; the relationship between word structure and how words sound. Recommended: LING 3160 and/or 3170.

Prerequisites: LING 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 3150 FOR LEVEL UG WITH MIN. GRADE OF D-

LING3190 Sociolinguistics **Credit Hours: 3**

Combines linguistic and societal concerns through empirical research; includes issues of language variation and related larger constructs such as speech community, communicative competence, dialect and language change.

Prerequisites: LING 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 3150 FOR LEVEL UG WITH MIN. GRADE OF D-

LING4100 The History Of English **Credit Hours: 3**

Description of the changes that have taken place in the English language from the earliest days to the present.

Prerequisites: LING 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 3150 FOR LEVEL UG WITH MIN. GRADE OF D-

LING4110 Old English **Credit Hours: 3**

A study of phonology, morphology and syntax with representative readings in verse and prose.

LING4120 Middle English **Credit Hours: 3**

Study of the phonology, morphology and syntax of Middle English, with special attention to literary and cultural background. Representative readings in verse and prose.

LING4150 Applied Linguistics I **Credit Hours: 3**

Focus on methods of applied linguistics in the broad sense, including their use in studies of first and second language acquisition, language teaching, the teaching of reading and writing, and other related areas.

Prerequisites: ENGL 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR LING 3150 FOR LEVEL UG WITH MIN. GRADE OF D-

LING4170 Applied Linguistics II **Credit Hours: 3**

Focuses on theories of second/foreign language acquisition, especially, but not exclusively, as they relate to English as a Second Language.

Prerequisites: LING 4150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 4150 FOR LEVEL UG WITH MIN. GRADE OF D-

LING4210 Issues In Esl Writing **Credit Hours: 3**

Course content includes key concepts in ESL writing instruction and research; characteristics of second language writers and their texts; curricular options; and responding to and assessing ESL writing.

LING4980 Special Topics **Credit Hours: 3**

An undergraduate course on a special topic. Consult Time Schedules for topic to be studied, prerequisite(s) and semester offered.

LING4990 Independent Study **Credit Hours: 1-3**

An opportunity for students to concentrate on areas of interest or weakness.

LING5100 History Of The English Language **Credit Hours: 3**

Study of the origins and development of the English language.

Prerequisites: ENGL 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR LING 3150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ENGL 5150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 5150 FOR LEVEL GR WITH MIN. GRADE OF D- OR ENGL 7150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 7150 FOR LEVEL GR WITH MIN. GRADE OF D-

LING5110 Old English **Credit Hours: 3**

Study of the phonology, morphology and syntax of Old English, with special attention to literary and cultural backgrounds. Representative readings in verse and prose.

LING5120 Middle English **Credit Hours: 3**

Study of the phonology, morphology and syntax of Middle English, with special attention to literary and cultural background. Representative readings in verse and prose.

LING5150 Fundamentals Of Linguistics **Credit Hours: 3**

Formal techniques required for the synchronic and diachronic study of language.

LING5160 Phonology **Credit Hours: 3**

Fundamentals of phonological description, phonetics, phonemics, distinctive features, generative phonology, with study of formulations basic to phonological theory.

Prerequisites: ENGL 5150 FOR LEVEL GR WITH MIN. GRADE OF D- OR ENGL 7150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 5150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 7150 FOR LEVEL GR WITH MIN. GRADE OF D-

LING5170 Syntax **Credit Hours: 3**

Formal theories of syntactic analysis, the relationship between semantics and syntax and the evaluation of current approaches.

Prerequisites: ENGL 5150 FOR LEVEL GR WITH MIN. GRADE OF D- OR ENGL 7150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 5150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 7150 FOR LEVEL GR WITH MIN. GRADE OF D-

LING5180 Morphology **Credit Hours: 3**

The theory of word structure within the framework of generative grammar.

Prerequisites: ENGL 5150 FOR LEVEL GR WITH MIN. GRADE OF D- OR ENGL 7150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 5150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 7150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 5160 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 7160 FOR LEVEL GR WITH MIN. GRADE OF D-

LING5190 Sociolinguistics **Credit Hours: 3**

Combines linguistic and societal concerns through empirical research.

Prerequisites: ENGL 5150 FOR LEVEL GR WITH MIN. GRADE OF D- OR ENGL 7150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 5150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 7150 FOR LEVEL GR WITH MIN. GRADE OF D-

LING5210 Issues In Esl Writing **Credit Hours: 3**

Course content includes key concepts in ESL writing instruction and research; characteristics of second language writers and their texts; curricular options; and responding to and assessing ESL writing.

LING5980 Special Topics **Credit Hours: 3**

A graduate course on a special topic. Consult Time Schedule for topic to be studied, prerequisite(s), and semester offered.

LING6150 Applied Linguistics I **Credit Hours: 3**

Focus on the methods of applied linguistics in the broad sense, through case studies including research on first and second language acquisition, language teaching, the teaching of reading and writing, and other related areas.

Prerequisites: LING 5150 FOR LEVEL GR WITH MIN. GRADE OF D- OR ENGL 5150 FOR LEVEL GR WITH MIN. GRADE OF D-

LING6160 Applied Linguistics Lab **Credit Hours: 1**

Computer lab work for Applied Linguistics Research and Theory I.

Corequisites: LING6150

LING6170 Applied Linguistics Research And Theory II **Credit Hours: 3**

Focuses on theories of second/foreign language acquisition, especially, but not exclusively, as they relate to English as a Second Language.

Prerequisites: ENGL 6150 FOR LEVEL GR WITH MIN. GRADE OF D- OR ENGL 8150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 6150 FOR LEVEL GR WITH MIN. GRADE OF D- OR LING 8150 FOR LEVEL GR WITH MIN. GRADE OF D-

LING6990 Independent Study **Credit Hours: 1-3**

An opportunity for students to concentrate on areas of interest or weakness.

LING7100 History Of The English Language **Credit Hours: 3**

Study of the origins and development of the English language.

LING7120 Middle English **Credit Hours: 3**

Study of the phonology, morphology and syntax of Middle English, with special attention to literary and cultural background. Representative readings in verse and prose.

LING7150 Fundamentals Of Linguistics **Credit Hours: 3**

Formal techniques required for the synchronic and diachronic study of language.

LING7180 Morphology **Credit Hours: 3**

The theory of word structure within the framework of generative grammar.

LING7190 Sociolinguistics **Credit Hours: 3**

Combines linguistic and societal concerns through empirical research.

LING7980 Special Topics **Credit Hours: 3**

A graduate course on a special topic. Consult Time Schedule for topic to be studied, prerequisite(s), and semester offered.

LING8150 Applied Linguistics I **Credit Hours: 3**

Focus on the methods of applied linguistics in the broad sense, through case studies including research on first and second language acquisition, language teaching, the teaching of reading and writing, and other related areas.

LING8160 Applied Linguistics Lab **Credit Hours: 1**

Computer lab work for Applied Linguistics Research and Theory I.

Corequisites: LING8150

LING8990 Independent Study **Credit Hours: 1-3**

An opportunity for students to concentrate on areas of interest or weakness.

LST2010 Law And Social Thought **Credit Hours: 3**

Examines the function and force of law in society in an interdisciplinary context. Course includes texts from philosophy, literature, psychology, sociology, history, anthropology and opinions of the court.

LST2030 Cultural Geography **Credit Hours: 3**

A learning-through-writing course. Systematic applications of the concept of cultural to geographic themes: culture areas, cultural landscapes, culture history, cultural ecology and cultural diversity.

LST2500 Proseminar I **Credit Hours: 1**

For sophomore and junior majors in LST: discussion among faculty and students of the interdisciplinary study of law and LST program development. Topics vary, may be repeated for credit.

Prerequisites: LST 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

LST2640 Race, Class, And Gender **Credit Hours: 3**

Introduction to the study of race, class and gender as factors in American satisfaction.

LST2800 Cultural Anthropology **Credit Hours: 3**

Introduction to culture patterns and processes and their relationship to human society and language.

LST2980 Special Topics **Credit Hours: 3**

Special topics in Law and Social Thought. Topics vary by instructor, may be repeated for credit.

Prerequisites: LST 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

LST3050 Economics Of Gender **Credit Hours: 3**

Analysis of labor market outcomes and income distribution characteristics resulting from gender differences; Gender-related economic outcomes: the "feminization of poverty," persistent male-female wage differential, expanding proportion of female headed households.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

LST3070 Economics And Law **Credit Hours: 3**

Methodologies of Law and Economics; Legal institutions; Economic Theory of Property; Property Rights; Contract Theory; Economic Theory of Torts and Tort Law, Common Law Process; Economics of Crime and Punishment.

LST3080 Economics Of Crime **Credit Hours: 3**

Study of crime as an economic activity; costs of crime to the community; economic approach to crime reduction.

LST3180 Mass Communication Law **Credit Hours: 4**

Case studies and readings in libel, privacy, access and other legal issues arising from constitutional, judicial and administrative laws that affect mass communication.

LST3500 Proseminar II **Credit Hours: 1**

For Junior and Senior majors in LST: discussion among faculty and students of the interdisciplinary study of law and LST program development. Topics vary, may be repeated for credit.

Prerequisites: LST 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

LST3510 Constitutional Law I **Credit Hours: 3**

The development of the American legal system and the implications of judicial decisions affecting the institutions and powers of government, the federal system and the relationship of the individual to government.

Prerequisites: PSC 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

LST3520 Constitutional Law II **Credit Hours: 3**

The development of the American legal system and the implications of judicial decisions affecting the institutions and powers of government, the federal system and the relationship of the individual to government.

Prerequisites: PSC 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

LST3550 Principles Of Law **Credit Hours: 3**

An overview of law, legal procedures and the legal professions.

LST3710 Psychology And The Law **Credit Hours: 3**

Emphasizes the utilization of theoretical and empirical notions of psychological science as they apply to both civil and criminal law.

LST3720 Philosophy Of Law **Credit Hours: 3**

A study of philosophical issues raised by law such as the relation of law to morality, obligation to obey the law, paternalism, censorship and free speech.

LST3750 Social And Political Philosophy **Credit Hours: 3**

A study of classic and contemporary treatments of justice, authority, the relations between individual and community, the meaning of freedom and equality, power and violence, and race and gender.

LST3760 Crime And Punishment **Credit Hours: 3**

A philosophical study of topics such as crime, responsibility, justice and punishment. Special attention is paid to current practices in the criminal justice system.

LST3800 Sexual Politics **Credit Hours: 3**

This course examines sexual politics through studying canonical literature of Western political theory, feminism and postmodern theory.

LST3810 Political Geography **Credit Hours: 3**

An examination of geopolitical and geostrategic issues at the nation-state and international level.

LST3820 Contemporary Political Ideas **Credit Hours: 3**

Surveys trends in 20th century political and social thought, including critical theory, post-structuralist theory, feminism and anti-racist politics. Particular issues addressed include bureaucracy, mass society, state and civil violence, and identity politics.

LST3860 Gender And Geography **Credit Hours: 3**

Traces the development and institutionalization of gender roles and how these influence spatial decisions and the formation of perceptual landscapes.

LST3980 Special Topics **Credit Hours: 3**

Special topics relating to issues in Law and Social Thought. Topics vary by instructor, may be repeated for credit.

Prerequisites: LST 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

LST4170 Law And Society **Credit Hours: 3**

Dynamics of law and legal institutions; the relationship of sociocultural changes in substantive and procedural aspects of law to the concept of justice, and to the social control of deviance.

LST4490 Witchcraft And Magic In Medieval And Early Modern Europe **Credit Hours: 3**

Witchcraft, religion and magic in western Europe from the 12th through 17th centuries, focusing on the origins of witchcraft belief, diabolical magic, the witchcraze and its decline.

LST4530 Civil Rights **Credit Hours: 3**

A study of judicial policy-making and administrative implementation of decisions affecting racial issues, freedom of expressions, national security and criminal procedures.

LST4550 Issues In Contemporary Law **Credit Hours: 3**

Examination of contemporary approaches to the analyses of law and the judicial system with special focus on current issues facing the courts.

LST4570 Legal Issues **Credit Hours: 3**

Topics may include abortion, three strikes sentencing, homosexual rights, hate speech and decriminalizing narcotics. Emphasizes liberal/conservative ideology.

LST4580 International Law **Credit Hours: 3**

An examination of the legal status of nation states and dependencies and the rules concerning international diplomacy, treatment of persons and peaceful settlement of disputes.

LST4710 Criminology **Credit Hours: 3**

Crime and criminal behavior: nature, types and extent of crime, societal reactions; problems in research and theory, prevention, control and treatment.

LST4740 Issues In Crime **Credit Hours: 3**

Topics may include legalizing drugs, police violence, please bargaining, death sentence and mandatory sentencing. Emphasizes liberal/conservative ideology.

LST4820 Anthropology Of Religion **Credit Hours: 3**

A cross-cultural approach to the description and aliases of magical and religious beliefs and practices in Asia, Africa, Latin America and Indigenous North America.

LST4830 Theory Of Public History **Credit Hours: 3**

The definition, philosophy and evolution of public history as well as the current literature and debates within the field. Public history is the application of historical knowledge and methodology beyond academe.

LST4900 Seminar In Law And Social Thought **Credit Hours: 3**

Advanced seminar for the interdisciplinary study of law in society. Topics vary by instructor, may be repeated for credit. Required of LST majors.

Prerequisites: LST 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

LST4940 Field Experience **Credit Hours: 1-6**

Community work, internship, or field study relating to law and society. May be repeated for credit.

Prerequisites: LST 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

LST4980 Special Topics **Credit Hours: 3**

Advanced seminar in Law and Social Thought. Topics vary by instructor, may be repeated for credit. Required of LST majors.

Prerequisites: LST 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

LST4990 Capstone in Law and Social Thought **Credit Hours: 3**

The Capstone course in Law and Social Thought is an interdisciplinary, collaboratively taught seminar thematically organized around a topic in the study of law.

Prerequisites: LST 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

MARS1010 Marketing Principles **Credit Hours: 3**

A theoretical and practical understanding of marketing issues from both a micro and macro perspective: environmental forces, ethical and social responsibility, consumer buying behavior, target market analysis, market segmentation, branding and packaging, promotion, advertising, personal selling and pricing decisions.

MARS1110 Personal Selling **Credit Hours: 3**

Emphasis is placed on the effective techniques of personal selling. These include: prospecting, qualifying customers, building product knowledge, understanding presentation techniques, overcoming customer objections, closing sales and customer follow-up. Special emphasis is placed on selling as a persuasive marketing activity.

MARS1720 Sales Force Management **Credit Hours: 3**

Analysis and examination of the sales management function in the consumer and industrial markets. Organizing, recruiting, selecting, hiring, staffing, training, compensating and evaluating an outside sales force.

MARS2010 Marketing Communication **Credit Hours: 3**

Focuses on developing integrated marketing communications plan. Includes role of advertising strategy, audience analysis, development of media plans, creative execution, coordination of sales promotion techniques and publicity tools.

Prerequisites: MARS 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

MARS2110 Marketing Management **Credit Hours: 3**

Primary focus is on development of marketing strategies. Students required to develop a marketing plan based on marketing opportunity of personal choice.

Prerequisites: MARS 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

MARS2120 Industrial Marketing Management **Credit Hours: 3**

Primary focus on development of strategies for business-to-business markets. Case approach used to study distinctions between industrial and consumer demand and general characteristics that influence industrial buying behavior.

Prerequisites: MARS 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

MARS2210 Services Marketing **Credit Hours: 3**

Focuses on framework for understanding key issues/differences of services marketing. Nature of services marketing presented through traditional 4 Ps supplemented by issues unique to service encounters. Brings together principles of service marketing, human resources management and operations management.

Prerequisites: MARS 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

MARS2940 Marketing And Sales Field Experience **Credit Hours: 3**

Independent field experience is designed to provide a student the opportunity to observe marketing and/or sales and retail management activities first-hand in an appropriate employment setting. Students meet with the instructor at prearranged times to discuss progress and learning outcomes.

Prerequisites: MARS 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

MARS2990 Independent Study **Credit Hours: 1-3**

Students will study a marketing/retail-related subject mutually agreed upon between the student and instructor. The format may include lecture, computer lab and/or practical experience.

MATH0910 Elementary Algebra I **Credit Hours: 4**

This course covers a review of operations with whole numbers, fractions, decimals, ratios and percents. Also covered are integer operations, variables, algebraic expressions, graphs and solving linear equations. Problem solving techniques are emphasized. No credit toward graduation. Grades do not apply to student's GPA.

MATH0950 Elementary Algebra II **Credit Hours: 4**

This course introduces the student to functions, solving systems of linear equations, graphing, polynomials, rational and quadratic functions, rational numbers and mathematics modeling. Problem solving techniques are emphasized. No credit toward graduation. Grades do not apply to student's GPA.

Prerequisites: MATH 0910 FOR LEVEL UG WITH MIN. GRADE OF D- OR MTEA FOR MIN. SCORE OF 05

MATH0980 Intermediate Algebra **Credit Hours: 4**

Review of algebra, linear and quadratic equations, graphs, exponents and radicals, exponential and log functions, simultaneous equations. No credit toward graduation. Course is not applicable toward the undergraduate major in mathematics.

Prerequisites: MATH 0950 FOR LEVEL UG WITH MIN. GRADE OF D- OR MTEA FOR MIN. SCORE OF 10

MATH0990 Independent Study **Credit Hours: 1-4**

Course for students needing to complete only a portion of a developmental math class (MATH 0900 - 0980).

MATH1010 Applied Business Mathematics **Credit Hours: 3**

Mathematics used in solving business problems related to simple and compound interest, annuities, payroll, taxes, promissory notes, consumer credit, insurance, markup and markdown, mortgage loans, discounting, financial statement ratios and break-even analysis. Course is not applicable toward the undergraduate Mathematics major requirements.

MATH1180 Mathematics For Liberal Arts **Credit Hours: 3**

A general liberal arts course for non-science students designed to acquaint students with the nature of mathematics and applications such as probability, statistics, functions and graphs. Course is not applicable toward the undergraduate Mathematics major requirements.

Prerequisites: MATH 0980 FOR LEVEL UG WITH MIN. GRADE OF D- OR MTCA FOR MIN. SCORE OF 05 OR MTEA FOR MIN. SCORE OF 08 OR A02 FOR MIN. SCORE OF 16 OR S02 FOR MIN. SCORE OF 400

MATH1200 MATHEMATICAL MODELING AND PROBLEM SOLVING **Credit Hours: 4**

Mathematical modeling of data using linear, quadratic, rational, and radical functions in their numerical, symbolic, graphic, and verbal forms. Problem solving methods and strategies will be emphasized. Course is not applicable toward the undergraduate mathematics major requirements. Prerequisite: Satisfactory placement test score or satisfactory ACT score. Math core course.

MATH1210 Mathematics For Education Majors I **Credit Hours: 3**

Principles of elementary number theory, base systems, development of the rational numbers and problem solving techniques. Course is not applicable toward the undergraduate Mathematics major requirements.

Prerequisites: MATH 0980 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 0990 FOR LEVEL UG WITH MIN. GRADE OF D- OR MTCA FOR MIN. SCORE OF 10 OR MTEA FOR MIN. SCORE OF 12 OR A02 FOR MIN. SCORE OF 20 OR S02 FOR MIN. SCORE OF 480

MATH1220 Mathematics For Education Majors II **Credit Hours: 3**

Development of the real numbers, probability, statistics, informal geometry, geometric figures and measurements. Course is not applicable toward the undergraduate Mathematics major requirements.

Prerequisites: MATH 1210 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH1260 Calculus For Business With Applications I **Credit Hours: 3**

Equations and their graphs, linear systems, vectors and matrices, introduction to linear optimization, exponentials and logs, elementary probability, limits, functions, introductions to differential calculus. Course is not applicable toward the undergraduate Mathematics major requirements.

Prerequisites: MATH 0980 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 0990 FOR LEVEL UG WITH MIN. GRADE OF D- OR MTCA FOR MIN. SCORE OF 10 OR MTEA FOR MIN. SCORE OF 12 OR A02 FOR MIN. SCORE OF 20 OR S02 FOR MIN. SCORE OF 480

MATH1270 Calculus For Business With Applications II **Credit Hours: 3**

Continuation of differential calculus and integral calculus with business applications. Course is not applicable toward the undergraduate Mathematics major requirements.

Prerequisites: MATH 1260 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH1320 College Algebra **Credit Hours: 3**

Number system; elementary theory of equations and inequalities; functions and relations; exponentials and logarithms; systems of equations and topics in analytic geometry. Course is not applicable toward the undergraduate Mathematics major requirements. No credit given for students who have credit for MATH 1340.

Prerequisites: MATH 0980 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 0990 FOR LEVEL UG WITH MIN. GRADE OF D- OR MTCA FOR MIN. SCORE OF 10 OR MTEA FOR MIN. SCORE OF 12 OR A02 FOR MIN. SCORE OF 20 OR S02 FOR MIN. SCORE OF 480

MATH1330 Trigonometry **Credit Hours: 3**

Definitions and graphs of trigonometric functions and their inverses, solving trigonometric equations, applications and topics in analytic geometry. Course is not applicable toward the undergraduate Mathematics major requirements. No credit given for students who have credit for MATH 1340.

Prerequisites: MATH 0980 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 0990 FOR LEVEL UG WITH MIN. GRADE OF D- OR MTCA FOR MIN. SCORE OF 10 OR MTEA FOR MIN. SCORE OF 12 OR A02 FOR MIN. SCORE OF 20 OR S02 FOR MIN. SCORE OF 480

MATH1340 College Algebra And Trigonometry **Credit Hours: 4**

Functions and graphs, exponential and logarithmic functions, trigonometric functions and applications, systems of equations and topics in analytic geometry. No credit for students who have credit for MATH 1320 or 1330.

MATH1750 Calculus For The Life Sciences With Applications I **Credit Hours: 4**

Definitions of trigonometric functions, solving trigonometric equations, functions, limits and derivatives, exponential and logarithmic functions, and applications. Course is not applicable toward the undergraduate Mathematics major requirements.

Prerequisites: MATH 1320 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1340 FOR LEVEL UG WITH MIN. GRADE OF D- OR MTCA FOR MIN. SCORE OF 12 OR A02 FOR MIN. SCORE OF 22 OR S02 FOR MIN. SCORE OF 520

MATH1760 Calculus For The Life Sciences With Applications II **Credit Hours: 3**

Indefinite and definite integrals, probability, functions of several variables, least squares, differential equations. Course is not applicable toward the undergraduate Mathematics major requirements.

Prerequisites: MATH 1750 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1850 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1920 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1830 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH1780 Introduction To Maple **Credit Hours: 1**

Brief review of the computer algebra system Maple; graphing; simplifying algebraic expressions; finding solutions of equations symbolically, graphically and numerically; various typical problems from precalculus and beginning calculus.

MATH1830 Calculus I For Mathematicians, Scientists And Educators **Credit Hours: 4**

Limits of sequences and functions, derivatives, Mean Value Theorem, curve sketching, definite and indefinite integral, Fundamental Theorem of Calculus. Of interest to students requiring a conceptual understanding of calculus. Not for major credit.

Prerequisites: MATH 1340 FOR LEVEL UG WITH MIN. GRADE OF D- OR (MATH 1320 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1330 FOR LEVEL UG WITH MIN. GRADE OF D-)

MATH1840 Calculus II For Mathematicians, Scientists And Educators **Credit Hours: 4**

Techniques of integration, polar coordinates and calculus or plane curves, infinite series and Taylor series. Of interest to students requiring a conceptual understanding of calculus.

Prerequisites: MATH 1830 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1850 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1920 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH1850 Single Variable Calculus I **Credit Hours: 4**

Limits, differentiation, Fundamental Theorem of Calculus, Mean Value Theorem, curve sketching, maxima/minima, definite and indefinite integrals, applications. Course is not applicable toward the undergraduate Mathematics major requirements.

MATH1860 Single Variable Calculus II **Credit Hours: 4**

Inverse functions, techniques and applications of integration, polar coordinates, sequences and series.

Prerequisites: MATH 1830 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1850 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1920 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH1890 Elementary Linear Algebra **Credit Hours: 3**

Matrix algebra, systems of linear equations, determinants, vector spaces, linear transformations, eigenvalues and eigenvectors, and applications.

Prerequisites: MATH 1840 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1860 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1930 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH1920 Honors Calculus I **Credit Hours: 4**

Theory and applications of derivatives and integrals of a function of one variable.

MATH1930 Honors Calculus II **Credit Hours: 4**

Theory and applications of derivatives and integrals of a function of one variable.

Prerequisites: MATH 1920 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH1980 Topics In Mathematics **Credit Hours: 1-4**

Selected topics in mathematics.

MATH2450 Calculus For Engineering Technology I **Credit Hours: 4**

Differential calculus of algebraic and trigonometric functions, including limits, curve sketching, motion, maxima/minima, related rates, integral calculus of algebraic functions.

MATH2460 Calculus For Engineering Technology II **Credit Hours: 4**

Transcendental functions, methods of integration, applications of the integral, polar coordinates, vectors and vector operation, lines and panes, parametric equations.

Prerequisites: MATH 2450 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1850 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1920 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH2600 Introduction To Statistics **Credit Hours: 3**

An introduction to descriptive and inferential statistical methods including point and interval estimation, hypothesis testing and regression. No credit allowed if taken after MATH 3610 or 4680; credit not allowed for both MATH 2600 and 2630. Course is not applicable toward the undergraduate Mathematics major requirements.

Prerequisites: MATH 0980 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 0990 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1180 FOR LEVEL UG WITH MIN. GRADE OF D- OR MTCA FOR MIN. SCORE OF 10 OR MTEA FOR MIN. SCORE OF 12 OR A02 FOR MIN. SCORE OF 20 OR S02 FOR MIN. SCORE OF 480

MATH2620 Discrete Probability **Credit Hours: 3**

Sample spaces, events, counting techniques, probability distributions and their applications. No credit if taken after 4680. Course is not applicable toward the undergraduate Mathematics major requirements.

Prerequisites: MATH 0980 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 0990 FOR LEVEL UG WITH MIN. GRADE OF D- OR MTCA FOR MIN. SCORE OF 10 OR MTEA FOR MIN. SCORE OF 12 OR A02 FOR MIN. SCORE OF 20 OR S02 FOR MIN. SCORE OF 480

MATH2630 Statistics For Business And Economics **Credit Hours: 3**

An introduction to descriptive and inferential statistical methods, including numerical and graphical data description, basic probability concepts and distributions, point and interval estimation and hypothesis testing. Credit not allowed for both MATH 2600 & 2630. Course is not applicable toward the undergraduate Mathematics major requirements.

Prerequisites: MATH 1270 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH2850 Elementary Multivariable Calculus **Credit Hours: 4**

Geometry of functions of several variables, partial differentiation, multiple integrals, vector algebra and calculus (including Theorems of Green, Gauss and Stokes), and applications.

Prerequisites: MATH 1840 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1860 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1930 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH2890 Numerical Methods And Linear Algebra **Credit Hours: 3**

Topics include: matrices, characteristic roots, solution of linear and nonlinear equations, curve fitting, integration, differentiation and numerical solution of ordinary differential equations. MATLAB is introduced and used to analyze problems.

Prerequisites: MATH 1830 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1850 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1920 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH2950 Honors Calculus III **Credit Hours: 4**

Theory and applications of the calculus of functions of two or more variables. The fundamental theorems of vector calculus.

Prerequisites: MATH 1930 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH3000 Symbolic Logic **Credit Hours: 3**

A study of propositional and predicate logic, the symbolic techniques used to evaluate deductive arguments. Topics may include computability, set theory, Bayesianism and other formal systems with mathematical or philosophical relevance.

Prerequisites: MATH 1180 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH3190 Introduction To Mathematical Analysis **Credit Hours: 3**

This course is intended to introduce students to higher mathematics. The techniques of proving theorems, including proofs by induction, will be emphasized. The course will include elementary set theory and equivalence relations and a discussion of the real number system. Proofs of some basic theorems from algebra, calculus or number theory will be studied.

Prerequisites: MATH 1840 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1860 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1930 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH3200 Number Theory **Credit Hours: 3**

Divisibility, congruences, diophantine equations, numerical functions, quadratic reciprocity.

Prerequisites: MATH 3190 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH3320 Introduction To Abstract Algebra **Credit Hours: 3**

Sets and mappings, integers, groups, rings and applications.

Prerequisites: MATH 3190 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH3440 Fundamentals Of Modern Geometry I **Credit Hours: 3**

Primarily for students in secondary education. Euclidean geometry from a modern viewpoint, constructions and transformations.

Prerequisites: MATH 1840 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1860 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1930 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH3450 Fundamentals Of Modern Geometry II **Credit Hours: 3**

Primarily for students in secondary education. Euclidean geometry from a modern viewpoint, constructions and transformations.

Prerequisites: MATH 3440 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH3510 History Of Mathematics **Credit Hours: 3**

Contributions to the development of mathematics by various groups and individuals from the earliest history to the present, with special emphasis on the elementary branches: arithmetic, algebra, geometry and calculus.

Prerequisites: MATH 1840 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1860 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1930 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH3610 Statistical Methods I **Credit Hours: 3**

Basic probability, sampling, descriptive statistics, statistical inference, regression, correlation, analysis of variance, goodness of fit, model formulation and testing.

Prerequisites: MATH 1840 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1860 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1930 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 3190 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH3620 Statistical Methods II **Credit Hours: 3**

Multiple regression, analysis of covariance, standard experimental designs, contingency tables, nonparametric methods and methods for sample surveys.

Prerequisites: MATH 3610 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH3820 Honors Elementary Differential Equations **Credit Hours: 3**

Theory, applications and systems of ordinary differential equations.

Prerequisites: MATH 2950 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH3860 Elementary Differential Equations **Credit Hours: 3**

An introduction to the analysis and solution of ordinary differential equations with emphasis on the fundamental techniques for solving linear differential equations.

Prerequisites: MATH 2850 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 2950 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH3920 Junior Readings **Credit Hours: 1-3**

Selected subjects in mathematics of special interest to students and the professor.

MATH4300 Linear Algebra I **Credit Hours: 3**

Theory of vector spaces and linear transformations, including such topics as matrices, determinants, inner products, eigenvalues and eigenvectors, and rational and Jordan canonical forms.

Prerequisites: MATH 3190 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4310 Linear Algebra II **Credit Hours: 3**

Hermitian and normal operators, multilinear forms, spectral theorem and other topics.

Prerequisites: MATH 4300 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4330 Abstract Algebra I **Credit Hours: 3**

Arithmetic of the integers, unique factorization and modular arithmetic; group theory including normal subgroups, factor groups, cyclic groups, permutations, homomorphisms, the isomorphism theorems, abelian groups and p-groups.

Prerequisites: MATH 3190 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4340 Abstract Algebra II **Credit Hours: 3**

Ring theory including integral domains, field of quotients, homomorphisms, ideals, Euclidean domains, polynomial rings, vector spaces, roots of polynomials and field extensions.

Prerequisites: MATH 4330 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4350 Applied Linear Algebra **Credit Hours: 3**

Matrices, systems of equations, vector spaces, linear transformations, determinants, eigenvalues and eigenvectors, generalized inverses, rank, numerical methods and applications to various areas of science.

Prerequisites: MATH 1890 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 2890 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4380 Discrete Structures And Analysis Of Algorithms **Credit Hours: 3**

Discrete mathematical structures for applications in computer science such as graph theory, combinatorics, and groups theory, asymptotics, recurrence relations and analysis of algorithms.

Prerequisites: MATH 3320 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 4330 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4450 Introduction To Topology I **Credit Hours: 3**

Metric spaces, topological spaces, continuous maps, bases and subbases, closure and interior operators, products, subspaces, sums, quotients, separation axioms, compactness and local compactness.

Prerequisites: MATH 3190 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4460 Introduction To Topology II **Credit Hours: 3**

Connectedness and local connectedness, convergence, metrization, function spaces. The fundamental groups and its properties, covering spaces, classical applications, e.g. Jordan Curve Theorem, Fundamental Theorem of Algebra, Brouwer's Fixed Point Theorem.

Prerequisites: MATH 4450 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 3320 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 4330 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4540 Classical Differential Geometry I **Credit Hours: 3**

Smooth curves in Euclidean space including the Frenet formulae. Immersed surfaces with the Gauss map, principal curvatures and the fundamental forms. Special surfaces including ruled surfaces and minimal surfaces. Intrinsic Geometry including the Gauss Theorem Egregium.

Prerequisites: MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 3820 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4550 Classical Differential Geometry II **Credit Hours: 3**

Tensors, vector fields, and the Cartan approach to surface theory, Bonnet's Theorem and the construction of surfaces via solutions of the Gauss Equation. Geodesics parallel transport, and Jacobi Fields. Theorems of a global nature such as Hilbert's Theorem or the Theorem of Hopf-Rinow.

Prerequisites: MATH 4540 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4600 Applications Of Statistics I **Credit Hours: 3**

Real data applications of statistical methods. Emphasis is placed on exploratory data analysis and the use of computing facilities to analyze data and produce statistical reports. Statistical packages used include: MINITAB, SAS, and/or S-PLUS; programming is performed in C or Fortran.

MATH4610 Applications Of Statistics II **Credit Hours: 3**

Continuation of Applications of Statistics I.

Prerequisites: MATH 4600 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4640 Statistical Computing **Credit Hours: 3**

Error analysis of statistical algorithms. Numerical linear algebra for linear models. Approximation methods for distribution function probabilities and quantiles. Uniform and non-uniform random number generation. Introduction to simulation methods.

MATH4680 Introduction To Theory Of Probability **Credit Hours: 3**

Probability spaces, random variables, probability distributions, moments and moment generating functions, limit theorems, transformations and sampling distributions.

Prerequisites: (MATH 3190 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 4350 FOR LEVEL UG WITH MIN. GRADE OF D-)

MATH4690 Introduction To Mathematical Statistics **Credit Hours: 3**

Sampling distributions, point and interval estimation, hypothesis testing, regression and analysis of variance.

Prerequisites: MATH 4680 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4710 Methods Of Numerical Analysis I **Credit Hours: 3**

Floating point arithmetic; polynomial interpolation; numerical solution of nonlinear equations; Newton's method. Likely topics include: numerical differentiation and integration; solving systems of linear equations; Gaussian elimination; LU decomposition; Gauss-Seidel method.

Prerequisites: MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 3820 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4720 Methods Of Numerical Analysis II **Credit Hours: 3**

Likely topics include: Computation of eigenvalues and eigenvectors; solving systems of nonlinear equations; least squares approximations; rational approximations; cubic splines; fast Fourier transforms; numerical solutions to initial value problems; ordinary and partial differential equations.

Prerequisites: MATH 4710 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4740 Advanced Applied Mathematics I **Credit Hours: 3**

Series and numerical solutions to ordinary differential equations, special functions, orthogonal functions, Sturm-Liouville problems, self-adjointness, vector analysis.

Prerequisites: MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 3820 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4750 Advanced Applied Mathematics II **Credit Hours: 3**

Continuation of vector analysis, introduction to complex analysis, partial differential equations, Fourier series and integrals.

Prerequisites: MATH 4740 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4780 Advanced Calculus **Credit Hours: 3**

Extrema for functions of one or more variables, Lagrange multipliers, indeterminate forms, inverse and implicit function theorems, uniform convergences, power series, transformations, Jacobians, multiple integrals.

Prerequisites: MATH 2850 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 2950 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4800 Ordinary Differential Equations **Credit Hours: 3**

Modern theory of differential equations; transforms and matrix methods; existence theorems and series solutions; and other selected topics.

Prerequisites: MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 3820 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4810 Partial Differential Equations **Credit Hours: 3**

First and second order equations; numerical methods; separation of variables; solutions of heat and wave equations using eigenfunction techniques; and other selected topics.

Prerequisites: MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 3820 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4820 Introduction To Real Analysis I **Credit Hours: 3**

A rigorous treatment of the Calculus in one and several variables. Topics to include: the real number system; sequences and series; elementary metric space theory including compactness, connectedness and completeness; the Riemann Integral.

Prerequisites: MATH 3190 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4830 Introduction To Real Analysis II **Credit Hours: 3**

Differentiable functions on Rn; the Implicit and Inverse Function Theorems; sequences and series of continuous functions; Stone-Weierstrass Theorem; Arzela-Ascoli Theorem; introduction to measure theory; Lebesgue integration; the Lebesque Dominated Convergence Theorem.

Prerequisites: MATH 4820 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4860 Calculus Of Variations And Optimal Control I **Credit Hours: 3**

Conditions for an extrema (Euler's equations, Erdman corner conditions, conditions of Legendre, Jacobi, and Weierstrass, fields of extremals, Hilbert's invariant integral); Raleigh-Ritz method; isoperimetric problems; Lagrange, Mayer-Bolza problems. Recommended: MATH 4820.

Prerequisites: MATH 1890 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4870 Calculus Of Variations And Optimal Control II **Credit Hours: 3**

Pontryagin's maximum principle; necessary and sufficient conditions for optimal control, controllability, time optimal control, existence of optimal controls, relationship to the calculus of variations.

Prerequisites: MATH 4860 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4880 Complex Variables **Credit Hours: 3**

Analytic functions; Cauchy's theorem; Taylor and Laurent series; residues; contour integrals; conformal mappings, analytic continuation and applications.

Prerequisites: MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 3820 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH4900 Senior Seminar **Credit Hours: 1-3**

Seminar on a topic not usually covered in a course. Library research and paper to be expected.

MATH4920 Senior Readings **Credit Hours: 1-3**

Selected subjects in mathematics of special interest to students and the professor. (By arrangement with professor and student.)

MATH5010 Functions And Modeling For Middle Grade Mathematics **Credit Hours: 3**

Introduction to the theory of functions through modeling. Subjects include polynomial, exponential, logarithmie and rational functions, interpolation and modeling of data sets though least squares and other methods. Graduate math credit for education students only.

MATH5040 Concepts Of Calculus For Middle Grade Mathematics **Credit Hours: 3**

Introduction to the basic idea of calculus. Subjects include limits, continuity, the derivative and its applications, indefinite and definite integral, Fundamental Theorem of Calculus, evaluation of integrals. Graduate math credit for education students only.

MATH5060 Number Theory Concepts For Middle Grade Mathematics **Credit Hours: 3**

Introduction to basic number theory. Subjects include history of number theory, prime numbers, unique factorization, Euclidean algorithm, Pythagorean relations, number systems, and transformations. Graduate math credit for education students only.

MATH5070 Geometry Concepts For Middle School Mathematics **Credit Hours: 3**

Descriptive geometry in 2 and 3 dimensions, use of axioms and definitions in the proof theorems, formal Euclidean geometry, transformations. Graduate math credit for education students only.

MATH5080 History Of Mathematics For Middle Grade Mathematics **Credit Hours: 3**

Study of the history of mathematics from antiquity to the 20th century concentrating on the development of arithmetic, algebra, geometry and calculus. Graduate math credit for education students only.

MATH5110 Probability Concepts For Middle Grade Mathematics **Credit Hours: 3**

Introduction to the theory of probability, counting principles and combinatorics, risk, coincidence, expectation and conditional probability, probability distributions. Graduate math credit for education students only.

MATH5120 Statistics Concepts For Middle Grade Mathematics **Credit Hours: 3**

Introduction to the fundamental ideas of statistics, including sampling techniques, descriptive, variance, confidence intervals, correlation and regression. Graduate math credit for education students only.

MATH5220 Theory Of Interest **Credit Hours: 3**

This course covers the measurement of interest, certain annuities, yield rates, amortization and sinking funds, bonds and other securities and application of interest theory.

MATH5300 Linear Algebra I **Credit Hours: 3**

Theory of vector spaces and linear transformations, including such topics as matrices, determinants, inner products, eigenvalues and eigenvectors, and rational and Jordan canonical forms.

MATH5310 Linear Algebra II **Credit Hours: 3**

Hermitian and normal operators, multilinear forms, spectral theorem and other topics.

Prerequisites: MATH 5300 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH5330 Abstract Algebra I **Credit Hours: 3**

Arithmetic of the integers, unique factorization and modular arithmetic; group theory including normal subgroups, factor groups, cyclic groups, permutations, homomorphisms, the isomorphism theorems, abelian groups and p-groups.

Prerequisites: MATH 3190 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH5340 Abstract Algebra II **Credit Hours: 3**

Ring theory including integral domains, field of quotients, homomorphisms, ideals, Euclidean domains, polynomial rings, vector spaces, roots of polynomials and field extensions.

Prerequisites: MATH 5330 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH5350 Applied Linear Algebra **Credit Hours: 3**

Matrices, systems of equations, vector spaces, linear transformations, determinants, eigenvalues and eigenvectors, generalized inverses, rank, numerical methods and applications to various areas of science.

Prerequisites: MATH 1890 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH5380 Discrete Structures And Analysis Algorithms **Credit Hours: 3**

Discrete mathematical structures for applications in computer science such as graph theory, combinatorics, groups theory, asymptotics, recurrence relations and analysis of algorithms.

Prerequisites: MATH 3320 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 5330 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH5450 Introduction To Topology I **Credit Hours: 3**

Metric spaces, topological spaces, continuous maps, bases and sub-bases, closure and interior operators, products, subspaces, sums, quotients, separation axioms, compactness and local compactness.

Prerequisites: MATH 3190 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH5460 Introduction To Topology II **Credit Hours: 3**

Connectedness and local connectedness, convergence, metrization, function spaces. The fundamental groups and its properties, covering spaces, classical applications, e.g. Jordan Curve Theorem, Fundamental Theorem of Algebra, Brouwer's Fixed Point Theorem.

Prerequisites: MATH 5450 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH5540 Classical Differential Geometry I **Credit Hours: 3**

Smooth curves in Euclidean space including the Frenet formulae. Immersed surfaces with the Gauss map, principal curvatures and the fundamental forms. Special surfaces including ruled surfaces and minimal surfaces. Intrinsic Geometry including the Gauss Theorem Egregium.

Prerequisites: MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH5550 Classical Differential Geometry II **Credit Hours: 3**

Tensors, vector fields and the Cartan approach to surface theory, Bonnet's Theorem and the construction of surfaces via solutions of the Gauss Equation. Geodesics, parallel transport and Jacobi Fields. Theorems of a global nature such as Hilbert's Theorem or the Theorem of Hopf-Rinow.

Prerequisites: MATH 5540 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH5600 Applications Of Statistics I **Credit Hours: 2**

Real data applications of statistical methods. Emphasis is placed on exploratory data analysis and the use of computing facilities to analyze data and produce statistical reports. Statistical packages used include MINITAB, SAS and S-Plus.

MATH5610 Applications Of Statistics II **Credit Hours: 2**

Continuation of Applications of Statistics II.

Prerequisites: MATH 5600 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH5620 Linear Statistical Models **Credit Hours: 3**

Multiple regression, analysis of variance and covariance, general linear models and model building for linear models. Experimental designs include one-way, randomized block, Latin square, factorial and nested designs.

Prerequisites: MATH 6650 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH5630 Theory And Methods Of Sample Surveys **Credit Hours: 3**

The mathematical basis to estimation in various sampling contexts, including probability proportional to size sampling, stratified sampling, two-stage cluster sampling and double sampling, is developed.

Prerequisites: MATH 5680 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH5640 Statistical Computing **Credit Hours: 3**

Error analysis of statistical algorithms. Numerical linear algebra for linear models. Approximation methods for distribution function probabilities and quantiles. Uniform and non-uniform random number generation. Introduction to simulation methods.

MATH5680 Introduction To Theory Of Probability **Credit Hours: 3**

Probability spaces, random variables, probability distributions, moments and moment generating functions, limit theorems, transformations and sampling distributions.

Prerequisites: (MATH 3190 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 5350 FOR LEVEL GR WITH MIN. GRADE OF D-)

MATH5690 Introduction To Mathematical Statistics **Credit Hours: 3**

Sampling distributions, point estimation, interval estimation, hypothesis testing, regression and analysis of variance.

Prerequisites: MATH 5680 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH5710 Methods Of Numerical Analysis I **Credit Hours: 3**

Floating point arithmetic; polynomial interpolation; numerical solution of nonlinear equations; Newton's method. Likely topics include: numerical differentiation and integration; solving systems of linear equations; Gaussian elimination; LU decomposition; Gauss-Seidel method.

MATH5720 Methods Of Numerical Analysis II **Credit Hours: 3**

Likely topics include: Computation of eigenvalues and eigenvectors; solving systems of nonlinear equations; least squares approximations; rational approximations; cubic splines; fast Fourier transforms; numerical solutions to initial value problems; ordinary and partial differential equations.

Prerequisites: MATH 5710 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH5740 Advanced Applied Mathematics I **Credit Hours: 3**

Series and numerical solutions to ordinary differential equations, special functions, orthogonal functions, Sturm-Liouville Problems, self-adjointness, vector analysis.

Prerequisites: MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH5750 Advanced Applied Mathematics II **Credit Hours: 3**

Continuation of vector analysis, introduction to complex analysis, partial differential equations, Fourier series and integrals.

Prerequisites: MATH 5740 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH5780 Advanced Calculus **Credit Hours: 3**

Extrema for functions of one or more variables, Lagrange multipliers, indeterminate forms, inverse and implicit function theorems, uniform convergences, power series, transformations, Jacobians, multiple integrals.

Prerequisites: MATH 2850 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH5800 Ordinary Differential Equations **Credit Hours: 3**

Modern theory of differential equations; transforms and matrix methods; existence theorems and series solutions; and other selected topics.

Prerequisites: MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH5810 Partial Differential Equations **Credit Hours: 3**

First and second order equations; numerical methods; separation of variables; solutions of heat and wave equations using eigenfunction techniques; and other selected topics.

Prerequisites: MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH5820 Introduction To Real Analysis I **Credit Hours: 3**

A rigorous treatment of the Calculus in one and several variables. Topics to include: the real number system; sequences and series; elementary metric space theory including compactness, connectedness and completeness; the Riemann Integral.

Prerequisites: MATH 3190 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH5830 Introduction To Real Analysis II **Credit Hours: 3**

Differentiable functions on Rn; the Implicit and Inverse Function Theorems; sequences and series of continuous functions; Stone-Weierstrass Theorem; Arsela-Ascoli Theorem; introduction to measure theory; Lebesgue integration; the Lebesgue Dominated Convergence Theorem.

Prerequisites: MATH 5820 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH5860 Calculus Of Variations And Optimal Control Theory I **Credit Hours: 3**

Conditions for an extreme (Euler's equations, Erdman corner conditions, conditions of Legendre, Jacobi and Weierstrass, fields of extremals, Hilbert's invariant integral);); Raleigh-Ritz method; isoperimetric problems; Lagrange, Mayer-Bolza problems. Recommended: MATH 5820.

Prerequisites: MATH 1890 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH5870 Calculus Of Variations And Optimal Control Theory II **Credit Hours: 3**

Pontryagin's maximum principle; necessary and sufficient conditions for optimal control, controllability, time optimal control, existence of optimal controls, relationship to the calculus of variations.

Prerequisites: MATH 5860 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH5880 Complex Variables **Credit Hours: 3**

Analytic functions; Cauchy's theorem; Taylor and Laurent series; residues; contour integrals; conformal mappings, analytic continuation and applications.

Prerequisites: MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH5970 Industrial Math Practicum **Credit Hours: 1**

Students must submit for approval by their adviser a report on the solution of a practical problem involving mathematics. The problem must be drawn from a company, university department of government unit.

MATH5980 Topics In Mathematics **Credit Hours: 3**

Special topics in mathematics.

MATH6180 Linear And Nonlinear Programming **Credit Hours: 3**

Simplex algorithm, ellipsoidal algorithm, Karmarkar's method, interior point methods, elementary convex analysis, optimality conditions and duality for smooth problems, convex programming, algorithms and their convergence.

Prerequisites: MATH 5820 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6190 Infinite Dimensional Optimization **Credit Hours: 3**

Introduction to nonlinear analysis, abstract optimization problems on abstract spaces, applications to calculus of variations, optimal control theory and game theory.

MATH6300 Algebra I **Credit Hours: 3**

Group actions, Sylow's theorems, permutation groups, nilpotent and solvable groups, abelian groups, rings, unique factorization domains, fields.

Prerequisites: MATH 5340 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6310 Algebra II **Credit Hours: 3**

Field extensions, Galois theory, modules, Noetherian and Artinian rings, tensor products, primitive rings, semisimple rings and modules, the Wedderburn-Artin theorem.

Prerequisites: MATH 6300 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6400 Topology I **Credit Hours: 3**

Topological spaces, continuous functions, compactness, product spaces, Tychonov's theorem, quotient spaces, local compactness, homotopy theory, the fundamental group, covering spaces.

Prerequisites: MATH 4450 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 5450 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 7450 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6410 Topology II **Credit Hours: 3**

Homology theory, excision, homological algebra, the Brouwer fixed point theorem, cohomology, differential manifolds, orientation, tangent bundles, Sard's theorem, degree theory.

Prerequisites: MATH 6400 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6440 Differential Geometry I **Credit Hours: 3**

Introduction to differential geometry. Topics include differentiable manifolds, vector fields, tensor bundles, the Frobenius theorem, Stokes' theorem, Lie groups.

Prerequisites: MATH 6410 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6450 Differential Geometry II **Credit Hours: 3**

Topics include connections on manifolds, Riemannian geometry, the Gauss-Bonnet theorem. Further topics may include: homogeneous and symmetric spaces, minimal surfaces, Morse theory, comparison theory, vector and principal bundles.

Prerequisites: MATH 6440 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6500 Ordinary Differential Equations **Credit Hours: 3**

Existence, uniqueness and dependence on initial conditions and parameter, nonlinear planar systems, linear systems, Floquet theory, second order equations, Sturm-Liouville theory.

MATH6510 Partial Differential Equations **Credit Hours: 3**

First order quasi-linear systems of partial differential equations, boundary value problems for the heat and wave equation, Dirichlet problem for Laplace equation, fundamental solutions for Laplace, heat and wave equations.

MATH6600 Statistical Consulting I And II **Credit Hours: 2**

Real data applications of various statistical methods, project design and analysis including statistical consulting experience.

MATH6610 Statistical Consulting I And II **Credit Hours: 2**

Real data applications of various statistical methods, project design and analysis including statistical consulting experience.

MATH6620 Categorical Data Analysis **Credit Hours: 3**

Important methods and modeling techniques using generalized linear models and emphasizing loglinear and logit modeling.

Prerequisites: MATH 5680 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6630 Distribution Free And Robust Statistical Methods **Credit Hours: 3**

Statistical methods based on counts and ranks; methods designed to be effective in the presence of contaminated data or error distribution misspecification.

Prerequisites: MATH 5680 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6640 Topics In Statistics **Credit Hours: 3**

Topics selected from an array of modern statistical methods such as survival analysis, nonlinear regression, Monte Carlo methods, etc.

MATH6650 Statistical Inference **Credit Hours: 3**

Estimation, hypothesis testing, prediction, sufficient statistics, theory of estimation and hypothesis testing, simultaneous inference, decision theoretic models.

Prerequisites: MATH 5680 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6670 Measure Theoretic Probability **Credit Hours: 3**

Real analysis, probability spaces and measures, random variables and distribution functions, independence, expectation, law of large numbers, central limit theorem, zero-one laws, characteristic functions, conditional expectations given a s-algebra, martingales.

Prerequisites: MATH 5680 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6680 Theory Of Statistics **Credit Hours: 3**

Exponential families, sufficiency, completeness, optimality, equivariance, efficiency. Bayesian and minimax estimation. Unbiased and invariant tests, uniformly most powerful tests. Asymptotic properties for estimation and testing. Most accurate confidence intervals.

Prerequisites: MATH 5960 FOR LEVEL GR WITH MIN. GRADE OF D- OR (MATH 6650 FOR LEVEL GR WITH MIN. GRADE OF D- AND MATH 6670 FOR LEVEL GR WITH MIN. GRADE OF D-)

MATH6690 Multivariate Statistics **Credit Hours: 3**

Multivariate normal sampling distributions, T tests and MANOVA, tests on covariance matrices, simultaneous inference, discriminant analysis, principal components, cluster analysis and factor analysis.

Prerequisites: MATH 5690 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 6650 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6720 Methods Of Mathematical Physics I **Credit Hours: 3**

Analytic functions, residues, method of steepest descent, complex differential equations, regular singularities, integral representation, real and complex vector spaces, matrix groups, Hilbert spaces, coordinate transformations.

MATH6730 Methods Of Mathematical Physics II **Credit Hours: 3**

Self-adjoint operators, special functions, orthogonal polynomials, partial differential equations and separation of variables, boundary value problems, Green¿s functions, integral equations, tensor analysis, metrics and curvature, calculus of variations, finite groups and group representations.

Prerequisites: MATH 6720 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6800 Real Analysis I **Credit Hours: 3**

Completeness, connectedness and compactness in metric spaces, continuity and convergence, the Stone-Weierstrass Theorem, Lebesgue measure and integration on the real line, convergence theorems, Egorov's and Lusin's theorems, derivatives, functions of bounded variation.

Prerequisites: MATH 4830 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 5830 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6810 Real Analysis II **Credit Hours: 3**

The Vitali covering theorem, absolutely continuous functions, Lebesgue-Stieltjes integration, the Riesz representation theorem , Banach spaces, Lp-spaces, abstract measures, the Radon-Nikodym theorem, measures on locally compact Hausdorff spaces.

Prerequisites: MATH 6800 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6820 Functional Analysis I **Credit Hours: 3**

Topics include Topological vector spaces, Banach spaces, convexity, the Hahn-Banch theorem, weak and strong topologies, Lp spaces and duality.

Prerequisites: MATH 6810 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6830 Functional Analysis II **Credit Hours: 3**

Topics include the Mackey-Ahrens Theorem, Banach algebras, spectra in Banach algebras, commutative Banach algebras, unbounded operators, the spectral theorem, topics in functional analysis.

Prerequisites: MATH 6820 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6840 Complex Analysis I **Credit Hours: 3**

Elementary analytic functions, complex integration, the residue theorem, infinite sequences of analytic functions, Laurent expansions, entire functions.

Prerequisites: MATH 6800 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6850 Complex Analysis II **Credit Hours: 3**

Meromorphic functions, conformal mapping, harmonic functions and the dirichlet problem, the Riemann mapping theorem, monodromy, algebraic functions, Riemann surfaces, elliptic functions and the modular function.

Prerequisites: MATH 6840 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH6930 Colloquium **Credit Hours: 1**

Lectures by visiting mathematicians and staff members on areas of current interest in mathematics.

MATH6940 Proseminar **Credit Hours: 1-5**

Problems and techniques of teaching elementary college mathematics, supervised teaching, seminar in preparation methods.

MATH6960 Master Thesis **Credit Hours: 3-6**

MATH6980 Topics In Mathematical Sciences **Credit Hours: 3**

Special topics in Mathematics or Statistics.

MATH6990 Readings In Mathematics **Credit Hours: 1-5**

Readings in areas of Mathematics of mutual interest to the student and the professor.

MATH7300 Linear Algebra I **Credit Hours: 3**

Theory of vector spaces and linear transformations, including such topics as matrices, determinants, inner products, eigenvalues and eigenvectors, and rational and Jordan canonical forms.

MATH7310 Linear Algebra II **Credit Hours: 3**

Hermitian and normal operators, multilinear forms, spectral theorem and other topics.

Prerequisites: MATH 5300 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH7340 Abstract Algebra II **Credit Hours: 3**

Ring theory including integral domains, field of quotients, homomorphisms, ideals, Euclidean domains, polynomial rings, vector spaces, roots of polynomials and field extensions.

Prerequisites: MATH 5330 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH7350 Applied Linear Algebra **Credit Hours: 3**

Matrices, systems of equations, vector spaces, linear transformations, determinants, eigenvalues and eigenvectors, generalized inverses, rank, numerical methods and applications to various areas of science.

Prerequisites: MATH 1890 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH7380 Discrete Structures And Analysis Algorithms **Credit Hours: 3**

Discrete mathematical structures for applications in computer science such as graph theory, combinatorics, groups theory, asymptotics, recurrence relations and analysis of algorithms.

Prerequisites: MATH 3320 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 5330 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH7450 Introduction To Topology I **Credit Hours: 3**

Metric spaces, topological spaces, continuous maps, bases and sub-bases, closure and interior operators, products, subspaces, sums, quotients, separation axioms, compactness and local compactness.

Prerequisites: MATH 3190 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH7460 Introduction To Topology II **Credit Hours: 3**

Connectedness and local connectedness, convergence, metrization, function spaces. The fundamental groups and its properties, covering spaces, classical applications, e.g. Jordan Curve Theorem, Fundamental Theorem of Algebra, Brouwer's Fixed Point Theorem.

Prerequisites: MATH 5450 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH7540 Classical Differential Geometry I **Credit Hours: 3**

Smooth curves in Euclidean space including the Frenet formulae. Immersed surfaces with the Gauss map, principal curvatures and the fundamental forms. Special surfaces including ruled surfaces and minimal surfaces. Intrinsic Geometry including the Gauss Theorem Egregium.

Prerequisites: MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH7550 Classical Differential Geometry II **Credit Hours: 3**

Tensors, vector fields and the Cartan approach to surface theory, Bonnet's Theorem and the construction of surfaces via solutions of the Gauss Equation. Geodesics, parallel transport and Jacobi Fields. Theorems of a global nature such as Hilbert's Theorem or the Theorem of Hopf-Rinow.

Prerequisites: MATH 5540 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH7600 Applications Of Statistics I **Credit Hours: 2**

Real data applications of statistical methods. Emphasis is placed on exploratory data analysis and the use of computing facilities to analyze data and produce statistical reports. Statistical packages used include MINITAB, SAS and S-Plus.

MATH7610 Applications Of Statistics II **Credit Hours: 2**

Continuation of Applications of Statistics II.

Prerequisites: MATH 5600 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH7620 Linear Statistical Models **Credit Hours: 3**

Multiple regression, analysis of variance and covariance, general linear models and model building for linear models. Experimental designs include one-way, randomized block, Latin square, factorial and nested designs.

Prerequisites: MATH 6650 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH7630 Theory And Methods Of Sample Surveys **Credit Hours: 3**

The mathematical basis to estimation in various sampling contexts, including probability proportional to size sampling, stratified sampling, two-stage cluster sampling and double sampling, is developed.

Prerequisites: MATH 5680 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH7640 Statistical Computing **Credit Hours: 3**

Error analysis of statistical algorithms. Numerical linear algebra for linear models. Approximation methods for distribution function probabilities and quantiles. Uniform and non-uniform random number generation. Introduction to simulation methods.

MATH7680 Introduction To Theory Of Probability **Credit Hours: 3**

Probability spaces, random variables, probability distributions, moments and moment generating functions, limit theorems, transformations and sampling distributions.

Prerequisites: MATH 3190 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH7690 Introduction To Mathematical Statistics **Credit Hours: 3**

Sampling distributions, point estimation, interval estimation, hypothesis testing, regression and analysis of variance.

Prerequisites: MATH 5680 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH7710 Methods Of Numerical Analysis I **Credit Hours: 3**

Floating point arithmetic; polynomial interpolation; numerical solution of nonlinear equations; Newton's method. Likely topics include: numerical differentiation and integration; solving systems of linear equations; Gaussian elimination; LU decomposition; Gauss-Seidel method.

MATH7720 Methods Of Numerical Analysis II **Credit Hours: 3**

Likely topics include: Computation of eigenvalues and eigenvectors; solving systems of nonlinear equations; least squares approximations; rational approximations; cubic splines; fast Fourier transforms; numerical solutions to initial value problems; ordinary and partial differential equations.

Prerequisites: MATH 5710 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH7740 Advanced Applied Mathematics I **Credit Hours: 3**

Series and numerical solutions to ordinary differential equations, special functions, orthogonal functions, Sturm-Liouville Problems, self-adjointness, vector analysis.

Prerequisites: MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH7750 Advanced Applied Mathematics II **Credit Hours: 3**

Continuation of vector analysis, introduction to complex analysis, partial differential equations, Fourier series and integrals.

Prerequisites: MATH 5740 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH7800 Ordinary Differential Equations **Credit Hours: 3**

Modern theory of differential equations; transforms and matrix methods; existence theorems and series solutions; and other selected topics.

Prerequisites: MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH7810 Partial Differential Equations **Credit Hours: 3**

First and second order equations; numerical methods; separation of variables; solutions of heat and wave equations using eigenfunction techniques; and other selected topics.

Prerequisites: MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH7820 Introduction To Real Analysis I **Credit Hours: 3**

A rigorous treatment of the Calculus in one and several variables. Topics to include: the real number system; sequences and series; elementary metric space theory including compactness, connectedness and completeness; the Riemann Integral.

Prerequisites: MATH 3190 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH7830 Introduction To Real Analysis II **Credit Hours: 3**

Differentiable functions on Rn; the Implicit and Inverse Function Theorems; sequences and series of continuous functions; Stone-Weierstrass Theorem; Arsela-Ascoli Theorem; introduction to measure theory; Lebesgue integration; the Lebesgue Dominated Convergence Theorem.

Prerequisites: MATH 5820 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH7860 Calculus Of Variations And Optimal Control Theory I **Credit Hours: 3**

Conditions for an extreme (Euler's equations, Erdman corner conditions, conditions of Legendre, Jacobi and Weierstrass, fields of extremals, Hilbert's invariant integral); Raleigh-Ritz method; isoperimetric problems; Lagrange, Mayer-Bolza problems.

Prerequisites: MATH 5820 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH7870 Calculus Of Variations And Optimal Control Theory II **Credit Hours: 3**

Pontryagin's maximum principle; necessary and sufficient conditions for optimal control, controllability, time optimal control, existence of optimal controls, relationship to the calculus of variations.

Prerequisites: MATH 5860 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH7880 Complex Variables **Credit Hours: 3**

Analytic functions; Cauchy's theorem; Taylor and Laurent series; residues; contour integrals; conformal mappings, analytic continuation and applications.

Prerequisites: MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-

MATH7980 Topics In Mathematics **Credit Hours: 3**

Special topics in mathematics.

MATH8180 Linear And Nonlinear Programming **Credit Hours: 3**

Simplex algorithm, ellipsoidal algorithm, Karmarkar's method, interior point methods, elementary convex analysis, optimality conditions and duality for smooth problems, convex programming, algorithms and their convergence.

Prerequisites: MATH 5820 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 7820 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8190 Infinite Dimensional Optimization **Credit Hours: 3**

Introduction to nonlinear analysis, abstract optimization problems on abstract spaces, applications to calculus of variations, optimal control theory and game theory.

Prerequisites: MATH 6150 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 6810 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8150 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8810 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8300 Algebra I **Credit Hours: 3**

Group actions, Sylow's theorems, permutation groups, nelpotent and solvable groups, abelian groups, rings, unique factorization domains, fields.

Prerequisites: MATH 5340 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 7340 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8310 Algebra II **Credit Hours: 3**

Field extensions, Galois theory, modules, Noetherian and Artinian rings, tensor products, primitive rings, semisimple rings, and modules, the Wedderburn-Artin theorem.

Prerequisites: MATH 6300 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8300 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8320 Ring Theory I **Credit Hours: 3**

Radical theory, rings of quotients, Goldie's Theorem, chain conditions, dimensions of rings, module theory, topics in commutative rings.

Prerequisites: MATH 6310 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8310 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8330 Ring Theory II **Credit Hours: 3**

Advanced topics in ring theory. Possible topics include group rings, enveloping algebras, almost split sequences, PI-rings, division rings, self-injective rings, and ordered rings.

Prerequisites: MATH 6310 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8310 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8340 Group Theory I **Credit Hours: 3**

Fundamental topics in group theory. Possible topics include free groups, presentations, free products and amalgams, permutation groups, abelian groups, nilpotent and solvable groups, subnormality, extensions, the Schur-Zassenhaus theorem, the transfer homomorphism, linear methods, local analysis.

Prerequisites: MATH 6310 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8310 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8350 Group Theory II **Credit Hours: 3**

Advanced topics in group theory. Possible topics include cohomolgy of groups, locally finite groups, character theory, modular representation theory, representation theory of symmetric and classical groups, finite simple groups, geometric group theory.

Prerequisites: MATH 6310 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8310 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8400 Topology I **Credit Hours: 3**

Topological spaces, continuous functions, compactness, product spaces, Tychonov's theorem, quotient spaces, local compactness, homotopy theory, the fundamental group, covering spaces.

Prerequisites: MATH 7450 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 4450 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 5450 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8410 Topology II **Credit Hours: 3**

Homology theory, excision, homological algebra, the Brouwer fixed point theorem, cohomology, differential manifolds, orientation, tangent bundles, Sard' theorem, degree theory.

Prerequisites: MATH 6400 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8400 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8440 Differential Geometry I **Credit Hours: 3**

Introduction to differential geometry. Topics include differentiable manifolds, vector fields, tensor bundles, the Frobenius theorem, Stokes' theorem, Lie groups.

Prerequisites: MATH 6410 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8410 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8450 Differential Geometry II **Credit Hours: 3**

Topics include connections on manifolds, Riemannian geometry, the Gauss-Bonnet theorem. Further topics may include: homogeneous and symmetric spaces, minimal surfaces. Morse theory, comparison theory, vector and principal bundles.

Prerequisites: MATH 6440 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8440 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8500 Ordinary Differential Equations **Credit Hours: 3**

Existence, uniqueness and dependence on initial conditions and parameter, nonlinear planar systems, linear systems, Floquet theory, second order equations, Sturm-Liouville theory.

MATH8510 Partial Differential Equations **Credit Hours: 3**

First order quasi-linear systems of partial differential equations, boundary value problems for the heat and wave equation, Dirichlet problem for Laplace equation, fundamental solutions for Laplace, heat and wave equations.

MATH8540 Partial Differential Equations I **Credit Hours: 3**

Possible topics may include: the Cauchy-Kovalevskaya Theorem, nonlinear partial differential equations of the first order, theory of Sobolev spaces, linear second order PDE's of elliptic, hyperbolic and parabolic type.

Prerequisites: MATH 6510 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8510 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8550 Partial Differential Equations II **Credit Hours: 3**

Selected topics in Partial Differential Equations of current interest emphasizing nonlinear theory. Possible topics may include: Minimal surfaces, applications of the Hopf maximum principle, free boundary value problems, harmonic maps, geometric evolution equations and the Navier-Stokes equation.

Prerequisites: MATH 6540 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8540 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8600 Statistical Consulting I And II **Credit Hours: 2**

Real data applications of various statistical methods, project design and analysis including statistical consulting experience.

MATH8610 Statistical Consulting I And II **Credit Hours: 2**

Real data applications of various statistical methods, project design and analysis including statistical consulting experience.

MATH8620 Categorical Data Analysis **Credit Hours: 3**

Important methods and modeling techniques using generalized linear models and emphasizing loglinear and logit modeling.

Prerequisites: MATH 5680 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 7680 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8630 Distribution Free And Robust Statistical Methods **Credit Hours: 3**

Statistical methods based on counts and ranks; methods designed to be effective in the presence of contaminated data or error distribution misspecification.

Prerequisites: MATH 5680 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 7680 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8640 Topics In Statistics **Credit Hours: 3**

Topics selected from an array of modern statistical methods such as survival analysis, nonlinear regression, Monte Carlo methods, etc.

MATH8650 Statistical Inference **Credit Hours: 3**

Estimation, hypothesis testing, prediction, sufficient statistics, theory of estimation and hypothesis testing, simultaneous inference, decision theoretic models.

Prerequisites: MATH 5680 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 7680 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8670 Measure Theoretic Probability **Credit Hours: 3**

Real analysis, probability spaces and measures, random variables and distribution functions, independence, expectation, law of large numbers, central limit theorem, zero-one laws, characteristic functions, conditional expectations given a s-algebra, martingales.

Prerequisites: MATH 5680 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 7680 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8680 Theory Of Statistics **Credit Hours: 3**

Exponential families, sufficiency, completeness, optimality, equivariance, efficiency. Bayesian and minimax estimation. Unbiased and invariant tests, uniformly most powerful tests. Asymptotic properties for estimation and testing. Most accurate confidence intervals.

MATH8690 Multivariate Statistics **Credit Hours: 3**

Multivariate normal sampling distributions, T tests and MANOVA, tests on covariance matrices, simultaneous inference, discriminant analysis, principal components, cluster analysis and factor analysis.

Prerequisites: MATH 5690 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 6650 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8650 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8720 Methods Of Mathematical Physics I **Credit Hours: 3**

Analytic functions, residues, method of steepest descent, complex differential equations, regular singularities, integral representation, real and complex vector spaces, matrix groups, Hilbert spaces, coordinate transformations.

MATH8730 Methods Of Mathematical Physics II **Credit Hours: 3**

Self-adjoint operators, special functions, orthogonal polynomials, partial differential equations and separation of variables, boundary value problems, Green¿s functions, integral equations, tensor analysis, metrics and curvature, calculus of variations, finite groups and group representations.

Prerequisites: MATH 6720 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8720 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8800 Real Analysis I **Credit Hours: 3**

Completeness, connectedness and compactness in metric spaces, continuity and convergence, Stone-Weierstrass Theorem, Lebesgue measure and integration on the real line, convergence theorems, Egorov's and Lusin's theorems, derivatives, functions of bounded variation.

Prerequisites: MATH 7830 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 4830 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 5830 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8810 Real Analysis II **Credit Hours: 3**

The Vitali covering theorem, absolutely continuous functions, Lebesgue-Stieltjes integration, the Reisz representation theorem, Banach spaces, Lp-spaces, abstract measures, the Radon-Nikodym theorem, measures on locally compact Hausdorff spaces.

Prerequisites: MATH 6800 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8800 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8820 Functional Analysis I **Credit Hours: 3**

Topics include Topological vector spaces, Banach spaces, convexity, the Hahn-Banach theorem, weak and strong topologies, Lp spaces and duality.

Prerequisites: MATH 6810 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8810 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8830 Functional Analysis II **Credit Hours: 3**

Topics include the Mackey-Ahrens Theorem, Banach algebras, spectra in Banach algebras, commutative Banach algebras, unbounded operators, the spectral theorem, topics in functional analysis.

Prerequisites: MATH 6820 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8820 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8840 Complex Analysis I **Credit Hours: 3**

Elementary analytic functions, complex integration, the residue theorem, infinite sequences of analytic functions, Laurent expansions, entire functions.

Prerequisites: MATH 6800 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8800 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8850 Complex Analysis II **Credit Hours: 3**

Meromorphic functions, conformal mapping, harmonic functions and the Dirichlet problem, the Riemann mapping theorem, monodromy, algebraic functions, Riemann surfaces, elliptic functions and the modular function.

Prerequisites: MATH 6840 FOR LEVEL GR WITH MIN. GRADE OF D- OR MATH 8840 FOR LEVEL GR WITH MIN. GRADE OF D-

MATH8930 Colloquium **Credit Hours: 1**

Lectures by visiting mathematicians and staff members on areas of current interest in mathematics.

MATH8940 Proseminar **Credit Hours: 1-5**

Problems and techniques of teaching elementary college mathematics, supervised teaching, seminar in preparation methods.

MATH8960 Dissertation **Credit Hours: 3-6**

MATH8980 Topics In Mathematical Sciences **Credit Hours: 3**

Special topics in Mathematics or Statistics.

MATH8990 Readings In Mathematics **Credit Hours: 1-5**

Readings in areas of Mathematics of mutual interest to the student and the professor.

MBC3100 Practices in Pharmaceutical Research **Credit Hours: 1**

Consideration of the scientific, ethical, and legal obligations expected in the conduct of academic and industrial pharmaceutical research.

MBC3310 Medicinal Chemistry I: Drug Action And Design **Credit Hours: 2**

An introductory course presenting the basic chemical principles governing the behavior of drugs and the design of new therapeutics.

Prerequisites: CHEM 2420 FOR LEVEL UG WITH MIN. GRADE OF D-

MBC3320 Medicinal Chemistry II: Endocrine, Reproductive, and Cardiology Drugs **Credit Hours: 2**

A course presenting basic chemical principles governing the design and behavior of therapeutics targeted to receptors in physiologic systems which are key to the integrated control of human metabolism.

Prerequisites: (MBC 3310 FOR LEVEL UG WITH MIN. GRADE OF D- AND MBC 3550 FOR LEVEL UG WITH MIN. GRADE OF D-)

MBC3330 Applied Drug Design **Credit Hours: 2**

Theory and practice of drug design with consideration of molecular aspects that effect drug absorption, distribution, metabolism, and excretion.

MBC3550 Physiological Chemistry I: Structure And Function Of Biological Macromolecules **Credit Hours: 3**

An examination of the levels of structure of proteins, nucleic acids, other biomolecules and biomolecular assemblies.

Prerequisites: CHEM 2420 FOR LEVEL UG WITH MIN. GRADE OF D-

MBC3560 Physiological Chemistry II: Chemical Regulation Of Cells And Organisms **Credit Hours: 3**

An examination of the chemistry and regulation of metabolic processes in cells, interacting cells and tissues.

Prerequisites: MBC 3550 FOR LEVEL UG WITH MIN. GRADE OF D-

MBC3800 Microbiology And Immunology **Credit Hours: 3**

A lecture course with emphasis on how the immune system protects the body against bacterial, viral and parasitic invaders. Medically important human infectious diseases are described as well as chemotherapeutic intervention.

Prerequisites: MBC 3550 FOR LEVEL UG WITH MIN. GRADE OF D-

MBC3850 Microbiology And Immunology Laboratory **Credit Hours: 1**

A laboratory course that follows the course material presented in MBC 3800. Both immunology and microbiology experiments that are medically useful and clinically important will be performed.

Corequisites: MBC3800

MBC3880 Medicinal And Biological Chemistry Laboratory **Credit Hours: 1-4**

Research and lecture teaching fundamental laboratory skills in medicinal and biological chemistry.

MBC4300 Medicinal Chemistry III: Chemotherapy And Immunotherapy **Credit Hours: 3**

The chemical bases for actions of drugs that counter infectious disease and cancer, including use and modulation of the immune system and its products to target infectious disease and cancer.

Prerequisites: MBC 3800 FOR LEVEL UG WITH MIN. GRADE OF D- OR (BIOL 4030 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOL 4050 FOR LEVEL UG WITH MIN. GRADE OF D-)

MBC4340 Contemporary Natural Remedies **Credit Hours: 2**

An introduction to natural remedies, their history, source, chemical constituents, documented therapeutic utility and toxicity.

Prerequisites: MBC 3320 FOR LEVEL UG WITH MIN. GRADE OF D-

MBC4380 Medicinal Plants **Credit Hours: 3**

A lecture/field course emphasizing medicinal and poisonous plants of this locale.

MBC4390 Genes And Proteins In Therapy **Credit Hours: 2**

Consideration of the symptoms, molecular nature, current treatment and amelioration by gene therapy of diseases caused by gene and protein defects.

Prerequisites: MBC 3550 FOR LEVEL UG WITH MIN. GRADE OF D-

MBC4410 Nutrition In Health And Disease **Credit Hours: 2**

A comprehensive examination of the role of carbohydrates, lipids, proteins, vitamins and minerals in maintaining good health, as well as our current understanding of the interplay between nutrition and disease.

Prerequisites: MBC 3560 FOR LEVEL UG WITH MIN. GRADE OF D-

MBC4420 Neuroscience **Credit Hours: 2**

An examination of the basic anatomy, chemistry and physiology of neural systems. The organization of the brain and its role in behavior and in disease states are presented in an interdisciplinary way.

Prerequisites: MBC 3560 FOR LEVEL UG WITH MIN. GRADE OF D-

MBC4430 Biochemistry Of Disease **Credit Hours: 2**

Mechanisms of pathogenesis and pathophysiological consequences in diseases already well-understood at a biochemical level. Emphasis is placed on the logic behind existing and future drug therapies in disease.

Prerequisites: MBC 3560 FOR LEVEL UG WITH MIN. GRADE OF D-

MBC4450 New Drug Development **Credit Hours: 2**

An examination of all phases of drug discovery and development from conception to marketing: case histories from pharmaceutical research and development.

Prerequisites: MBC 3560 FOR LEVEL UG WITH MIN. GRADE OF D-

MBC4470 Advanced Immuno-Therapeutics **Credit Hours: 2**

This course emphasizes the development of methods for immunotherapeutic intervention in cancer and autoimmune and infectious disease. The course has a seminar/discussion/student presentation format.

Prerequisites: MBC 4300 FOR LEVEL UG WITH MIN. GRADE OF D-

MBC4480 Chemical Defense Mechanisms In Plants **Credit Hours: 2**

A study of the effects on plant predators of secondary metabolites in plants as a basis for the novel development of therapeutics.

Prerequisites: MBC 3560 FOR LEVEL UG WITH MIN. GRADE OF D-

MBC4710 Targeted Drug Design **Credit Hours: 3**

A survey of novel macromolecular targeting approaches to drug design in important human disorders. The course has a seminar/discussion/student presentation format.

Prerequisites: MBC 3320 FOR LEVEL UG WITH MIN. GRADE OF D-

MBC4720 Advances In Drug Design **Credit Hours: 3**

A survey of novel approaches to drug design and development. The course has a seminar/discussion/student presentation format.

Prerequisites: MBC 3320 FOR LEVEL UG WITH MIN. GRADE OF D-

MBC4760 Biochemical Toxicology **Credit Hours: 2**

The biochemical principles underlying toxicological phenomena, including biotransformation, host and environmental modulation, and target organs.

Prerequisites: MBC 3550 FOR LEVEL UG WITH MIN. GRADE OF D-

MBC4770 Molecular Modeling In Drug Design **Credit Hours: 3**

Theoretical and graphical approaches to the geometry of drug interactions with their receptors. Methods of determining and predicting conformation at drug receptor sites are examined.

Prerequisites: MBC 3320 FOR LEVEL UG WITH MIN. GRADE OF D-

MBC4780 Practicum In Medicinal & Biological Chemistry **Credit Hours: 6-12**

An experiential course in which students acquire practical knowledge through hands-on experience in an area of medicinal and biological chemistry by working in an academic, private or government laboratory or professional site.

Prerequisites: (PHCL 3720 FOR LEVEL UG WITH MIN. GRADE OF D- AND MBC 3320 FOR LEVEL UG WITH MIN. GRADE OF D- AND MBC 3560 FOR LEVEL UG WITH MIN. GRADE OF D-)

MBC4800 Quantitative Structure Activity Relationships **Credit Hours: 2**

Linear free energy relationships and substituent effects in pharmacologically related agents are considered in the quantitative description of structure vs. drug activity.

Prerequisites: MBC 3320 FOR LEVEL UG WITH MIN. GRADE OF D-

MBC4850 Advanced Immunology And Tissue Culture Laboratory **Credit Hours: 1-10**

Research experience in medicinally related immunology including literature investigations, tissue culture, cell sorting and sterile biotechniques and culminating with a seminar and written report.

MBC4870 Biomedicinal Chemistry Laboratory **Credit Hours: 1-10**

Research experience in biomedicinal chemistry including literature investigations and chemical synthesis of medicinally important compounds and culminating with a seminar and written report.

MBC4880 Medicinal Biotechnology Laboratory **Credit Hours: 1-10**

Research experience in medicinally related biotechnology including literature investigations, informatics, DNA and protein methodologies, and biological activity assays; and culminating with a seminar and written report.

MBC4900 Honors Seminar In Medicinal And Biological Chemistry **Credit Hours: 1-3**

An examination of a specific question in the context of the primary literature in medicinal or biological chemistry.

MBC4910 Problems In Biomedicinal Chemistry **Credit Hours: 1-3**

Selected study of topics in biomedicinal chemistry. New chemical and biochemical strategies in drug design are examined in detail.

MBC4950 Research In Medicinal Chemistry **Credit Hours: 6-8**

Selected research and study in medicinal chemistry.

MBC4960 Honors Thesis In Medicinal And Biological Chemistry **Credit Hours: 2-5**

An examination of a specific research question in medicinal or biological chemistry that can be answered through experimental work.

MBC4980 Special Topics In Drug Design **Credit Hours: 1-4**

A detailed examination of new chemical and biochemical strategies in drug design.

Prerequisites: (MBC 3320 FOR LEVEL UG WITH MIN. GRADE OF D- AND MBC 3560 FOR LEVEL UG WITH MIN. GRADE OF D-)

MBC5100 Research Practices In Medicinal Chemistry **Credit Hours: 1**

Consideration of the scientific, ethical and legal obligations of the graduate student researcher.

MBC5380 Medicinal And Poisonous Plants **Credit Hours: 3**

Lecture/field course examining medicinal and harmful properties of herbals and plants using pharmacognosy, clinical trials and local plant examples.

MBC5620 Biochemical Techniques **Credit Hours: 2**

A detailed study of biochemical laboratory techniques necessary for the development of novel therapeutics, including bioassays and data analysis.

MBC5900 Medicinal Chemistry Seminar **Credit Hours: 1**

Presentation and discussion of advanced research topics in medicinal chemistry, with an emphasis on evaluating and criticizing emerging data as a way of testing hypotheses.

MBC6100 Advanced Immunology **Credit Hours: 2**

Readings in and critical analysis of the recent literature in immunology and basic immunologic responses, especially as considered in immunotherapy.

MBC6190 Advanced Medicinal Chemistry **Credit Hours: 4**

Discussion of the qualitative and quantitative aspects of the design of new therapeutic agents. Approaches to the design of drugs and new therapeutic modalities directed at enzymes, receptors, membrane transport proteins and nucleic acids are examined.

MBC6200 Biomedicinal Chemistry **Credit Hours: 4**

Examination of the primary literature on approaches to the design of new therapeutic agents. Recent novel directions in the design of drugs will be examined and compared.

Prerequisites: MBC 6190 FOR LEVEL GR WITH MIN. GRADE OF D-

MBC6300 Biomedicinal Chemistry Laboratory I **Credit Hours: 4**

Experimental research problems in biomedicinal chemistry.

Prerequisites: (MBC 6190 FOR LEVEL GR WITH MIN. GRADE OF D- AND MBC 6550 FOR LEVEL GR WITH MIN. GRADE OF D-)

MBC6310 Biomedicinal Chemistry Laboratory II **Credit Hours: 4**

Additional experimental research problems in biomedicinal chemistry (see MBC 6300/8300).

Prerequisites: (MBC 6190 FOR LEVEL GR WITH MIN. GRADE OF D- AND MBC 6550 FOR LEVEL GR WITH MIN. GRADE OF D-)

MBC6420 Protein Chemistry **Credit Hours: 4**

A detailed analysis of the structure and function of proteins: current methodology for the analysis of structure, the basis for molecular associations, and relationships between structure and biological function.

Prerequisites: MBC 6550 FOR LEVEL GR WITH MIN. GRADE OF D-

MBC6430 Nucleic Acid Chemistry **Credit Hours: 4**

The chemical basis for storage and transmission of genetic information.

Prerequisites: MBC 6550 FOR LEVEL GR WITH MIN. GRADE OF D-

MBC6440 Enzymology **Credit Hours: 4**

The principles of chemical catalysis applied to molecular enzymology.

MBC6550 Biochemistry **Credit Hours: 4**

A consideration of the structure and function of biological macromolecules as well as the basic and regulated metabolism of cells.

MBC6750 Bioorganic Chemistry: Chemical Approaches To Enzymes **Credit Hours: 2**

An advanced course in the application of organic chemistry, stereochemistry, synthesis and kinetics to the study of enzymes, enzyme inhibition and enzyme mechanisms.

Prerequisites: MBC 6550 FOR LEVEL GR WITH MIN. GRADE OF D-

MBC6800 Methods In Biotechnology **Credit Hours: 3**

Experimental investigations of current techniques in biochemistry and molecular biology that involve DNA or protein amplification, modification and interactions relevant to drug research.

Prerequisites: MBC 6550 FOR LEVEL GR WITH MIN. GRADE OF D-

MBC6960 M.s. Thesis Research In Medicinal Chemistry **Credit Hours: 1-15**

Development and pursuit of research leading to an M.S. thesis in medicinal chemistry.

MBC6980 Special Topics In Biomedicinal Chemistry **Credit Hours: 1-5**

Selected study of topics in medicinal chemistry. New chemical and biochemical strategies in drug design are examined in detail.

MBC7100 Research Practices In Medicinal Chemistry **Credit Hours: 1**

Consideration of the scientific, ethical and legal obligations of the graduate student researcher.

MBC7620 Biochemical Techniques **Credit Hours: 2**

A detailed study of biochemical laboratory techniques necessary for the development of novel therapeutics, including bioassays and data analysis.

MBC7900 Medicinal Chemistry Seminar **Credit Hours: 1**

Presentation and discussion of advanced research topics in medicinal chemistry, with an emphasis on evaluating and criticizing emerging data as a way of testing hypotheses.

MBC8100 Advanced Immunology **Credit Hours: 2**

Readings in and critical analysis of the recent literature in immunology and basic immunologic responses, especially as considered in immunotherapy.

MBC8190 Advanced Medicinal Chemistry **Credit Hours: 4**

Discussion of the qualitative and quantitative aspects of the design of new therapeutic agents. Approaches to the design of drugs and new therapeutic modalities directed at enzymes, receptors, membrane transport proteins and nucleic acids are examined.

MBC8200 Biomedicinal Chemistry **Credit Hours: 4**

Examination of the primary literature on approaches to the design of new therapeutic agents. Recent novel directions in the design of drugs will be examined and compared.

Prerequisites: MBC 8190 FOR LEVEL GR WITH MIN. GRADE OF D-

MBC8300 Biomedicinal Chemistry Laboratory I **Credit Hours: 4**

Experimental research problems in biomedicinal chemistry.

Prerequisites: (MBC 6190 FOR LEVEL GR WITH MIN. GRADE OF D- AND MBC 8550 FOR LEVEL GR WITH MIN. GRADE OF D-)

MBC8310 Biomedicinal Chemistry Laboratory II **Credit Hours: 4**

Additional experimental research problems in biomedicinal chemistry (see MBC 6300/8300).

Prerequisites: (MBC 6190 FOR LEVEL GR WITH MIN. GRADE OF D- AND MBC 8550 FOR LEVEL GR WITH MIN. GRADE OF D-)

MBC8420 Protein Chemistry **Credit Hours: 4**

A detailed analysis of the structure and function of proteins: current methodology for the analysis of structure, the basis for molecular associations, and relationships between structure and biological function.

MBC8430 Nucleic Acid Chemistry **Credit Hours: 4**

The chemical basis for storage and transmission of genetic information.

MBC8440 Enzymology **Credit Hours: 4**

The principles of chemical catalysis applied to molecular enzymology.

MBC8550 Biochemistry **Credit Hours: 4**

A consideration of the structure and function of biological macromolecules as well as the basic and regulated metabolism of cells.

MBC8750 Bioorganic Chemistry: Chemical Approaches To Enzymes **Credit Hours: 2**

An advanced course in the application of organic chemistry, stereochemistry, synthesis and kinetics to the study of enzymes, enzyme inhibition and enzyme mechanisms.

Prerequisites: MBC 8550 FOR LEVEL GR WITH MIN. GRADE OF D-

MBC8800 Methods In Biotechnology **Credit Hours: 3**

Experimental investigations of current techniques in biochemistry and molecular biology that involve DNA or protein amplification, modification and interactions relevant to drug research.

Prerequisites: MBC 8550 FOR LEVEL GR WITH MIN. GRADE OF D- OR MBC 6550 FOR LEVEL GR WITH MIN. GRADE OF D-

MBC8960 Ph.d. Dissertation Research In Medicinal Chemistry **Credit Hours: 1-15**

Development and pursuit of research leading to a Ph.D. dissertation in medicinal chemistry.

MBC8980 Special Topics In Biomedicinal Chemistry **Credit Hours: 1-5**

Selected study of topics in medicinal chemistry. New chemical and biochemical strategies in drug design are examined in detail.

MBDP603 Molecular Basis of Disease **Credit Hours: 4**

An introduction to the molecular mechanisms of diseases through comparison of fundamental concepts in microbiology, immunology, oncology, physiology, pharmacology and biochemistry that are common to many diseases.

MBDP630 Seminr Molecular Basis Disease **Credit Hours: 1**

Local and outside scientists will present their scientific work in seminars that will take place twice a week. May be repeated for credit.

MBDP650 Molecular Basis Disease Lab **Credit Hours: 0-10**

Introduction to the laboratory methods used in molecular basis of disease research. Students will conduct short research projects in the laboratories of MBD faculty. May be repeated for credit.

MBDP656 Reading Moleculr Basis Disease **Credit Hours: 0-4**

An in-depth literature review of selected research topics related to disease mechanisms and protection from disease. Faculty-led student discussion of selected articles. May be repeated for credit.

MBDP660 Jrnl Rev Moleculr Basis Diseas **Credit Hours: 1**

A weekly report on recent advances in molecular basis of disease taken from original papers to give students an opportunity to find, assess, and report on important developments in the field. May be repeated for credit.

MBDP698 Frontiers Molecul Micobiology **Credit Hours: 0-2**

This is a weekly course combining a journal paper discussion with a research data presentation, both focusing on current work in molecular microbiology. May be repeated for credit.

MBDP803 Molecular Basis of Disease **Credit Hours: 4**

An introduction to the molecular mechanisms of diseases through comparison of fundamental concepts in microbiology, immunology, oncology, physiology, pharmacology and biochemistry that are common to many diseases.

MBDP830 Semnr Molecular Basis Disease **Credit Hours: 1**

Local and outside scientists will present their scientific work in seminars that will take place twice a week. May be repeated for credit.

MBDP850 Molecular Basis Disease Lab **Credit Hours: 0-8**

Introduction to the laboratory methods used in molecular basis of disease research. Students will conduct short research projects in the laboratories of MBD faculty. May be repeated for credit.

MBDP856 Reading Moleculr Basis Disease **Credit Hours: 0-4**

An in-depth literature review of selected research topics related to disease mechanisms and protection from disease. Faculty-led student discussion of selected articles. May be repeated for credit.

MBDP860 Jrnl Rev Moleculr Basis Diseas **Credit Hours: 1**

A weekly report on recent advances in molecular basis of disease taken from original papers to give students an opportunity to find, assess, and report on important developments in the field. May be repeated for credit.

MBDP898 Frontiers Molecu Microbiology **Credit Hours: 0-2**

This is a weekly course combining a journal paper discussion with a research data presentation, both focusing on current work in molecular microbiology. May be repeated for credit.

MCOE4000 Gross Anatomy **Credit Hours: 5**

The study of the structure and functional implications of the musculoskeletal, cardiovascular and respiratory systems of the human, and an introduction to the peripheral nervous system. An emphasis is placed on the biomechanisms of spine and extremity movement as it applies to the study of anatomy.

MCOE4070 Neurosciences And Clinical Correlations **Credit Hours: 3**

An integrated study of structure and function of the central and peripheral nervous systems. Principles of neurophysiological and neuropathological motor and sensory function and related basic assessment skills will be emphasized.

Prerequisites: MCOE 4000 FOR LEVEL UG WITH MIN. GRADE OF D-

MCOE4110 Clinical Pathophysiology **Credit Hours: 3**

The integrated study of the physiology of various systems of the human body throughout the lifespan. The focus will be on the pathophysiology of the various systems with emphasis on clinical manifestations and their influence on client examination and strategies for health promotion.

MCOE4200 Health Promotion **Credit Hours: 3**

Health and wellness as they relate to able-bodied clients and clients with disability. The mind-body interaction will be explored as it relates to the role of the physical therapist as health educator. Principles of nutritional and pharmacological management will be discussed in the content of maintenance of health.

MCOE4250 Introduction To Examination **Credit Hours: 3**

An introduction to the physical examination process. Includes the integration of anatomy, analysis of movement, health and observation skills. Emphasis on basic examination skills.

Prerequisites: (MCOE 4000 FOR LEVEL UG WITH MIN. GRADE OF D- AND MCOE 4090 FOR LEVEL UG WITH MIN. GRADE OF D-)

MCOE4600 Integrated Control Of Movement **Credit Hours: 3**

Integration of the organizing principles of biomechanics, neurosciences and exercise physiology as they relate to an understanding of how voluntary, coordinated human movement is controlled. The implications on the management of movement dysfunction will be discussed.

MCOE4800 Elective Seminar **Credit Hours: 1-2**

In-depth exploration of selected clinical topics (Physical Therapy).

MED1000 Music Education Lab **Credit Hours: 0**

Experiential learning for music education majors. All music education majors must register for this course when enrolled in the following classes: MUS 1500, 1510, 1530, 1550, 1560, 3500, 3510, 3520, or any MED course. A total of 5 semesters is required. Offered as P/NC only. - 0 hours.

MED3000 Foundations Of Music Education **Credit Hours: 2**

General overview of music education. Addresses history and philosophy of music education, music in a diverse society, classroom observation skills, analysis of music teaching, classroom communication and educational theories.

MED3030 Music For The Early Childhood Teacher **Credit Hours: 2**

Topics: Children's voices, music literacy, appreciation, creativity, classroom instruments. Analysis of music books, comparative methodology, curriculum integration. May include field experience.

Prerequisites: MUS 2200 FOR LEVEL UG WITH MIN. GRADE OF C

MED3300 Elementary And Secondary School Instrument Methods For Music Majors **Credit Hours: 3-4**

Choral/Gen cluster 3 cr.; Inst cluster 4 cr. A study of the techniques and teaching procedures used in the presentation of the instrumental music program in elementary and secondary schools. Field experience required. Includes participation in MUS 1000:002.

MED3310 Music For Children **Credit Hours: 3**

Topics: Children's voices, music reading readiness and music reading, appreciation, creativity, use of classroom instruments. Projects: Analysis of music books for children, a comparative review of Orff, Kodaly, Dalcroze, & Gordon. Field experience required.

MED3320 Secondary School Vocal Methods For Music Majors **Credit Hours: 3-4**

Choral/General cluster 4 cr.; Instrumental cluster 3 cr. An overview of secondary school problems of vocal music education. Field experience required. Includes participation in MUS 1000:002.

MED3330 Early Childhood Music Methods For Music Majors **Credit Hours: 3**

Topics include children's voices, music readiness skills, appreciation, creativity, use of classroom instruments. Projects include keyboard technology, analysis of basic series, a comparative review of Orff, Kodaly, Dalcroze and Gordon. Includes computer and keyboard technology and field experience.

MED4230 Integrating Aesthetic Experience **Credit Hours: 3**

This course will provide students majoring in education an overview of the role of music and art in educational curriculum development. Students will learn about the history of art and music through lecture, discussion and participation in art and music activities and develop methods of teaching art and music in the classroom. Interdisciplinary teaching and curriculum planning methods will be a focus of the course, affording students methods of incorporating the historical, cultural and social aspects of art and music in a general curriculum. (Students may enroll in either the Music or Art Education Sections)

MED4900 Student Teaching Seminar **Credit Hours: 2**

This course is required for all music education majors. This course focuses reflectivity on common experiences in student teaching. Attention is also given to resume preparation, portfolio use and job interviews.

MED4930 Student Teaching **Credit Hours: 6-12**

This course is required for all music education majors. Planned field experiences in public school classrooms under the direction of University supervisors. Observation of teaching of experienced teachers; gradual acceptance of full teaching responsibility by student teacher. Must register for 6 hours elementary and 6 hours secondary.

Prerequisites: UPDV FOR MIN. SCORE OF 1

MED4990 Individual Study In Music Education For Undergraduate Students **Credit Hours: 1-3**

Individual study is designed to provide a student with the opportunity to work individually on professional interests and concerns under the direction of the faculty of the Department of Music.

MED5340 Curriculum Development In Music Education **Credit Hours: 3**

The impact of historical, sociological and philosophical influences on various music curricula, past and present. Integration of skill development and content learning for designing comprehensive and sequential objectives for school music programs.

MED5360 Pedagogy Of Aural Perception **Credit Hours: 3**

Theory and techniques for teaching of musical skills. Sequences for development of tonal and rhythm skills, techniques and materials for instruction plus measurement and evaluation of music learning.

MED5370 Psychology Of Music **Credit Hours: 3**

Study of theories of musical behavior and pattern perception.

MED5990 Independent Study In Music Education **Credit Hours: 1-3**

Individual study is designed to provide a student the opportunity to work independently on professional problems under the direction of the faculty of the Department of Music.

MED6920 Master's Research Project In Music Education **Credit Hours: 1-3**

Open to the graduate student who elects a research project to fulfill the research requirement of the master's degree program.

MED6960 Master's Research Thesis In Music Education **Credit Hours: 1-3**

Open to the graduate student who elects a master's thesis to fulfill the research requirement of the master's degree program.

MED6980 Music Education: Special Topics **Credit Hours: 1-3**

The area of study will be announced at the time the course is offered.

MET1020 Technical Drawing **Credit Hours: 3**

Essentials of dimensioning, size, position and form tolerancing and their application in shop processes. Pictorial drawings are created freehand and with the use of drawing instruments.

MET1110 Metal Machining And Processes **Credit Hours: 3**

Material and machining processes dealing with production methods, machining capabilities, tolerances. Metal working with lathe, mill, etc., along with processes such as molding, stamping, forging, etc.

MET1120 Metal Machining & Processes Lab **Credit Hours: 1**

Provides students with an opportunity to gain hands-on experience with machine tools and gauging measurement instruments.

Corequisites: MET1110

MET1250 Cadd **Credit Hours: 4**

Introduction to two-dimensional and three-dimensional Computer Aided Drafting. Laboratory based experiences with creating and dimensioning working drawings, part libraries, entity insertion, graphics manipulation and customization.

Prerequisites: (ENGT 1050 FOR LEVEL UG WITH MIN. GRADE OF D- AND MET 1020 FOR LEVEL UG WITH MIN. GRADE OF D-)

MET2050 Fluid And Hydraulic Mechanics **Credit Hours: 4**

Application of physical principles for the design of systems to transport liquids in closed hydraulic or process piping systems; friction, pumping, flow meters and gauges.

Prerequisites: PHYS 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

MET2100 Statics For Technology **Credit Hours: 3**

Review and extension of static force analysis: free-body diagrams, forces, moments, dry friction and static equilibrium applied to machines, mechanisms, trusses and frames.

Prerequisites: PHYS 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

MET2110 Machine Design **Credit Hours: 3**

A course in machinery component design with emphasis on the selection of commercial components on the basis of forces and stresses involved.

Prerequisites: CET 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

MET2120 Strength Of Materials For Technology **Credit Hours: 4**

Introduction to the study of stress distribution and deformation of elastic materials due to applied loads. Consideration of stress, strain, compression, tension, shear, torsion, moments and combined loading in basic machine elements.

Prerequisites: MET 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

MET2150 Numerical Control Applications **Credit Hours: 4**

Survey of tooling and production activities adaptable to numerical control equipment and processes. Includes terminology, definitions and functions. Students will learn how to create part programs for CNC machinery.

Prerequisites: (MATH 1330 FOR LEVEL UG WITH MIN. GRADE OF D- AND ENGT 1050 FOR LEVEL UG WITH MIN. GRADE OF D- AND MET 1250 FOR LEVEL UG WITH MIN. GRADE OF D- AND MET 1110 FOR LEVEL UG WITH MIN. GRADE OF D- AND MET 1120 FOR LEVEL UG WITH MIN. GRADE OF D-)

MET2210 Technical Thermodynamics **Credit Hours: 4**

Analysis of thermodynamic concepts as they apply to heating and power production; conservation of energy, work and heat, engines and refrigeration. Includes laboratory experiences.

Prerequisites: (PHYS 2010 FOR LEVEL UG WITH MIN. GRADE OF D- AND ENGT 1050 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 2450 FOR LEVEL UG WITH MIN. GRADE OF D-)

MET2350 Advanced Cadd **Credit Hours: 4**

Continuation of MET 1250. Topics covered include attributes, with attention to geometric tolerancing and true dimensioning. Application of three-dimensional modeling techniques and the preparation of detail drawings from the model.

Prerequisites: MET 1250 FOR LEVEL UG WITH MIN. GRADE OF D-

MET2980 Special Topics **Credit Hours: 1-4**

Student performs work on a specialized project of an advanced nature under the supervision of a Mechanical Engineering Technology faculty member.

MET3100 Applied Thermodynamics **Credit Hours: 4**

Basic principles and laws of classical thermodynamics, equations of state, reversibility and entropy applied to processes and cycles for ideal and non-ideal substances.

Prerequisites: (MET 2210 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 2460 FOR LEVEL UG WITH MIN. GRADE OF D-)

MET3200 Mechanical Design I **Credit Hours: 3**

Introduction to the engineering design process. Analysis of stress, strain, deflection and fatigue in mechanical design. Design of beams, columns, springs and machine elements.

Prerequisites: (MET 3400 FOR LEVEL UG WITH MIN. GRADE OF D- AND MET 2120 FOR LEVEL UG WITH MIN. GRADE OF D-)

MET3300 Applied Circuit Analysis And Electronics For Met **Credit Hours: 4**

Investigation of DC and AC circuits using basic circuit analysis techniques. Study of the characteristics and applications of electronic devices, including transistors and integrated circuits.

MET3400 Applied Dynamics **Credit Hours: 3**

Static force and moment analysis using vector methods. Applications of dry friction. Analysis of structures and machines. Dynamic analysis using force and acceleration, energy and momentum methods.

Prerequisites: MATH 2460 FOR LEVEL UG WITH MIN. GRADE OF D-

MET4100 Applied Fluid Mechanics **Credit Hours: 4**

Fundamentals of fluid statics and dynamics including differential analysis, dimensional analysis and similitude, laminar and turbulent flow, viscosity and boundary layer concepts, and compressible flow.

Prerequisites: (MET 2050 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 2460 FOR LEVEL UG WITH MIN. GRADE OF D-)

MET4150 Thermo-Fluid Laboratory **Credit Hours: 2**

Pipe flow, determination of drag coefficients, flow visualization and force-momentum experiments, performance characteristics of pumps, compressors and fans, steam power plant performance analysis, refrigeration cycles, air conditioning processes.

MET4200 Mechanical Design II **Credit Hours: 3**

Design and application of mechanical components and machine elements including shafts, gears, gear drives, belt drives, chain drives, fasteners, power screws, clutches, brakes and machine frames.

Prerequisites: (MET 3200 FOR LEVEL UG WITH MIN. GRADE OF D- AND ENGT 3040 FOR LEVEL UG WITH MIN. GRADE OF D-)

MET4300 Applied Control Systems For Met **Credit Hours: 3**

Introduction to control system language, with emphasis on sensors, signal conditioning and instrument characteristics. Includes entry level design, selection and specification of continuous process control systems.

Prerequisites: ENGT 3050 FOR LEVEL UG WITH MIN. GRADE OF D-

MET4400 Applied Heat Transfer **Credit Hours: 3**

Fundamentals of applied heat transfer by conduction, laminar and turbulent convection, condensation and boiling, radiation exchange between surfaces, and heat exchangers.

Prerequisites: MET 3100 FOR LEVEL UG WITH MIN. GRADE OF D-

MET4500 Computer-Aided Design (cad) **Credit Hours: 3**

A project is used to demonstrate the engineering design process in a real-world setting. Teams use Engineering College Computing facilities to conduct product analysis and prepare working drawings and presentation documentation.

MET4600 Engineering Safety **Credit Hours: 3**

Application of human factors and engineering practices toward accident prevention and elimination of hazards. Topics include liability, standards, OSHA, hazard control, accident investigation and safety management.

MET4700 Quality Control **Credit Hours: 3**

Introduction to statistical quality control, including sampling, statistical inference, control charts, specifications and tolerances, and acceptance sampling by attributes and variables.

Prerequisites: ENGT 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

MFGM8480 Management of Technology **Credit Hours: 3**

This seminar covers conceptual framework and relevant empirical studies on technology management. The literature from Technology Management as it relates to the management of product, manufacturing and supply chain technologies will be discussed.

MFGM8490 Supply Chain and E-Business Issues in Manufacturing **Credit Hours: 3**

This seminar focuses broadly on key issues related to supply chain management issues in relation to effective information flows, product flows, distribution and logistics, key business process integration across supply chains.

MFGM8630 Management Science **Credit Hours: 3**

This course is an applied study of mathematical programming and stochastic processes. After discussing the notions of Markov and Renewal processes, we introduce a variety of applications with emphasis on manufacturing.

MFGM8690 Innovation and Technology Commercialization **Credit Hours: 3**

This course will cover the theory and application of different conceptual models that explain the firm's ability to leverage technological innovation and achieve commercialization of its technology.

MFGM8810 Seminar/Colloqkuia **Credit Hours: 1**

One (!) credit hour requirement of these courses will be met by requiring the students to attend a reasonable number (10) of research seminars and colloquia in and outside the college, doctoral dissertation proposal and defenses at the college, etc., during one academic year.

MFGM8830 Organizational Issues in Implementation of Technologies **Credit Hours: 3**

This seminar emphasizes the behavioral issues (cognition, empowerment, self-efficacy, etc.) that determine how effectively advanced manufacturing technologies are utilized in manufacturing or product development.

Prerequisites: MGMT 5110 FOR LEVEL GR WITH MIN. GRADE OF D- OR ORGD 7110 FOR LEVEL GR WITH MIN. GRADE OF D-

MFGM8840 Manufacturing Strategy **Credit Hours: 4**

The seminar examines the theory and research related to the formulation and implementation of manufacturing strategy including the strategic planning process and techniques for industry and competitive analysis.

Prerequisites: MGMT 5110 FOR LEVEL GR WITH MIN. GRADE OF D- OR ORGD 7110 FOR LEVEL GR WITH MIN. GRADE OF D-

MFGM8850 Readings And Research In Manufacturing Management **Credit Hours: 1-12**

This individually designed course will provide advanced readings in areas needed by a doctoral student.

MFGM8860 Advanced Statistics **Credit Hours: 3**

This course discusses multivariate data analysis. Topics include: principal components analysis, factor analysis, multidimensional scaling, cluster analysis, multiple regression analysis and multivariate analysis of variance. Statistical software packages are used.

Prerequisites: OPMT 5510 FOR LEVEL GR WITH MIN. GRADE OF D-

MFGM8870 Seminar in Statistics/ Research Method **Credit Hours: 3**

This is an advanced second course in Statistical methods or management science or research methods. This course is designed for individual needs of the student to provide more depth in the research method as required.

MFGM8880 Research Methods And Theory Building **Credit Hours: 3**

The course seeks to frame and discuss key issues that arise as social scientists conduct theoretically-relevant empirical research. In the course, the theory building in manufacturing management as well as research process and the literature, tools and techniques associated with each phase of the process will be introduced.

MFGM8890 Advanced Manufacturing Systems **Credit Hours: 3**

This seminar provides an understanding of the design and management of manufacturing systems. This begins with an understanding of how manufacturing has evolved over time, continues with descriptions of current trends and ideas in manufacturing system design and concludes with discussion of future changes,

MFGM8900 Field Research **Credit Hours: 1-8**

This course provides students with the opportunity to experience a realistic manufacturing problem and to develop approaches to solving that problem under the supervision of a faculty member.

MFGM8960 Dissertation **Credit Hours: 1-8**

Dissertation

MFGM8980 Special Topics Seminar **Credit Hours: 3**

This seminar focuses on current topics relating to manufacturing management. The specific seminar topic will change each semester.

MGMT3770 Ethics In Leadership And Management **Credit Hours: 3**

The ethical dilemmas faced by organizational leaders are explored and a four-lens model of ethical decision-making is presented. Students will practice using the model to resolve common ethical dilemmas for new and experienced managers.

MGMT3910 Research In Management **Credit Hours: 3**

In-depth independent research work under the supervision of a faculty member.

MGMT3940 Junior Achievement Internship **Credit Hours: 1-3**

This internship experience is designed for JA students who plan to combine their business education with prior Junior Achievement experience.

MGMT4210 Leading And Managing Organizational Improvement **Credit Hours: 3**

Covers theory, practice, and techniques in identifying major organizational problems and issues and leading the organization through change efforts.

Prerequisites: BUAD 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

MGMT4250 Performance Management For Individuals And Teams **Credit Hours: 3**

Course examines the process and implementation of performance management systems at both individual and group levels. Performance appraisal, coaching, development planning, and performance problems will be discussed.

Prerequisites: HURM 3220 FOR LEVEL UG WITH MIN. GRADE OF D-

MGMT4330 Organizational Leadership And Management Practicum **Credit Hours: 3**

Advanced study of the methods and evaluation of planned change. Includes needs analysis, applied measurement and evaluation, and development of process consultation skills required in change.

Prerequisites: MGMT 4210 FOR LEVEL UG WITH MIN. GRADE OF D-

MGMT4780 Leadership & Managerial Competencies **Credit Hours: 3**

This course focuses on concepts and experiences for developing leadership skills that facilitate organizational development and change. Writing, cases, videos and exercises are used extensively.

Prerequisites: BUAD 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

MGMT4900 Seminar On Contemporary Issues In Management **Credit Hours: 3**

This seminar is designed to facilitate applications of managerial skills, tools and techniques in meeting contemporary challenges in organizations.

Prerequisites: BUAD 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

MGMT4910 Research In Human Resource Management **Credit Hours: 1-3**

Students have the opportunity to conduct an intensive investigation in a Human Resource Management area, supervised by a departmental faculty member. A formal paper is expected at the study's end.

Prerequisites: (HURM 3220 FOR LEVEL UG WITH MIN. GRADE OF D- AND BLAW 3550 FOR LEVEL UG WITH MIN. GRADE OF D-)

MGMT4940 Management Internship **Credit Hours: 1-3**

A supervised work experience for outstanding students. The internship involves practical experience. A written report is required of the student.

MGMT5110 Introduction To Management **Credit Hours: 3**

Course is designed to provide a comprehensive, accurate and up-to-date picture of the field of management. This course focuses on organizational behavior (individual and small group) and organizational theory (large group and total organization). Also included is a review of the key functions of management; (1) planning, (2) organizing, (3) leading, (4) staffing and (5) controlling.

MGMT6100 Leading Through Ethical Decision-Making **Credit Hours: 3**

This course seeks to challenge students to discover their core values and how they shape beliefs and actions. Students will learn how to apply four theoretical perspectives to issues facing them as business persons.

MGMT6110 Long Range Strategic Planning **Credit Hours: 3**

Detailed understanding to the basic processes and techniques for analysis of dynamic changes in the internal and external environment of complex organizations. The course generally involves the writing of research papers and case analyses.

MGMT6150 Leading and Developing Yourself **Credit Hours: 3**

The course explores how one's own leadership competencies can be developed and applied most effectively in a variety of situations.

MGMT6160 Leading With Power and Influence **Credit Hours: 3**

Students will develop an understanding of the strategic use of power and influence to exercise leadership in organizations. Skill development in the diagnosis and practical use of power and influence to mobilize action, to negotiate, and to resolve conflicts will be emphasized.

MGMT6190 Leading change and Organizational Improvement **Credit Hours: 3**

Students will learn and apply the key theories and practices of change management and organizational development processes.

MGMT6930 Independent Research **Credit Hours: 1-3**

Independent research opportunities are provided to advanced students for pursuing topics in depth under the faculty supervision.

MIME1000 Orientation To Me & Ie **Credit Hours: 3**

The mechanical and industrial engineering professions are discussed with emphasis on career opportunities. Orientation to the university campus, study skills and time management. Word processing, spreadsheets, e-mail and MATLAB programming are studied.

MIME1010 Professional Development **Credit Hours: 1**

Social protocol and ethics in industry are reviewed. Resume writing and interview skills are developed. Course assists in preparing the student for the co-op experience in industry.

Prerequisites: MIME 1000 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME1100 Introduction To Cad **Credit Hours: 2**

Techniques for visualization and representation of machine components using solid modeling and projection. Section views, orthographic projection, dimensioning and tolerancing. CAD techniques for solving vector problems.

MIME1200 Introduction of Design **Credit Hours: 2**

Concepts in engineering design. Working in teams to use these concepts on multiweek design projects. The emphasis is hands-on creative components, teamwork, and effective communication. Reverse engineering: students will dismantle common products to determine how they were designed.

Prerequisites: MIME 1100 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME1650 Materials Science & Engineering **Credit Hours: 3**

Engineering properties of materials, the effect of atomic bonding and crystalline structure on the mechanical properties of metals, ceramics and polymers. Common measurement, testing and comparison techniques to aid in selection of materials. Laboratory experiences include compressive and tensile strength testing, the effects of heat upon strength, hardness and micro-structure, the effects of combining certain materials in a composite to improve overall mechanical properties.

Prerequisites: CHEM 1230 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME2000 Measurements Laboratory **Credit Hours: 0-2**

How to write engineering laboratory reports. Statistical analysis of experimental data, uncertainty analysis, general characteristics of measurement systems, static and dynamic measurements, computer data acquisition, applications to thermal, mechanical and electrical systems.

Prerequisites: ENGL 1930 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 2340 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME2300 Engineering Dynamics **Credit Hours: 3**

Kinematics of particles and rigid bodies. Thorough study of kinetics of particles and rigid bodies using Newton's laws of motion, work-energy methods, and impulse and momentum methods.

Prerequisites: CIVE 1150 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME2600 Engineering Economics **Credit Hours: 3**

The study of micro-economic and macro-economic theories. Methods of economic analysis, including the time value of money, are described. Economic decision criteria are used to select best alternatives with emphasis in engineering. Impact of economic decisions on various sectors of society are discussed.

MIME2650 Manufacturing Processes **Credit Hours: 3**

Manufacturing processes discussed include metal casting and forming such as forging, rolling, extrusion, stamping and drawing. Metal cutting processes such as turning, boring, drilling, milling, sawing and broaching are discussed. Polymer processes including injection molding and extrusion as well as ceramic part production are covered. Laboratory experiences include creating parts using many of these processes.

Prerequisites: MIME 1650 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME2920 Special Projects **Credit Hours: 1-3**

A special project by the student to investigate or solve an acceptable problem in industrial or mechanical engineering. This course is primarily intended for students interested in mechanical, industrial or manufacturing engineering early in their undergraduate program. Instructor will specify scope of project to correspond to credit hours.

MIME2980 Special Topics **Credit Hours: 1-3**

A special topic at the undergraduate level in Mechanical, Industrial or Manufacturing Engineering to be offered as a course during a term by a faculty member. Credits will correspond to regular class meetings of one lecture hour per week per credit hour.

MIME2990 Independent Study **Credit Hours: 1-3**

An independent study by the student to investigate or solve an acceptable problem in industrial or mechanical engineering. This course is primarily intended for engineering students early or midway through their program of study. Instructor will specify scope of project to correspond to credit hours.

MIME3300 Design And Analysis Of Mechanical Systems **Credit Hours: 3**

Design and analysis of mechanisms, gear trains, planetary gear trains, cam-and-follower devices with application to mechanical systems. Motion, force, torque and vibration analysis. Balancing of rotating and reciprocating components in machines.

Prerequisites: MIME 2300 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

MIME3310 Mechanical Design I **Credit Hours: 3**

Applications of mechanics of materials to analysis and design of mechanical components; introduction to fracture mechanics; applications of failure theories to design of machine elements subjected to static and cyclic loadings.

Prerequisites: (CIVE 1160 FOR LEVEL UG WITH MIN. GRADE OF D- AND MIME 1650 FOR LEVEL UG WITH MIN. GRADE OF D-)

Corequisites: MIME3330

MIME3320 Mechanical Design II **Credit Hours: 3**

Application of failure theories in static and fatigue loading to the design and analysis of mechanical elements including fasteners, power screws, welded joints, springs, bearings, gears, clutches, brakes and shafts.

Prerequisites: MIME 3310 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME3330 Mechanics Laboratory **Credit Hours: 1**

This laboratory course consists of experiments in strength of materials and stress analysis. Experiments include stress analysis of straight and curved beams, analysis of torsion and combined stresses in shafts, stress concentrations, and determination of mechanical properties from tension tests and fatigue tests.

Corequisites: MIME3310

MIME3360 Vibration Laboratory **Credit Hours: 1**

This laboratory course will be taken concurrently with Mechanical Vibration and consists of experiments to determine the natural frequency of one degree of freedom systems, free and forced vibrations of lumped parameter systems, mode shapes and natural frequencies of multidegree of freedom systems, and mode shapes and natural frequencies of torsional vibration systems.

Corequisites: MIME3370

MIME3370 Mechanical Vibration **Credit Hours: 3**

Modeling mechanical systems, mechanical elements, equations of motion for single-DOF and multi-DOF systems, linearization of equations of motion, free and forced response, electrical systems, frequency response, feedback control systems.

Prerequisites: MIME 2300 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-

Corequisites: MIME3360

MIME3380 Modeling and Control of Engineering Systems **Credit Hours: 3**

Physical modeling and feedback principles are applied for control of mechanical systems. Transient response, root locus and frequency response principles are experimentally applied to the control of basic mechanical and electrical systems.

Prerequisites: MIME 3370 FOR LEVEL UG WITH MIN. GRADE OF D- AND MIME 2000 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 2340 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME3390 Mechanics And Vibrations Laboratory **Credit Hours: 2**

This laboratory course consists of experiments in solid mechanics including mechanical testing, stress and deflection analysis, fatigue, stability and mechanical vibrations.

Prerequisites: (MIME 3310 FOR LEVEL UG WITH MIN. GRADE OF D- AND MIME 3370 FOR LEVEL UG WITH MIN. GRADE OF D-)

MIME3400 Thermodynamics I **Credit Hours: 3**

Introduction to thermal sciences with an emphasis on the first and second law of thermodynamics. Topics include conservation of energy for closed and open systems, thermodynamic properties and cycles and entropy production.

Prerequisites: (MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (MATH 3820 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D-)

MIME3410 Thermodynamics II **Credit Hours: 3**

Review of open and closed systems in thermodynamics, the Carnot principle and cycle efficiency concepts. Application to gas and vapor power cycles and refrigeration cycles. Thermodynamic property relations, gaseous mixtures and combustion.

Prerequisites: MIME 3400 FOR LEVEL UG WITH MIN. GRADE OF D-

Corequisites: MIME3420

MIME3420 Fluids Laboratory **Credit Hours: 1**

This laboratory course is to be taken with Fluid Mechanics and Thermodynamics II to illustrate the concepts in those courses. Experiments include fluid statics, forces on a submerged surface, center of pressure, manometers, surface tension, flow visualization, Bernoulli's equation, control volume analysis, viscous flow in pipes, flow over bodies, turbomachinery, and thermodynamic cycles.

Corequisites: MIME3410

MIME3430 Fluid Mechanics **Credit Hours: 3**

Fluid mechanics for mechanical engineers. Topics include fluid statics and dynamics, equations of motion, dimensional analysis, boundary layer theory, flow in pipes, turbulence, fluid machinery, potential flow, CFD and aerodynamics.

Prerequisites: MIME 3400 FOR LEVEL UG WITH MIN. GRADE OF D-

Corequisites: MIME3420

MIME3440 Heat Transfer **Credit Hours: 3**

A comprehensive study of conduction, convection and radiation. Derivation and solution of differential equations related to heat transfer. Analysis of forced and free convection and heat exchangers. Dimensional analysis related to heat transfer.

Prerequisites: MIME 3430 FOR LEVEL UG WITH MIN. GRADE OF D-

Corequisites: MIME3450

MIME3450 Energy Laboratory **Credit Hours: 1**

This laboratory course is to be taken with Heat Transfer to illustrate the concepts in this course. Experiments include Fourier's Law, cooling of fins/rods, determination of free and forced convection heat transfer coefficients, heat exchangers, Stefan Boltzmann Law, surface emission, surface reflection.

Corequisites: MIME3440

MIME3470 Thermal Science Laboratory **Credit Hours: 2**

Determination of transition Reynolds number, measurement of basic fluid properties, buoyancy, calibration of flow measuring devices, pipe flow, determination of drag coefficients, study of fluid flow by use of aerodynamic smoke tunnel, performance characteristics of pumps and fans, internal combustion engines, refrigeration cycles, solar collection, heat exchangers, determination of free and forced convection heat transfer coefficients.

Prerequisites: MIME 3400 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME3710 Work Design And Measurement **Credit Hours: 3**

A study of the methods used to analyze, design and specify the human performance in operation/production systems for the purpose of improving productivity. Computerized predetermined time systems, robots and material handling equipment are utilized in the laboratory environment to design production systems.

Prerequisites: MIME 4000 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME3780 Engineering Management **Credit Hours: 3**

The development of the fundamentals required in an engineering and manufacturing environment where technical competency is considered standard and an appreciation of the human behavioral responses to managerial policies and rules is essential. This course covers the basics of planning organizing, leading and control from the subordinates' as well as the manager's perspective.

MIME3940 Co-Op Experience **Credit Hours: 1**

Students in the Industrial and Mechanical Engineering programs are to enroll in this course during each of their approved Co-Op experiences.

Prerequisites: MIME 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME3950 Co-op Experience **Credit Hours: 1**

Approved co-op work experience beyond third required co-op experience. Course may be repeated.

Prerequisites: MIME 3940 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4000 Engineering Statistics I **Credit Hours: 3**

This course introduces the student to the areas of probability theory and statistical inferences. Topics include sample spaces, the concepts of random variables, probability distributions; functions of random variables, transformation of variables, moment generating functions, sampling and estimation theory; T, F and chi-square distribution.

Prerequisites: MATH 2850 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 2950 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4010 Engineering Statistics II **Credit Hours: 3**

This course continues the student's development of statistical tools and techniques. Topics include test of hypothesis, nonparametric statistics, simple linear regression and correlation, multiple linear regression, analysis of variance and factorial experiments.

Prerequisites: MIME 4000 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4020 Statistical Quality Control And Management **Credit Hours: 3**

Students learn fundamental statistical process control, including control charting and sampling using variables and attributes. Also covered are the fundamentals of implementing and managing a continuous quality improvement program.

Prerequisites: MIME 4010 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4050 Human Factors Engineering **Credit Hours: 3**

Characteristics of the human as an operator in human-machine systems. Human abilities to process information and perform physical tasks within the constraints of environmental conditions - temperature, illumination, noise, etc.

Prerequisites: (PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF D- AND MIME 4000 FOR LEVEL UG WITH MIN. GRADE OF D-)

MIME4060 Manufacturing Engineering **Credit Hours: 3**

Students apply machine tools and fabrication processes to optimize the manufacture of a product. Emphasis is on engineering design integrated with economic principles and fabricating methods.

Prerequisites: (MIME 2650 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-)

MIME4070 Computer-Aided Manufacturing **Credit Hours: 3**

The study of machining processes using numerical control machine tools and controllers. Development of programs to machine parts on mills and lathes. Conversion of CAD models to programs through software interfaces.

Prerequisites: MIME 2650 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4080 Operations Research I **Credit Hours: 3**

This course focuses on the mathematical methods of Operations Research and their applications in engineering. Topics include the optimal solution of deterministic and stochastic mathematical models, modeling process, linear programming, the simplex method, duality theory and sensitivity analysis.

Prerequisites: (MIME 4000 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 2890 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (MIME 4000 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 2890 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3820 FOR LEVEL UG WITH MIN. GRADE OF D-)

MIME4090 Operations Research II **Credit Hours: 3**

This course extends the mathematical methods of Operations Research I and their application. Topics include transportation and assignment problems, network analysis, PERT-CPM, Markov chains and queuing theory.

Prerequisites: MIME 4080 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4100 Manufacturing Systems Simulation **Credit Hours: 3**

Discrete and continuous simulation models are used to study queuing, networks, manufacturing and related engineering systems. Simulation languages and animation are covered. Statistical inference is used to draw conclusions and to identify the best system.

Prerequisites: (MIME 2650 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (MIME 2650 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3820 FOR LEVEL UG WITH MIN. GRADE OF D-)

MIME4110 Production Planning And Inventory Control **Credit Hours: 3**

The planning, scheduling and control of inventory and production. Critical path methods, PERT, applications of mathematical and computer methods.

Prerequisites: MIME 3710 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4160 Facilities Planning And Design **Credit Hours: 3**

Planning, design, development, management and control of production and distribution systems to effectively distribute goods and services from the producer to the user. Aspects of facilities for manufacturing, material handling, packaging and distribution; concepts of group technology and computer-aided facility design and utilization of optimal plant design are covered.

Prerequisites: MIME 3710 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4200 Senior Design Projects **Credit Hours: 3**

Students work in teams using knowledge gained in earlier courses to solve real design, manufacturing and operational problems relevant to industry. Oral and written communications with participating companies as well as teamwork are stressed. Other topics include patents, product liability, safety, ethics and design for manufacturing.

Prerequisites: (MIME 3320 FOR LEVEL UG WITH MIN. GRADE OF D- OR MIME 3710 FOR LEVEL UG WITH MIN. GRADE OF D-) AND (MIME 4020 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY) OR MIME 3440 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY))

MIME4210 Vehicle Dynamics **Credit Hours: 3**

Analytic mechanics are applied to automotive structures. This includes the forces, time dependent motions including bounce and pitch modes, suspension kinematics, limitations imposed by the human body, and how the automotive structure must be designed to accommodate these.

Prerequisites: MIME 3370 FOR LEVEL UG WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

MIME4230 Dynamics Of Human Movement **Credit Hours: 3**

The study of human movement including muscle mechanics, kinematics, kinetics and energetics of human gait, anthropometry and application to bioengineering and orthopedics.

Prerequisites: MIME 2300 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4270 Cad - Geometric Modeling **Credit Hours: 3**

Principles of CAD systems and their relationship to the design process. Topics include CAD hardware as well as geometric modeling of curves, surfaces and solids.

Prerequisites: MIME 3320 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4280 Cad-Finite Element Methods **Credit Hours: 3**

An introduction to the basic concepts of the finite element method. Topics include engineering analysis of continuous systems, numerical solutions of boundary value problems, method of weighted residuals and the principle of minimum potential energy, applications of commercially available finite element programs.

Prerequisites: MIME 3320 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4300 Advanced Mechanics Of Materials **Credit Hours: 3**

Theory of elasticity, plane stress and plane problems, yield criteria and failure theories, bending of beams, energy methods, curved flexural members, unsymmetric bending, torsion, shear center and axisymmetrically loaded members.

Prerequisites: (CIVE 1160 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-)

MIME4310 Mechanics Of Composite Materials **Credit Hours: 3**

Review of elasticity of anisotropic solids, determination of mechanical properties of fiber-reinforced lamina, analysis and performance of laminated composites.

Prerequisites: (CIVE 1160 FOR LEVEL UG WITH MIN. GRADE OF D- AND MIME 1650 FOR LEVEL UG WITH MIN. GRADE OF D-)

MIME4320 Fatigue Of Materials & Structures **Credit Hours: 3**

Fatigue design methods; fatigue fracture mechanisms; cyclic deformation behavior and material cyclic properties; stress-based, and fracture mechanics-based methodologies to fatigue life prediction of smooth and notched members subjected to constant or variable amplitude loadings.

Prerequisites: CIVE 1160 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4330 Occupational Ergonomics **Credit Hours: 3**

An introduction to the science and practice related to the musculoskeletal problems of work. This course includes some of the methodologies that define occupational biomechanics including anthropometry, work-capacity evaluation, bioinstrumentation, biomechanical models, and work classification and time prediction.

Prerequisites: CIVE 1160 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4340 Experimental Mechanics **Credit Hours: 3**

Application of experimental techniques to stress analysis, comparison of experimental and analytical methods, theory of electrical resistance gages, methods of photoelasticity including photostress, data acquisition systems and their use.

Prerequisites: (CIVE 1160 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-)

MIME4410 Alternative Energy **Credit Hours: 3**

[3 hours] This course focuses on the technical aspects of sustainable energy technologies, such as wind, solar, biomass, ocean waves/tides, geothermal, and hydropower; it also covers issues and applications related to storage, transportation, distribution, industrial usage, and buildings. The course investigates the progress, challenges, and opportunities of each technology to be both technically feasible and economically viable.

MIME4510 Turbomachinery **Credit Hours: 3**

Theory of energy transfer between fluid and rotor in turbomachines. Design of turbomachine components. Applications to pumps, compressors and turbines.

Prerequisites: (MIME 3410 FOR LEVEL UG WITH MIN. GRADE OF D- AND MIME 3430 FOR LEVEL UG WITH MIN. GRADE OF D-)

MIME4520 Heating, Ventilating And Air Conditioning **Credit Hours: 3**

Control of the thermal environment within enclosed spaces including psychometric properties of air heating and cooling, loads and factors affecting human comfort. Analysis of basic heating and refrigeration systems, heat pumps, heaters, utilization of solar energy, humidifiers, energy conservation and controls for systems.

Prerequisites: MIME 3410 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4530 Internal Combustion Engines **Credit Hours: 3**

Study of Carnot, Otto, Diesel and Brayton Cycles, performance characteristics, combustion engines and construction details of internal combustion engines. Analysis of problems associated with carburetion, fuel injection, combustion, cooling, supercharging, emissions and emission control.

Prerequisites: MIME 3410 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4540 Jet Propulsion **Credit Hours: 3**

Mechanics and thermodynamics of jet propulsion. Fundamentals of high-speed flow. Analysis of gas turbine engine components: diffuser, compressor, turbine and nozzle. Investigation of characteristics of ramjets, turbojets, turbofans and turboprops. Introduction to solid and liquid rockets.

Prerequisites: MIME 3410 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4550 Aerodynamics **Credit Hours: 3**

Fundamentals of aerodynamics, potential flow theory, aerodynamic forces and moments, introduction to numerical analysis, application to internal flows, theory of lift for infinite and finite wings, induced drag.

Prerequisites: MIME 3430 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4560 Gas Dynamics **Credit Hours: 3**

Analysis of compressible flow phenomena including shock and detonation waves. Internal flow with friction and heat addition. Analysis and application to supersonic airfoil theory, inlet nacelles, nozzles to generate supersonic thrust and jet engine combustors.

Prerequisites: MIME 3430 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4580 Design Of Thermal Systems **Credit Hours: 3**

Design of thermal systems, analysis and design of systems involving energy transfer due to fluid flow and heat transfer. The analogy between fluid mechanics, heat transfer and electrical circuits will be developed and used. Methods for determining on-design and off-design performance and estimating the performance of existing designs.

Prerequisites: MIME 3400 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4590 Lubrication Technology And Bearing Design **Credit Hours: 3**

Development of the generalized Reynolds equation. Study of hydrodynamic and hydrostatic forms of lubrication. Slider and journal bearing problems. Analysis of cavitation. Gas bearings. Stability and thermal effects. Bearing design considerations. Analysis of seals. Effects of wear.

Prerequisites: MIME 3430 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4640 Random Processes **Credit Hours: 3**

An introduction to the basic theory of stochastic processes, Markov chains, Markov processes, renewal theory, ergodicity, stationarity, applications in queuing, inventory and reliability.

Prerequisites: (MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D- AND MIME 4010 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (MATH 3820 FOR LEVEL UG WITH MIN. GRADE OF D- AND MIME 4010 FOR LEVEL UG WITH MIN. GRADE OF D-)

MIME4690 Reliability **Credit Hours: 3**

Reliability of components and multicomponent systems. Static and dynamic reliability models for both independent and dependent failures. Effects of hot and cold redundancy. Reliability testing consideration and renewal theory.

Prerequisites: MIME 4010 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4730 Forecasting **Credit Hours: 3**

Mathematical methods used in forecasting and time series analysis. Brown's exponential smoothing, Winter's seasonal forecasting and Box-Jenkins methods are introduced and used in forecasting. Applications include forecasting demand to aid production planning, inventory control, short and long range planning.

Prerequisites: MIME 4010 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4780 Advanced Engineering Economy And Decision Theory **Credit Hours: 3**

Decision analysis of economic and multi-objective projects under conditions of risk and uncertainty. Use of wealth building approaches, decision trees, statistical decision analysis and decision techniques for capital investment and multiple attribute problems.

Prerequisites: MIME 2600 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4800 Design For Manufacturability **Credit Hours: 3**

Design considerations for economic manufacturing including overview of design process, design for assembly, design for material handling, design for recyclability and design of experiments including Taguchi Analysis.

Prerequisites: MIME 2650 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4810 Material Removal Processes **Credit Hours: 3**

This course analyzes the major manufacturing material removal processes including machining, flame cutting, electro-discharge machining, etc. Analysis of tool wear, mechanics, cutting fluids, chip control and thermal effects are discussed.

Prerequisites: MIME 2650 FOR LEVEL UG WITH MIN. GRADE OF D-

MIME4920 Special Projects **Credit Hours: 1-3**

A special project by the student to investigate or solve an acceptable problem in industrial or mechanical engineering. This course is primarily intended for students interested in mechanical, industrial or manufacturing engineering nearing completion of their undergraduate degree. Instructor will specify scope of project to correspond to credit hours.

MIME4980 Special Topics **Credit Hours: 1-3**

A special topic at the undergraduate level in Mechanical, Industrial or Manufacturing Engineering to be offered as a course during a term by a faculty member. This is intended for students nearing graduation. Credits will correspond to regular class meeting of one lecture hour per week per credit hour.

MIME4990 Independent Study **Credit Hours: 1-3**

An independent study by the student to investigate or solve an acceptable problem in industrial or mechanical engineering. This course is primarily intended for engineering students nearing graduation. Instructor will specify scope of study to correspond to credit hours.

MIME5010 Engineering Statistics II **Credit Hours: 3**

This course continues the students' development of statistical tools and techniques. Topics include test of hypothesis, nonparametric statistics, simple linear regression and correlation, multiple linear regression, analysis of variance and factorial experiments. Not available for credit to IE students.

Prerequisites: MIME 5000 FOR LEVEL GR WITH MIN. GRADE OF D-

MIME5020 Statistical Quality Control And Management **Credit Hours: 3**

Students learn fundamental statistical process control including control charting and sampling using variables and attributes. Also covered are the fundamentals of implementing and managing a continuous quality improvement program.

MIME5050 Human Factors Engineering **Credit Hours: 3**

Characteristics of the human as an operator in human-machine systems. Human abilities to process information and perform physical tasks within the constraints of environmental conditions - temperature, illumination, noise, etc. Lecture and lab experiences.

MIME5060 Manufacturing Engineering **Credit Hours: 3**

Students integrate machine tools and fabrication processes to optimize the manufacture of a product. Emphasis is on engineering design integrated with economic principles and fabricating methods.

MIME5070 Computer-Aided Manufacturing **Credit Hours: 3**

The study of machining processes using numerical control machine tools and controllers. Development of programs to machine parts on mills and lathes. Conversion of CAD models to programs through software interfaces.

MIME5080 Operations Research I **Credit Hours: 3**

This course focuses on the mathematical methods of Operations Research and their applications in engineering. Topics include the optimal solution of deterministic and stochastic mathematical models, modeling process, linear programming, the simplex method, duality theory and sensitivity analysis.

MIME5090 Operations Research II **Credit Hours: 3**

This course extends the mathematical methods of Operations Research I and their application. Topics include transportation and assignment problems, network analysis, PERT-CPM, Markov chains and queuing theory.

Prerequisites: MIME 5080 FOR LEVEL GR WITH MIN. GRADE OF D-

MIME5100 Manufacturing Systems Simulation **Credit Hours: 3**

Discrete and continuous simulation models are used to study queuing networks, manufacturing and related engineering systems. Simulation languages and animation are covered. Statistical inference is used to draw conclusions and to identify the best system.

MIME5110 Production Planning And Inventory Control **Credit Hours: 3**

The planning, scheduling and control of inventory and production. Critical path methods, PERT, applications of mathematical and computer methods.

MIME5160 Facilities Planning And Design **Credit Hours: 3**

Planning, design, development, management and control of production and distribution systems to effectively distribute goods and services from the producer to the user. Aspects of facilities for manufacturing, material handling, packaging and distribution; concepts of group technology and computer-aided facility design and utilization of optimal plant design are covered.

MIME5210 Vehicle Dynamics **Credit Hours: 3**

Analytic mechanics are applied to automotive structures. This includes the forces, time dependent motions including bounce and pitch modes, suspension kinematics, limitations imposed by the human body, and how the automotive structure must be designed to accommodate these.

MIME5230 Dynamics Of Human Movement **Credit Hours: 3**

The study of human movement including muscle mechanics, kinematics, kinetics and energetics of human gait, anthropometry and application to bioengineering and orthopedics.

MIME5280 Cad - Finite Element Methods **Credit Hours: 3**

Numerical solutions of boundary value problems, variational calculus and the principle of minimum potential energy, finite element formulation of two dimensional field and elasticity problems, axisymmetric elements, finite element programming.

MIME5300 Advanced Mechanics Of Materials **Credit Hours: 3**

Theory of elasticity, plane stress and plane strain problems, yield criteria and failure theories, bending of beams, energy methods, curved flexural members, unsymmetric bending, torsion, shear center and axisymmetrically loaded members.

MIME5310 Mechanics Of Composite Materials **Credit Hours: 3**

Review of elasticity of anisotropic solids, determination of mechanical properties of fiber-reinforced lamina, analysis and performance of laminated composites.

MIME5320 Fatigue Of Materials & Structures **Credit Hours: 3**

Fatigue design methods; fatigue mechanisms; cyclic deformation behavior and material cyclic properties; stress-based and fracture mechanics-based methodologies to fatigue life prediction of smooth and notched members subjected to constant or variable amplitude loadings.

MIME5330 Occupational Ergonomics **Credit Hours: 3**

Methodologies that define musculoskeletal problems of work including anthropometry, work capacity evaluation, bioinstrumentation, biomechanical models, and work classification and time prediction. Some applications in occupational biomechanics are presented including manual material handling.

MIME5340 Experimental Mechanics **Credit Hours: 3**

Application of experimental techniques to stress analysis, comparison of experimental and analytical methods, theory of electrical resistance gages, methods of photoelasticity including photostress, data acquisition systems and their use.

MIME5510 Turbomachinery **Credit Hours: 3**

Theory of energy transfer between fluid and rotor in turbomachines. Design of turbomachine components. Applications to pumps, compressors and turbines.

MIME5520 Heating, Ventilating & Air Conditioning **Credit Hours: 3**

Control of the thermal environment within enclosed spaces including psychometric properties of air heating and cooling, loads and factors affecting human comfort. Analysis of basic heating and refrigeration systems, heat pumps, heaters, utilization of solar energy, humidifiers, energy conservation and controls for systems.

MIME5530 Internal Combustion Engines **Credit Hours: 3**

Study of Carnot, Otto, Diesel and Brayton Cycles, performance characteristics, combustion engines and construction details of internal combustion engines. Analysis of problems associated with carburetion, fuel injection, combustion, cooling, supercharging, emissions and emission controls.

MIME5540 Jet Propulsion **Credit Hours: 3**

Mechanics and thermodynamics of jet propulsion. Fundamentals of high-speed flow. Analysis of gas turbine engine components: diffuser, compressor, turbine and nozzle. Investigation of characteristics of ramjets, turbojets, turbofans and turboprops. Introduction to solid and liquid rockets.

MIME5550 Aerodynamics **Credit Hours: 3**

Fundamentals of aerodynamics, potential flow theory, aerodynamic forces and moments, introduction to numerical analysis, application to internal flows, theory of lift for infinite and finite wings, induced drag.

MIME5560 Gas Dynamics **Credit Hours: 3**

Analysis of compressible flow phenomena including shock and detonation waves. Internal flow with friction and heat addition. Analysis and application to supersonic airfoil theory, inlet nacelles, nozzles to generate supersonic thrust and jet engine combustors.

MIME5580 Design Of Thermal Systems **Credit Hours: 3**

Design of thermal systems, analysis and design of systems involving energy transfer due to fluid flow and heat transfer. The analogy between fluid mechanics, heat transfer and electrical circuits will be developed and used. Methods for determining on-design and off-design performance and estimating the performance of existing designs.

MIME5590 Lubrication Technology And Bearing Design **Credit Hours: 3**

Development of the generalized Reynolds equation. Study of hydrodynamic and hydrostatic forms of lubrication. Slider and journal bearing problems. Analysis of cavitation. Gas bearings. Stability and thermal effects. Bearing design considerations. Analysis of seals. Effects of wear.

MIME5640 Random Processes **Credit Hours: 3**

An introduction to the basic theory of stochastic processes, Markov chains, Markov processes, renewal theory, ergodicity, stationarity, applications in queuing, inventory and reliability.

MIME5680 Operations Research I **Credit Hours: 3**

MIME5690 Reliability **Credit Hours: 3**

Reliability of components and multicomponent systems. Static and dynamic reliability models for both independent and dependent failures. Effects of hot and cold redundancy. Reliability testing consideration and renewal theory.

MIME5730 Forecasting **Credit Hours: 3**

Mathematical methods used in forecasting and time series analysis. Brown's exponential smoothing, Winter's seasonal forecasting and Box-Jenkins methods are introduced and used in forecasting. Applications include forecasting demand to aid production planning, inventory control, short and long range planning.

MIME5750 Work Measurement & Manufacturing Systems **Credit Hours: 3**

A study of the methods used to analyze, design and specify the human performance in operation/production systems for the purpose of improving productivity. Computerized predetermined time systems, robots and material handling equipment are utilized in the laboratory environment to design production systems.

MIME5780 Advanced Engineering Economy And Decision Theory **Credit Hours: 3**

Decision analysis of economic and multi-objective projects under conditions of risk and uncertainty. Use of wealth building approaches, decision trees, statistical decision analysis, and decision techniques for capital investment and multiple attribute problems.

MIME5800 Design For Manufacturability **Credit Hours: 3**

Design considerations for economic manufacturing including overview of design process, design for assembly, design for material handling, design for recyclability and design of experiments including Taguchi Analysis.

MIME5810 Material Removal Processes **Credit Hours: 3**

This course analyzes the major manufacturing material removal processes including machining, flame cutting, electro-discharge machining, etc. Analysis of tool wear, mechanics, cutting fluids, chip control and thermal effects are discussed.

MIME5920 Special Projects **Credit Hours: 1-6**

A special project by the student to investigate or solve an acceptable problem in industrial or mechanical engineering. This course is primarily intended for graduate students interested in mechanical, industrial or manufacturing engineering.

MIME5980 Special Topics **Credit Hours: 1-6**

A special topic at the graduate level in Mechanical, Industrial or Manufacturing Engineering to be offered as a course during a term by a faculty member.

MIME6000 Advanced Engineering Mathematics I **Credit Hours: 3**

An advanced course in mathematical analysis for engineers. Topics include matrix methods, eigenvalues and eigenvectors, systems of equations, series representations including FFT, ordinary differential equations and Bessel functions. This course will make use of computer-aided-mathematics techniques and include engineering applications.

MIME6100 Advanced Engineering Mathematics II **Credit Hours: 3**

Partial differential equations for engineering applications including elliptic, parabolic, hyperbolic differential and non-linear systems of equations. Solution procedures include separation of variables, Laplace transform methods, solutions using complex analysis including conformal mapping and numerical methods.

Prerequisites: MIME 6000 FOR LEVEL GR WITH MIN. GRADE OF D-

MIME6120 Advanced Measurement Systems **Credit Hours: 3**

Sensor selection, data acquisition system selection, evaluation of system response, digital sampling theory, statistical data analysis, space-time correlations, spectral analysis, analog and digital signal conditioning, and static and dynamic measurements.

MIME6150 Applied Numerical Methods **Credit Hours: 3**

An advanced course in mathematical analysis for engineers. Topics include real and complex solutions to polynomial and transcendental equations, approximate interpolation and integration procedures, matrix methods, solutions of systems of nonlinear equations, ordinary and partial differential equations.

MIME6180 Micro Electro Mechanical Systems **Credit Hours: 3**

Current design and methods in micromachining mechanical and electrical components on silicon wafers with an emphasis on mechanical as well as the LIGA Microcasting techniques. Both prototyping and mass production practices will be covered.

MIME6190 Mechatronics **Credit Hours: 3**

Design, analysis, and synthesis of integrated electromechanical systems. Transducer models, signal conditioning and power amplification, and analog-to-digital interfaces. Topics will focus on mechanical engineering applications of process control and data acquisition.

MIME6200 Advanced Dynamics **Credit Hours: 3**

Study of dynamics of a system of particles and rigid bodies using Newtonian and Lagrangian Mechanics including multi-body systems. Principles of nonlinear system dynamics and stability.

MIME6210 Advanced Mechanical Vibrations **Credit Hours: 3**

Advanced concepts in normal mode theory for discrete systems and vibration of continuous systems such as bars, beams and plates.

MIME6230 Cad-Surface Modeling **Credit Hours: 3**

Theory and implementation of contemporary parametric sculptured surface modeling technology. Non-uniform rational B-spline [NURBS] curves and surfaces. Fundamental computational algorithms, construction techniques and advanced modeling topics.

MIME6300 Continuum Mechanics **Credit Hours: 3**

A unified approach to the study of the mechanics of continuous media; analysis of tensors; kinematics of material media; analysis of deformation and stress; the mathematical statement of the laws of conservation of mass, momentum and energy; formulation of the mechanical constitutive equations for various classes of solids and fluids.

MIME6320 Advanced Finite Element Methods **Credit Hours: 3**

Formulation of isoperimetric elements, coordinate transformation, solids of revolution, bending of flat plates, general shell elements, dynamics, vibrations and time dependent problems, geometric and material nonlinearity.

Prerequisites: MIME 5280 FOR LEVEL GR WITH MIN. GRADE OF D- OR CIVE 6310 FOR LEVEL GR WITH MIN. GRADE OF D-

MIME6350 Elasticity **Credit Hours: 3**

Review of tensor analysis, analysis of stress and strain, three dimensional equations of elasticity, plane problems in rectangular Cartesian and polar coordinates.

MIME6360 Plasticity **Credit Hours: 3**

Review of elastic stress-strain relations, analysis of strain rate and concept of stress rate, criteria of yielding and rules of plastic flow, elastoplastic bending and torsion, theory of slipline fields, mechanics of metal forming processes.

MIME6370 Stress Waves in Solids **Credit Hours: 3**

MIME6380 Fracture Mechanics **Credit Hours: 3**

Principles of fracture mechanics and its applications to the prevention of fractures in components and structures, linear elastic and elastic-plastic fracture mechanics, fracture mechanisms, fracture toughness, applications to fatigue crack propagation.

MIME6410 Viscous Flow **Credit Hours: 3**

An advanced course in viscous fluid flow. Topics include relationships between boundary layer and viscous flow, laws of conservation of mass and momentum, exact solutions, similarity solutions, creeping glow, boundary layer concept, stability of laminar flows, small-disturbance stability, linearized stability of parallel flows and transition to turbulence.

MIME6420 Conduction **Credit Hours: 3**

Theoretical analysis of problems in steady-state and transient heat conduction with constant and variable material properties, heat-source systems, Laplace transform techniques, numerical and computer solutions, analogies.

MIME6430 Advanced Thermodynamics **Credit Hours: 3**

Second law of thermodynamics based on statistical mechanics. Prediction of properties from microscopic data based on statistical mechanics. General thermodynamic relations to include Maxwell relations and the Clapeyron equation, prediction of unmeasureable property changes from equations of state for condensed phases and real gases. Thermodynamic equilibrium of chemical reacting species. Single and multiphase equilibria in ideal and real solutions.

MIME6440 Computational Fluid Dynamics I **Credit Hours: 3**

Properties of various partial differential equations. Basics of finite difference methods. Governing equations of fluid mechanics and heat transfer. Numerical solution of inviscid flow equations. Methods for solving Euler equations. Treatment of shock waves. Applications to simple compressible flows. Numerical methods for boundary-layer type equations.

MIME6450 Experimental Fluid Mechanics **Credit Hours: 3**

Digital data acquisition and analysis; limitations and interpretation of physical measurements; sources of errors and difficulties in experimental technique; advanced experimental methods for static and dynamic measurements in thermal systems and fluid flow.

MIME6510 Boundary Layer Theory **Credit Hours: 3**

This course covers laminar and turbulent boundary layer theory. Topics include boundary layer equations, separation, similarity, 2-D and 3D, control, integral methods, turbulence, stability, transition and heat transfer.

MIME6520 Convection **Credit Hours: 3**

Study of convection processes involving the transfer of heal, mass and momentum. Boundary layer theory. Analogy between heat and momentum transfer. Condensation and boiling, two-phase flow, diffusion, mass transfer between phases.

Prerequisites: MIME 6000 FOR LEVEL GR WITH MIN. GRADE OF D-

MIME6540 Computational Fluid Dynamics II **Credit Hours: 3**

Finite difference procedures applied to the solution of reduced forms of the Navier-Stokes equations. Numerical solution of compressible and incompressible forms of the Navier-Stokes equations for laminar and turbulent flows. Fundamental turbulence models. Solution enhancement methods including multi-grid schemes and the use of preconditioning. Grid generation procedures using algebraic and differential equation methods. Structured versus unstructured grid methods. Grid adaptation procedures. Computer program applications.

Prerequisites: MIME 6440 FOR LEVEL GR WITH MIN. GRADE OF D-

MIME6550 Turbulent Flow **Credit Hours: 3**

Study of the nature, origin and dynamics of turbulence. Governing equations of turbulent flows. Internal and external flows. Aspects of free shear flow, turbulent boundary layers and statistical descriptions are presented. Numerical and experimental methods applied to turbulent flow.

Prerequisites: MIME 6150 FOR LEVEL GR WITH MIN. GRADE OF D-

MIME6560 Combustion **Credit Hours: 3**

Physics and chemistry of combustion processes; chemical thermodynamics; chemical kinetics; heat and mass transfer in the combustion of gas, liquid and solid fuels; flame speed determination; applications to combustion efficiency, pollutant formation and combustor design.

MIME6630 Applied Statistical Methods **Credit Hours: 3**

Techniques of statistical analysis which are applicable in a modern day manufacturing environment. Course is meant to provide the student having little or no background in the statistical areas with a sufficiently disciplined course to use statistical methods.

MIME6640 Inventory Theory **Credit Hours: 3**

Mathematical models of inventory and production systems. Consideration of static and dynamic problems under the influence of deterministic probabilistic demand. Demand forecasting using Box-Jenkins models of adaptive forecasting. Consideration of echelon inventory problems.

MIME6670 Queuing Theory **Credit Hours: 3**

Single channel and multichannel queuing problems with Poisson arrivals and negative exponential service times. Single and multichannel systems with general service disciplines. Priority queues, busy period and waiting time distributions.

MIME6720 Design Of Experiments **Credit Hours: 3**

Design and analysis of experiments including analysis of variance and regression analysis. Factorial, blocked and nested models are considered together with appropriate estimation and post ANOVA tests.

MIME6740 Optimization Theory And Applications **Credit Hours: 3**

A consideration of general systems optimization techniques: classical calculus methods, Lagrange multipliers, linear and nonlinear programming, penalty functions, search methods and dynamic programming. Applications to design and manufacturing problems.

MIME6780 Advanced Engineering Management **Credit Hours: 3**

Classical analysis of the theories of organization and management applied to engineering and high technology management.

MIME6790 Human-Machine Systems **Credit Hours: 3**

Measures of effectiveness for a human-machine system. Design of the system to effect the optimum operation. Emphasis on quantitative models for studying information processing, control and decision making aspects of human performance in human-machine system.

Prerequisites: MIME 5050 FOR LEVEL GR WITH MIN. GRADE OF D-

MIME6800 Advanced Manufacturing Systems Engineering **Credit Hours: 3**

Advanced studies of traditional manufacturing processes and advanced manufacturing systems with emphasis on manufacturing engineering processes and equipment, machine tools, process planning, design an operation of manufacturing systems.

MIME6810 Assembly And Joining Processes **Credit Hours: 3**

This course is comprised of two parts: joining processes and assembly systems. Commonly used joining methods, such as welding, mechanical fastening and adhesion are discussed. General principles of assembly are presented with extensive use of automobile assembly as an example.

MIME6900 Independent Research **Credit Hours: 1-16**

Research credit hours toward the Master of Science degree in Mechanical, Industrial and Manufacturing Engineering Department. Students are to use the section number of their thesis/dissertation adviser.

MIME6920 Special Projects **Credit Hours: 1-6**

A special project by the student to investigate or solve an acceptable problem in industrial or mechanical engineering. This course is primarily intended for graduate students interested in mechanical, industrial or manufacturing engineering.

MIME6930 Graduate Seminar **Credit Hours: 0**

This is a seminar for graduate students in Mechanical, Industrial and Manufacturing Engineering. Topics include orientation to the graduate program and special topics by speakers from industry and other universities. Credit does not apply toward a graduate degree.

MIME6960 Graduate Research And Thesis **Credit Hours: 1-9**

Masters thesis research.

MIME6980 Special Topics **Credit Hours: 1-6**

A special topic at the graduate level in Mechanical, Industrial or Manufacturing Engineering to be offered as a course during a term by a faculty member.

MIME6990 Independent Study **Credit Hours: 1-6**

An independent study by the student to investigate or solve an acceptable problem in industrial or mechanical engineering. This course is primarily intended for graduate students in mechanical, industrial or manufacturing engineering.

MIME7220 Power and Motion Control **Credit Hours: 3**

MIME7230 Dynamics of Human Movement **Credit Hours: 3**

MIME7270 Advanced Computer Aided Design **Credit Hours: 3**

MIME7280 CAD - Finite Element Methods **Credit Hours: 3**

MIME7300 Advanced Mechanics of Materials **Credit Hours: 3**

MIME7310 Mechanics - Composite Materials **Credit Hours: 3**

MIME7320 Fatigue of Materials and Structures **Credit Hours: 3**

MIME7330 Occupational Ergonomics **Credit Hours: 3**

MIME7340 Experimental Mechanics **Credit Hours: 3**

MIME7510 Turbomachinery **Credit Hours: 3**

MIME7520 Heating, Ventilating, Air Conditioning **Credit Hours: 3**

MIME7530 Internal Combustion Engines **Credit Hours: 3**

MIME7540 Jet Propulsion **Credit Hours: 3**

MIME7550 Aerodynamics **Credit Hours: 3**

MIME7560 Gas Dynamics **Credit Hours: 3**

MIME7580 Design of Thermal Systems **Credit Hours: 3**

MIME7590 Lubrication Technology and Bearing Design **Credit Hours: 3**

MIME7600 Engineering Statistics I **Credit Hours: 3**

MIME7610 Engineering Statistics II **Credit Hours: 3**

MIME7620 Statistical Quality Control and Management **Credit Hours: 3**

MIME7630 Management Information Systems **Credit Hours: 3**

MIME7640 Random Processes **Credit Hours: 3**

MIME7650 Human Factors Engineering **Credit Hours: 3**

MIME7660 Manufacturing Engineering **Credit Hours: 3**

MIME7670 Computer-Aided Manufacturing **Credit Hours: 3**

MIME7680 Operations Research **Credit Hours: 5**

MIME7690 Reliability **Credit Hours: 3**

MIME7700 Manufacturing Systems Simulation **Credit Hours: 3**

MIME7710 Proc, Planning Inventory Control **Credit Hours: 3**

MIME7720 Industrial Regulations and Labor Relations **Credit Hours: 3**

MIME7730 Forecasting **Credit Hours: 3**

MIME7750 Work Measurement and Manufacturing System **Credit Hours: 3**

MIME7760 Facilities Planning and Design **Credit Hours: 3**

MIME7780 Advanced Engineering Economy and Design Theory **Credit Hours: 3**

MIME7800 Design for Manufacturability **Credit Hours: 3**

MIME7920 Special Projects **Credit Hours: 1-6**

MIME7980 Special Projects **Credit Hours: 1-6**

MIME8000 Advanced Engineering Mathematics I — Credit Hours: 3

An advanced course in mathematical analysis for engineers. Topics include matrix methods, eigenvalues and eigenvectors, systems of equations, series representations including FFT, ordinary differential equations and Bessel functions. This course will make use of computer-aided-mathematics techniques and include engineering applications.

MIME8100 Advanced Engineering Mathematics II — Credit Hours: 3

Partial differential equations for engineering applications including elliptic, parabolic, hyperbolic differential and non-linear systems of equations. Solution procedures include separation of variables, Laplace transform methods, solutions using complex analysis including conformal mapping and numerical methods.

Prerequisites: MIME 8000 FOR LEVEL GR WITH MIN. GRADE OF D-

MIME8120 Advanced Measurement Systems — Credit Hours: 3

Sensor selection, data acquisition system selection, evaluation of system response, digital sampling theory, statistical data analysis, space-time correlations, spectral analysis, analog and digital signal conditioning, and static and dynamic measurements.

MIME8150 Applied Numerical Methods — Credit Hours: 3

An advanced course in mathematical analysis for engineers. Topics include real and complex solutions to polynomial and transcendental equations, approximate interpolation and integration procedures, matrix methods, solutions of systems of nonlinear equations, ordinary and partial differential equations.

MIME8180 Micro Electro Mechanical Systems **Credit Hours: 3**

Current design and methods in micromachining mechanical and electrical components on silicon wafers with an emphasis on mechanical as well as the LIGA Microcasting techniques. Both prototyping and mass production practices will be covered.

MIME8190 Mechatronics **Credit Hours: 3**

Design, analysis and synthesis of integrated electromechanical systems. Transducer models, signal conditioning and power amplification, and analog-to-digital interfaces. Topics will focus on mechanical engineering applications of process control and data acquisition.

MIME8200 Advanced Dynamics **Credit Hours: 3**

Study of dynamics of a system of particles and rigid bodies using Newtonian and Lagrangian Mechanics including multi-body systems. Principles of nonlinear system dynamics and stability.

MIME8210 Advanced Mechanical Vibrations **Credit Hours: 3**

Advanced concepts in normal mode theory for discrete systems and vibration of continuous systems such as bars, beams and plates.

MIME8230 Cad-Surface Modeling **Credit Hours: 3**

Theory and implementation of contemporary parametric sculptured surface modeling technology. Non-uniform rational B-spline [NURBS] curves and surfaces. Fundamental computational algorithms, construction techniques and advanced modeling topics.

MIME8300 Continuum Mechanics **Credit Hours: 3**

A unified approach to the study of the mechanics of continuous media; analysis of tensors; kinematics of material media; analysis of deformation and stress; the mathematical statement of the laws of conservation of mass, momentum and energy; formulation of the mechanical constitutive equations for various classes of solids and fluids.

MIME8320 Advanced Finite Element Methods **Credit Hours: 3**

Formulation of isoperimetric elements, coordinate transformation, solids of revolution, bending of flat plates, general shell elements, dynamics, vibrations, and time dependent problems, geometric and material nonlinearity.

Prerequisites: MIME 7280 FOR LEVEL GR WITH MIN. GRADE OF D- OR CIVE 8310 FOR LEVEL GR WITH MIN. GRADE OF D-

MIME8350 Elasticity **Credit Hours: 3**

Review of tensor analysis, analysis of stress and strain, three dimensional equations of elasticity, plane problems in rectangular Cartesian and polar coordinates.

MIME8360 Plasticity **Credit Hours: 3**

Review of elastic stress-strain relations, analysis of strain rate and concept of stress rate, criteria of yielding and rules of plastic flow, elastoplastic bending and torsion, theory of slipline fields, mechanics of metal forming processes.

MIME8370 Stress Waves in Solids **Credit Hours: 3**

MIME8380 Fracture Mechanics **Credit Hours: 3**

Principles of fracture mechanics and its applications to the prevention of fractures in components and structures, linear elastic and elastic-plastic fracture mechanics, fracture mechanisms, fracture toughness, applications to fatigue crack propagation.

MIME8410 Viscous Flow **Credit Hours: 3**

An advanced course in viscous fluid flow. Topics include relationships between boundary layer and viscous flow, laws of conservation of mass and momentum, exact solutions, similarity solutions, creeping glow, boundary layer concept, stability of laminar flows, small-disturbance stability, linearized stability of parallel flows and transition to turbulence.

MIME8420 Conduction **Credit Hours: 3**

Theoretical analysis of problems in steady-state and transient heat conduction with constant and variable material properties, heat-source systems, Laplace transform techniques, numerical and computer solutions, analogies.

MIME8430 Advanced Thermodynamics **Credit Hours: 3**

Second law of thermodynamics based on statistical mechanics. Prediction of properties from microscopic data based on statistical mechanics. General thermodynamic relations to include Maxwell relations and the Clapeyron equation, prediction of unmeasureable property changes from equations of state for condensed phases and real gases. Thermodynamic equilibrium of chemical reacting species. Single and multiphase equilibria in ideal and real solutions.

MIME8440 Computational Fluid Dynamics I **Credit Hours: 3**

Properties of various partial differential equations. Basics of finite difference methods. Governing equations of fluid mechanics and heat transfer. Numerical solution of inviscid flow equations. Methods for solving Euler equations. Treatment of shock waves. Applications to simple compressible flows. Numerical methods for boundary-layer type equations.

MIME8450 Experimental Fluid Mechanics **Credit Hours: 3**

Digital data acquisition and analysis; limitations and interpretation of physical measurements; sources of errors and difficulties in experimental technique; advanced experimental methods for static and dynamic measurements in thermal systems and fluid flow.

MIME8510 Boundary Layer Theory **Credit Hours: 3**

This course covers laminar and turbulent boundary layer theory. Topics include boundary layer equations, separation, similarity, 2-D and 3D, control, integral methods, turbulence, stability, transition, and heat transfer.

MIME8520 Convection **Credit Hours: 3**

Study of convection processes involving the transfer of heal, mass and momentum. Boundary layer theory. Analogy between heat and momentum transfer. Condensation and boiling, two-phase flow, diffusion, mass transfer between phases.

Prerequisites: MIME 8000 FOR LEVEL GR WITH MIN. GRADE OF D-

MIME8540 Computational Fluid Dynamics II **Credit Hours: 3**

Finite difference procedures applied to the solution of reduced forms of the Navier-Stokes equations. Numerical solution of compressible and incompressible forms of the Navier-Stokes equations for laminar and turbulent flows. Fundamental turbulence models. Solution enhancement methods including multi-grid schemes and the use of preconditioning. Grid generation procedures using algebraic and differential equation methods. Structured versus unstructured grid methods. Grid adaptation procedures. Computer program applications.

Prerequisites: MIME 8440 FOR LEVEL GR WITH MIN. GRADE OF D-

MIME8550 Turbulent Flow **Credit Hours: 3**

Study of the nature, origin and dynamics of turbulence. Governing equations of turbulent flows. Internal and external flows. Aspects of free shear flow, turbulent boundary layers and statistical descriptions are presented. Numerical and experimental methods applied to turbulent flow.

Prerequisites: MIME 8150 FOR LEVEL GR WITH MIN. GRADE OF D-

MIME8560 Combustion **Credit Hours: 3**

Physics and chemistry of combustion processes; chemical thermodynamics; chemical kinetics; heat and mass transfer in the combustion of gas, liquid and solid fuels; flame speed determination; applications to combustion efficiency, pollutant formation and combustor design.

MIME8630 Applied Statistical Methods **Credit Hours: 3**

Techniques of statistical analysis which are applicable in a modern day manufacturing environment. Course is meant to provide the student having little or no background in the statistical areas with a sufficiently disciplined course to use statistical methods.

MIME8640 Inventory Theory **Credit Hours: 3**

Mathematical models of inventory and production systems. Consideration of static and dynamic problems under the influence of deterministic probabilistic demand. Demand forecasting using Box-Jenkins models of adaptive forecasting. Consideration of echelon inventory problems.

MIME8670 Queuing Theory **Credit Hours: 3**

Single channel and multichannel queuing problems with Poisson arrivals and negative exponential service times. Single and multichannel systems with general service disciplines. Priority queues, busy period and waiting time distributions.

MIME8720 Design Of Experiments **Credit Hours: 3**

Design and analysis of experiments including analysis of variance and regression analysis. Factorial, blocked and nested models are considered together with appropriate estimation and post ANOVA tests.

MIME8740 Optimization Theory And Applications **Credit Hours: 3**

A consideration of general systems optimization techniques: classical calculus methods, Lagrange multipliers, linear and nonlinear programming, penalty functions, search methods and dynamic programming. Applications to design and manufacturing problems.

MIME8780 Advanced Engineering Management **Credit Hours: 3**

Classical analysis of the theories of organization and management applied to engineering and high technology management.

MIME8790 Human-Machine Systems **Credit Hours: 3**

Measures of effectiveness for a human-machine system. Design of the system to effect the optimum operation. Emphasis on quantitative models for studying information processing, control and decision making aspects of human performance in human-machine system.

MIME8800 Advanced Manufacturing Systems Engineering **Credit Hours: 3**

Advanced studies of traditional manufacturing processes and advanced manufacturing systems with emphasis on manufacturing engineering processes and equipment, machine tools, process planning, design an operation of manufacturing systems.

MIME8810 Assembly And Joining Processes **Credit Hours: 3**

This course is comprised of two parts: joining processes and assembly systems. Commonly used joining methods, such as welding, mechanical fastening and adhesion are discussed. General principles of assembly are presented with extensive use of automobile assembly as an example.

MIME8900 Independent Research **Credit Hours: 1-16**

Research credit hours toward the doctoral degree for students in the Mechanical, Industrial and Manufacturing Engineering Department. Students are to use the section number of their dissertation adviser.

MIME8920 Special Projects **Credit Hours: 1-6**

A special project by the student to investigate or solve an acceptable problem in industrial or mechanical engineering. This course is primarily intended for graduate students interested in mechanical, industrial or manufacturing engineering.

MIME8930 Graduate Seminar **Credit Hours: 0**

This is a seminar for graduate students in Mechanical, Industrial and Manufacturing Engineering. Topics include orientation to the graduate program and special topics by speakers from industry and other universities. Credit does not apply toward a graduate degree.

MIME8960 Dissertation **Credit Hours: 1-16**

Doctoral dissertation research credit hours for students in the Mechanical, Industrial and Manufacturing Engineering Department. Students are to use the section number of their dissertation adviser.

MIME8980 Special Topics **Credit Hours: 1-6**

A special topic at the graduate level in Mechanical, Industrial or Manufacturing Engineering to be offered as a course during a term by a faculty member.

MIME8990 Independent Study **Credit Hours: 1-6**

An independent study by the student to investigate or solve an acceptable problem in industrial or mechanical engineering. This course is primarily intended for graduate students in mechanical, industrial or manufacturing engineering.

MKTG3130 Supply Chain Management **Credit Hours: 3**

Examination of the role of logistics and supply chain management in creating value and as sources of competitive advantage. Analysis of transportation, warehousing, inventory management and materials management.

Prerequisites: BUAD 2080 FOR LEVEL UG WITH MIN. GRADE OF D-

MKTG3140 International Marketing **Credit Hours: 3**

Course focuses on developing an international marketing plan. Global market screening, selection and development of a plan of action are explored in hands-on learning experience.

Prerequisites: BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

MKTG3170 Marketing For Non-Profit Organizations **Credit Hours: 3**

An introduction to marketing for non-business students. Focus is on planning and executing marketing programs in not-for-profit organizations. No credit for CBA students.

MKTG3200 Marketing, Organization, Society, And Ethics **Credit Hours: 3**

A macro approach to marketing utilizing readings and cases on topics related to the interface between managerial marketing and external socio-economic systems.

Prerequisites: BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

MKTG3260 Global Framework For E-Commerce **Credit Hours: 3**

A study on how firms can capitalize on the Internet to conduct business internationally, assess e-commerce readiness in key regions, localize Web presence and contents and build business service infrastructures.

Prerequisites: BUAD 2080 FOR LEVEL UG WITH MIN. GRADE OF D-

MKTG3280 Internet Marketing **Credit Hours: 3**

A study of Internet-based marketing management, including market opportunity and environmental assessment, Web presence and value propositions, and special issues concerning marketing mix design and implementation.

Prerequisites: BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

MKTG3690 Principles Of Marketing Communications **Credit Hours: 3**

Focuses on communication tools in marketing: advertising, sales promotion, specialty advertising, packaging, publicity, direct marketing and personal selling. Attention to managerial decision making, legal and ethical aspects of promotion.

Prerequisites: BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

MKTG3850 Buyer Behavior And Relationship Marketing **Credit Hours: 3**

Utilization of the behavioral sciences for the analysis of both consumer and business markets. Designing marketing programs to build strong seller-buyer relationships.

Prerequisites: BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

MKTG3870 Advertising Strategy **Credit Hours: 3**

Project-oriented course providing hands-on experience in advertising campaign design. Emphasis on strategy and application involved in advertising.

Prerequisites: MKTG 3690 FOR LEVEL UG WITH MIN. GRADE OF D-

MKTG3880 Marketing Research And Data-Based Management **Credit Hours: 3**

This course addresses the fundamentals of marketing information system, marketing research and data-based marketing. Emphasis is on searching, developing and providing customer information for marketing decision making.

Prerequisites: BUAD 2070 FOR LEVEL UG WITH MIN. GRADE OF D- AND BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

MKTG3910 Direct Marketing **Credit Hours: 3**

Techniques used and problems encountered in direct marketing. Analysis of the various marketing strategies, with an emphasis on promotions and media employed. Analysis of the social issues of direct marketing is included.

Prerequisites: BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

MKTG4120 Marketing Channel Management **Credit Hours: 3**

Channel structure and institutions, logistics, transportation, channel design, channel operations, behavioral dimensions such as leadership, conflict, cooperation and control.

Prerequisites: BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

MKTG4130 Marketing Analysis And Decision Making **Credit Hours: 3**

This capstone course, which focuses on small and global firms, is designed to sharpen students' integrative decision-making abilities through case analysis and a simulation or project-based analysis experience.

Prerequisites: (MKTG 3880 FOR LEVEL UG WITH MIN. GRADE OF D- AND MKTG 3850 FOR LEVEL UG WITH MIN. GRADE OF D-)

MKTG4220 International Sourcing, Logistics And Transportation **Credit Hours: 3**

Physical supply, logistics and transportation functions are discussed within the context of a global marketplace, global business operations and international trade.

Prerequisites: BUAD 2080 FOR LEVEL UG WITH MIN. GRADE OF D-

MKTG4520 Advanced Market Analysis **Credit Hours: 3**

A course designed for students interested in market analysis and marketing research who wish further training in market analysis tools, research methodology, data analysis and analytical decision making models.

Prerequisites: BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

MKTG4540 Business Marketing **Credit Hours: 3**

Analysis of business markets and development of programs to market industrial business-to-business products/services.

Prerequisites: BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

MKTG4570 Product And Pricing Management **Credit Hours: 3**

Developing, analyzing, organizing, planning, implementing and controlling the organization's product and pricing policies. Both existing and new products will be considered.

Prerequisites: BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

MKTG4940 Marketing Internship **Credit Hours: 1-3**

Receive practical business experience working in an organization.

MKTG4980 Special Topics **Credit Hours: 3**

Analysis of current issues in Marketing, International Business, or Business Economics.

Prerequisites: BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

MKTG4990 Independent Study **Credit Hours: 1-3**

Independent study in marketing, international business, or business economics. Student must submit a proposal to be approved by a department faculty member prior to enrolling in the course.

MKTG5170 Marketing For Non-Profit Organizations **Credit Hours: 3**

An introduction to marketing for non-business students. Focus is on planning and executing marketing programs in not-for-profit organizations. No credit for CBA students.

MKTG5410 Marketing Systems **Credit Hours: 3**

Examines the areas of marketing management, marketing functions and institutions, and the role of marketing in the organization. The course explores the relationship between marketing and the environment.

MKTG6080 International Supply Management **Credit Hours: 3**

Physical supply, logistics, transportation, sourcing and negotiating within a global context are evaluated. Impact of global business operations and world trade are discussed.

MKTG6120 Marketing Management **Credit Hours: 3**

This course focuses on the application of marketing concepts and techniques to marketing problems. Emphasis is on decision-making using cases, simulation and computer analyses.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG6140 Customer Relationship Marketing **Credit Hours: 3**

Course will examine the theoretical and managerial development of relationship marketing as an organizational strategy to build and maintain profitable customer relationships.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG6150 CRM Analytics and Intelligence Driven Customer Strategy **Credit Hours: 3**

Course will study how marketing managers can analyze data collected from customers to assist organizations in making appropriate decisions and target marketing resources to serve the needs of customers and increase return for the organization.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG6200 Market Structure **Credit Hours: 3**

Interdisciplinary (economics, psychology, geography, marketing, marketing channel) approach to analyzing and understanding markets (market structure). Product, pricing, promotion and channel management decisions taught as a function of market structure.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG6210 Buyer Behavior **Credit Hours: 3**

Explores behavioral dimensions of buyers focusing on psychological processes, individual differences, interpersonal influences, environmental influences, and incorporating these individual, group, and contextual influences into strategic marketing decisions.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG6220 Integrated Marketing Communications **Credit Hours: 3**

Course focuses on the integration of marketing communication tools in achieving desired changes in consumer attitudes and behaviors. Organizations realize the benefit of integrating their marketing communication efforts to achieve synergistic and superior results.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG6230 Digital Marketing Processes and Virtual Value Networks **Credit Hours: 3**

Course will examine how marketing processes can leverage e-commerce opportunities to create greater customer value in relational and transactional exchanges, and to build virtual value networks spanning functional, organizational and geographical boundaries.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG6240 Sales Force Leadership and Strategy **Credit Hours: 3**

The roles and functions of the business-to-business sales manager will be examined, including using market and competitive analysis in sales planning and strategy development, as well as sales management operations.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG6250 Strategic Account Management **Credit Hours: 3**

The roles and functions of the business-to-business salesperson will be examined in managing accounts considered strategic to meeting organizational goals. Students will partner with area businesses to play the role of the strategic account manager by identifying, selecting, selling to and building relationships.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG6290 Business Marketing **Credit Hours: 3**

Nature, structure, and managerial problems and processes in the field of business-to-business marketing.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D- OR BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

MKTG6310 Managing Innovation and Product Commercialization **Credit Hours: 3**

Course will provide an understanding of how new products and services are designed and commercialized, and will take a strategic and managerial perpective in defining how to best plan, lead, and develop the processes of managing innovation and new products/services.

MKTG6320 Strategic Brand Management **Credit Hours: 3**

Course will address lthe strategic importance of branding and will focus on the design and implementation of marketing Programs and activities to build, measure, and manage brand equity.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG6330 Applied Marketing Research **Credit Hours: 3**

Course focuses on the managerial applications of marketing research techniques including the design, analysis, and interpretation of marketing research studies, and is designed to help managers recognize the role of information gathering and analysis in making better decisions.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG6400 International Marketing **Credit Hours: 3**

This course focuses on identifying and servicing foreign market opportunities. Skills in research, strategic and tactical analysis, and adaptation are developed.

MKTG6960 Mba Thesis **Credit Hours: 1-3**

Master's thesis. Requires student to submit for approval a written proposal. Faculty member must approve proposal and organize thesis committee to supervise project.

MKTG6980 Special Topics **Credit Hours: 3**

Current issues/developments in marketing, international business, or business economics are discussed.

MKTG6990 Independent Study **Credit Hours: 1-3**

Independent study in marketing, international business, or business economics. A proposal for the independent study must be approved by faculty member and department chair.

MKTG7410 Marketing Systems **Credit Hours: 3**

Examines the areas of marketing management, marketing functions and institutions, and the role of marketing in the organization. The course explores the relationship between marketing and the environment.

MKTG8140 Customer Relationship Marketing **Credit Hours: 3**

Course will examine the theoretical and managerial development of relationship marketing as an organizational strategy to build and maintain profitable customer relationships.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG8150 CRM Analytics and Intelligence Driven Customer Strategy **Credit Hours: 3**

Course will study how marketing managers can analyze data collected from customers to assist organizations in making appropriate decisions and target marketing resources to serve the needs of customers and increase return for the organization.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG8220 Integrated Marketing Communication **Credit Hours: 3**

Course focuses on the integration of marketing communication tools in achieving desired changes in consumer attitudes and behaviors. Organizations realize the benefit of integrating their marketing communication efforts to achieve synergistic and superior results.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG8230 Digital Marketing Processes and Virtual Value Networks **Credit Hours: 3**

Course will examine how marketing processes can leverage e-commerce opportunities to create greater customer value in relational and transactional exchanges, and to build virtual value networks spanning functional, organizational and geographical boundaries.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG8240 Sale Force Leadership and Strategy **Credit Hours: 3**

The roles and functions of the business-to-business sales manager will be examined, including using market and competitive analysis in sales planning and strategy development, as well as sales management operations.

MKTG8250 Strategic Account Management **Credit Hours: 3**

The roles and functions of the business-to-business salesperson will be examined in managing accounts considered strategic to meeting organizational goals. Students will partner with area businesses to play the role of the strategic account manager by identifying, selecting, selling to and building relationships.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG8290 Business Marketing **Credit Hours: 3**

Nature, structure, and managerial problems and processes in the field of business-to-business marketing.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D- OR MKTG 7410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG8310 Managing Innovation and Product Commercialization **Credit Hours: 3**

Course will provide an understanding of how new products and services are designed and commercialized, and will take a strategic and managerial perpective in defining how to best plan, lead, and develop the processes of managing innovation and new products/services.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG8320 Strategic Brand Management **Credit Hours: 3**

Course will address lthe strategic importance of branding and will focus on the design and implementation of marketing Programs and activities to build, measure, and manage brand equity.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG8330 Applied Marketing Research **Credit Hours: 3**

Course focuses on the managerial applications of marketing research techniques including the design, analysis, and interpretation of marketing research studies, and is designed to help managers recognize the role of information gathering and analysis in making better decisions.

Prerequisites: MKTG 5410 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG8400 International Marketing **Credit Hours: 3**

This course focuses on identifying and servicing foreign market opportunities. Skills in research, strategic and tactical analysis, and adaptation are developed. Ph.D. students are assigned additional readings from the academic literature.

Prerequisites: BUAD 6500 FOR LEVEL GR WITH MIN. GRADE OF D-

MKTG8790 Integrated Marketing/CRM Seminar **Credit Hours: 3**

A seminar in selected topics in Marketing. Ph.D. students are assigned readings from the Marketing academic literature. They will complete several research papers focusing on specific topics that advance the field and that are suitable for submission to an academic journal or conference.

MLS6010 MLS Seminar in Humanities **Credit Hours: 3**

Introduction to the concerns and methods of graduate study in the Humanities. This course will demonstrate, through readings from different eras, the interrelated nature of literature, philosophy and history.

MLS6020 Mls Seminar In Social Sciences **Credit Hours: 3**

Drawing from major principles and concepts in the social sciences, this course examines issues of the individual and society from a range of disciplinary approaches. Special topics vary.

MLS6030 Mls Seminar In Natural Sciences **Credit Hours: 3**

This course discusses the major ideas of the natural sciences in terms of their impact upon the human species. Specific topics vary.

MLS6040 Mls Seminar In The Visual And Performing Arts **Credit Hours: 3**

An examination of the concept of creativity in the fields of visual art, theater, dance and music. Topics covered vary with instructor.

MLS6400 Studies In Humanities **Credit Hours: 1-6**

Individually supervised study in the humanities. Permission of the Director required. May be repeated for additional credit.

MLS6500 Studies In Social Sciences **Credit Hours: 1-6**

Individually supervised study in the social sciences. Permission of the Director required. May be repeated for additional credit.

MLS6600 Studies In Natural Sciences **Credit Hours: 1-6**

Individually supervised study in the natural sciences. Permission of the Director required. May be repeated for additional credit.

MLS6700 Studies In The Visual And Performing Arts **Credit Hours: 1-6**

Individualized or small-group study in the visual and performing arts.

MLS6990 Mls Thesis **Credit Hours: 1-6**

Permission of the Director required. May be repeated for additional credit.

MPHY861 Clin Trng Radi Oncol Physics I **Credit Hours: 8**

MSL1000 Orientation and the Military **Credit Hours: 1**

MSL1010 Foundations Of Officership **Credit Hours: 2**

Introduces students to issues and competencies that are central to a commissioned officer's responsibilities. Establishes a framework for understanding leadership, officership, Army values, physical fitness and time management. Leadership Lab required.

MSL1020 Basic Leadership **Credit Hours: 2**

Builds upon the basic leadership fundamentals introduced in MSL 1010 and includes lessons in goal setting, problem solving, critical thinking, values clarification, leadership and followership, and introduces techniques for improving listening and speaking skills. Leadership Lab required.

MSL1030 Introduction To Physical Fitness **Credit Hours: 1**

Students participate in the U.S. Army's physical fitness program three days each week. The sessions include running, strength exercises, agility exercises and organized sports.

MSL1040 Physical Fitness **Credit Hours: 1**

Students participate in the U.S. Army's physical fitness program three days each week. The sessions build upon the fitness level previously achieved.

MSL2010 Individual Leadership Studies **Credit Hours: 3**

Identifies successful leadership characteristics through observation of others and self, using experiential learning exercises designed to teach students how to communicate, how to build teams and how to plan and organize effectively. Leadership Lab required.

MSL2020 Leadership And Teamwork **Credit Hours: 3**

Students examine how to build successful teams, including methods for influencing action and achieving goals, effective communication techniques, values and ethics, problem solving and physical fitness. Leadership Lab required.

MSL2030 Physical Training I **Credit Hours: 1**

Students participate in physical training three times each week. Students learn how to conduct and lead a military physical training session.

MSL2040 Physical Training II **Credit Hours: 1**

Students participate in physical training three times each week. The sessions build upon the training level previously achieved.

MSL2200 Leader's Training Course **Credit Hours: 3**

This training is a six week course in leadership management and interpersonal skills taught at Ft. Knox, Kentucky. The training compresses the Military Science 1000 and 2000-level courses. Camp graduates are eligible to enter the Army ROTC Advanced course.

MSL2990 Independent Study In Military Science **Credit Hours: 1-3**

Students will study an appropriate subject mutually agreed upon between the student and instructor.

MSL3010 Leadership And Problem Solving **Credit Hours: 3**

Students assess leadership abilities, plan and conduct individual and small unit training, and apply basic tactical principles and reasoning skills. Leadership Lab required

MSL3020 Leadership And Ethics **Credit Hours: 3**

Examines the role that communications, values and ethics play in effective leadership. Topics include ethical decision making, consideration of others and Army Leadership Doctrine. Leadership Lab required.

MSL3030 Physical Fitness Planning I **Credit Hours: 1**

Students design and implement weekly physical training sessions. In addition, they learn how to supervise a group training session.

MSL3040 Physical Fitness Planning II **Credit Hours: 1**

Students design and implement weekly physical training sessions. The sessions build upon the skill level previously achieved.

MSL3600 Airborne Operations **Credit Hours: 1**

Three weeks of intensive field training conducted at Ft. Benning, Georgia. Combines the study of military airborne operations, strenuous physical conditioning, military parachute techniques and culminates with five parachute jumps from military aircraft.

MSL3700 Cadet Troop Leadership Training (ctlt) **Credit Hours: 2**

Three weeks of practical experience serving as a platoon leader with U.S. Army soldiers. This training puts the student in leadership situations and allows them to practice and hone their leadership skills in a real world environment.

MSL3800 Air Assault Operations **Credit Hours: 1**

Two weeks of intensive field training conducted at an Army installation. Combines the study of Military Heliborne Operations, strenuous physical conditioning and advanced rappelling. Culminates with 4 rappels from a military helicopter.

MSL3850 Leaders Development And Assessment Course **Credit Hours: 3**

This is an intense five-week course conducted between the junior and senior year. This concentrated practical training provides an opportunity to evaluate the student's application of academic knowledge over a myriad of leadership situations and tasks.

MSL3990 Independent Study In Military Science **Credit Hours: 1-3**

Students will study an appropriate subject mutually agreed upon between the student and instructor.

MSL4010 Leadership And Staff Management **Credit Hours: 3**

Develops student proficiency in planning and executing complex operations, functioning as a member of a staff and mentoring subordinates. Students explore the Army's training management system, methods of effective staff collaboration and developmental counseling techniques.

MSL4020 Officership **Credit Hours: 3**

Course includes a case study analysis of military law and practical exercises on establishing an ethical command climate. Students complete a semester-long Senior Leadership Project that requires them to plan, organize, analyze and demonstrate their leadership skills.

MSL4030 Advanced Pt Planning I **Credit Hours: 1**

Students design and implement a physical training program for the entire semester. They supervise and critique implementation of the MS 3030 students' weekly training plans.

MSL4040 Advanced Pt Planning II **Credit Hours: 1**

Students design and implement a physical training program for the entire semester. The sessions build upon the skill level previously achieved.

MSL4800 Gettysburg: A Military History **Credit Hours: 3**

An in-depth study of the battle and its place in American history, examining combat leadership and the decision making process at both the operational and tactical level.

MSL4990 Independent Study In Military Science **Credit Hours: 1-3**

Students will study an appropriate subject mutually agreed upon between the student and instructor.

MUS1000 Performance Laboratory **Credit Hours: 0**

Required of music majors and minors. Weekly departmental student recitals. Offered as P/NC only.

MUS1010 Concert Attendance **Credit Hours: 0**

Required of music majors and minors. Attend 8 department concerts and 2 non-department concerts. Offered as P/NC only.

MUS1100 Introduction To Music Technology **Credit Hours: 1**

Intrduction of basic computer applications for music sequencing, notation, and digital recording used in music classes.

Corequisites: MUS1610

MUS1200 Group Guitar For The Non-Major **Credit Hours: 2**

Basic guitar skills: note reading, chords, accompaniment, variety of musical styles. Includes rhythmic and aural training, theory and ensemble playing. Students must provide acoustic guitars. May be repeated for credit.

MUS1250 Group Piano For The Non-Major I **Credit Hours: 2**

Classical and popular literature in a variety of styles and period will be explored. May be repeated for credit. Students may take P/NC.

MUS1280 Group Voice For The Non-Major **Credit Hours: 2**

Develops basic vocal techniques with attention to the principles of voice production, vowel formation, breathing, articulation and flexibility. May be repeated for credit. Open to all students regardless of major. Students may take P/NC.

MUS1500 String Class **Credit Hours: 2**

Principles, concepts, difficulties typical of stringed instruments and pedagogy addressed through performance.

Corequisites: MED1000

MUS1510 Percussion Class **Credit Hours: 2**

Principles, concepts, difficulties typical of percussion instruments and pedagogy addressed through performance.

Corequisites: MED1000

MUS1530 Brass Class **Credit Hours: 2**

Principles, concepts, difficulties typical of brass instruments and pedagogy addressed through performance.

Corequisites: MED1000

MUS1550 Woodwinds Class **Credit Hours: 2**

Principles, concepts, difficulties typical of woodwind instruments and pedagogy addressed through performance.

Corequisites: MED1000

MUS1560 Instrumental Class **Credit Hours: 3**

An overview of principles, concepts and difficulties typical of string, brass, woodwind and percussion instruments.

Corequisites: MED1000

MUS1570 Piano Class For Music Majors I **Credit Hours: 1**

Progressive sequence of keyboard skills courses stressing technique, repertoire, sight reading, harmonization, improvisation and transposition. Includes keyboard technology.

MUS1580 Piano Class For Music Majors II **Credit Hours: 1**

Provides instruction in keyboard skills required for the various degree programs. Progressive sequence of courses stressing technique, repertoire, sight reading, harmonization, transposition. Includes keyboard technology.

Prerequisites: MUS 1570 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS1590 Jazz Piano Class **Credit Hours: 1**

Provides instruction in jazz keyboard skills, including jazz techniques, voicings, repertoire, sight reading and harmonization.

Prerequisites: MUS 1570 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS1610 Music Theory And Ear Training I **Credit Hours: 4**

Dictation, ear training and sight singing skills in rhythm, melody and harmony. Basic theoretical skills include key signatures, clefs, notation of scales, chords and rhythm patterns. Includes computer technology.

MUS1620 Music Theory And Ear Training II **Credit Hours: 4**

Continuation of 1610. Emphasis on melody dictation and sight singing. Additional skill development in harmonizations, figured bass and study of basic forms. Includes computer technology.

Prerequisites: MUS 1610 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS1700 Jazz Fundamentals **Credit Hours: 2**

Introduction to jazz performance practices, nomenclature, chord and music notation, analysis and improvisation.

Prerequisites: MUS 1610 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS1800 Applied Music **Credit Hours: 1-4**

Private music lessons for first-year music majors and minors. Must be taken twice, and a grade of B or better is required in each semester.

MUS1810 Applied Music For The Non-Major **Credit Hours: 1-2**

MUS 1810 APPLIED MUSIC FOR THE NON-MAJOR Private music lessons for provisional and non-music majors. May be repeated for credit. Limited by instructor availability.

MUS2200 Music Theory For The Non-Major **Credit Hours: 3**

Introduction to the fundamentals of music, including notation, key and time signatures, scales, intervals, chords, melodic and formal analysis and elementary compositional procedures. Students may take P/NC. Not for major credit.

MUS2210 Introduction To Music **Credit Hours: 3**

The study of vocal and instrumental music from the standard repertoire primarily through listening. Previous music training is not required, but regular listening is part of the course. Not for major credit. Students may take P/NC.

MUS2220 History Of Jazz **Credit Hours: 3**

A study of the development of jazz styles including listening skills and historical perspectives. Because the major innovations and stylistic interpretations of jazz are a result of African Americans, the course includes a study of how their culture influenced the development of jazz. Students may take P/NC.

MUS2250 Musical Diversity In The United States **Credit Hours: 3**

The cultures of various ethnic groups (Native Americans, African-American, Mennonite, Moravian, Creole and others) are examined, especially as they relate to the development of folk, popular and art music styles in the United States. This course includes listening. Students may take P/NC. Not for major credit.

MUS2260 Electronic Music **Credit Hours: 2**

Introduction to electronic music for non-majors. Electronic music as a part of music history. Techniques, literature, scientific advances, instrumental development. Hands-on learning using studio instruments, composition and recording.

MUS2270 Recording Techniques **Credit Hours: 2**

Examination of contemporary recording technology for live recording and studio applications. Emphasis on microphone placement, signal processing devices and multitrack mixdown techniques.

MUS2410 Music History And Literature I: World Music And Jazz **Credit Hours: 3**

A study of music from various world cultures and jazz. A special emphasis is placed on developing listening skills.

MUS2420 Cultures And Music Of Non-Western Styles **Credit Hours: 3**

This course examines the following world cultures and their music-Indonesian, Chinese, Middle eastern, North African, South African, West African and Balkan Countries. Student may take P/NC.

MUS2530 Diction For Singers I **Credit Hours: 1**

International Phonetic Alphabet mastery; pronunciation of English, German, Latin, Italian and French in relation to art song and aria form, emphasis on the sound of the language. Meets two hours per week.

MUS2540 Diction For Singers II **Credit Hours: 1**

Continuation of MUS 2530. IPA; pronunciation of German and English in relation to art song and aria form; emphasis on the sound of the language. Meets two hours per week.

MUS2550 Voice Class For Music Majors **Credit Hours: 1**

For instrumental and keyboard majors. Develops basic vocal techniques with attention to the principles of voice production, vowel formation, breathing, articulation and flexibility. May be repeated for credit.

Prerequisites: MUS 1620 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS2570 Piano Class For Music Majors III **Credit Hours: 1**

Provides instruction in keyboard skills required for the various degree programs. Progressive sequence of courses stressing technique, repertoire, sight reading, harmonization, improvisation and transposition. Includes keyboard technology.

Prerequisites: MUS 1580 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS2580 Piano Class For Music Majors IV **Credit Hours: 1**

Provides instruction in keyboard skills required for the various degree programs. Progressive sequence stressing technique, repertoire, sight reading, harmonization, improvisation and transposition. Includes keyboard technology.

Prerequisites: MUS 2570 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS2590 Class Piano For Piano Majors **Credit Hours: 2**

MUS-2590 KEYBOARD FUNDAMENTALS for PIANO MAJORS, to be taken in conjunction with music theory. Fundamental keyboard skills including harmony, technique, transposition, improvisation, sight reading, score reading, and ensemble playing.

Corequisites: MUS2610

MUS2610 Music Theory And Ear Training III **Credit Hours: 4**

Continuation of 1620. Students develop proficiency in all musical elements through analytical, written and aural studies. Primary materials are the common practice period literature and small formal units. Includes computer technology.

Prerequisites: MUS 1620 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS2620 Music Theory And Ear Training IV **Credit Hours: 4**

Continuation of 2610. Students are introduced to contemporary topics, styles and music through analysis and creative assignments. Dictation and sightsinging studies will also develop topics from MUS 2610. Includes computer technology.

Prerequisites: MUS 2610 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS2700 Jazz Improvisation I **Credit Hours: 2**

Practical application of beginning jazz improvisation techniques as applied to modal, blues, and the chord-scale relationships, ear training, and style analysis as applied to jazz.

Prerequisites: MUS 1700 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS2710 Jazz Improvisation II **Credit Hours: 2**

Practical application of intermediate jazz improvisation techniques as applied to jazz standards and bebop playing.

Prerequisites: MUS 2700 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS2800 Applied Music **Credit Hours: 1-4**

Private music lessons for sophomore music majors.

Prerequisites: MUS 1800 FOR LEVEL UG WITH MIN. GRADE OF B

MUS2990 Special Projects **Credit Hours: 1-3**

Designed to meet the needs of individual students who wish to pursue projects in the area of music.

MUS3010 University Band **Credit Hours: 1**

Open to any qualified student.

MUS3020 Jazz Ensemble **Credit Hours: 1**

Open to any qualified student.

MUS3030 Brass Choir **Credit Hours: 1**

Open to a limited number of qualified students.

MUS3050 Chamber Music Ensembles **Credit Hours: 1**

Open to a limited number of qualified students upon sufficient demand and with the permission of the instructor. The study and performance of chamber music literature.

MUS3090 University Orchestra **Credit Hours: 1**

Open to any qualified student. Fulfills the large ensemble participation requirement for instrumentalists.

MUS3140 Concert Chorale **Credit Hours: 1**

A select group of singers.

MUS3150 Jazz Vocalstra **Credit Hours: 1**

Open to qualified students.

MUS3160 Women's Chorus **Credit Hours: 1**

Open to any qualified student. No audition necessary.

MUS3170 Madrigal Singers **Credit Hours: 1**

Open to a limited number of qualified students.

MUS3180 Men's Chorus **Credit Hours: 1**

Open to any qualified student. No audition necessary.

MUS3190 Opera Workshop **Credit Hours: 1**

MUS3260 Advanced Electronic Music **Credit Hours: 3**

A continuation of the aesthetic and technical aspects of electronically or computer generated music and sound. Emphasis on individual lab work and project presentation.

Prerequisites: MUS 2260 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS3270 Advanced Recording Techniques **Credit Hours: 2**

This class examines state-of-the-art recording techniques with an emphasis on digital audio technology. Topics include principles of sound design and hard disk recording systems, with assigned production in the lab.

Prerequisites: MUS 2270 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS3410 Music History And Literature II **Credit Hours: 3**

A study of the literature, composers, theorists, trends and musical style of Western Music from Plainchant through Early Classic.

MUS3420 Music History And Literature III **Credit Hours: 3**

An intensive study of the music of the Late Classic period to the present day through the examination of major trends and styles.

MUS3450 Jazz History And Literature **Credit Hours: 3**

An in-depth study of jazz styles, trends, performers and composers geared for music majors.

MUS3470 Theatre Sound **Credit Hours: 3**

Students study the methods and techniques of sound production and design used in the theatre. Tools and techniques of audio production are used in laboratory recording and mixdown. (Alternate years.)

Prerequisites: MUS 2270 FOR LEVEL UG WITH MIN. GRADE OF D- OR THR 1040 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS3500 Conducting **Credit Hours: 2**

Basic baton techniques and rehearsal routine applicable to both vocal and instrumental conducting. Preparation of scores and opportunity for conducting experience with student groups. Includes MUS 1000:002 and video recording technology.

Prerequisites: MUS 1620 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS3510 Choral Conducting **Credit Hours: 2**

Conducting techniques and rehearsal routine especially concerned with choral groups. Opportunities to direct choral groups. Includes MUS 1000:002 and video recording technology.

MUS3520 Instrumental Conducting **Credit Hours: 2**

Conducting techniques and rehearsal routine especially concerned with instrumental ensembles. Opportunities to direct student instrumental groups. Includes MUS 1000:002 and video recording technology.

Prerequisites: MUS 3500 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS3530 Marching Band Techniques **Credit Hours: 1**

The organization and training of marching bands in secondary schools. Problems of planning and charting football shows for band of different sizes. Opportunity for practical laboratory experience. Includes computer technology and both music writing and marching band drill design software.

MUS3540 Jazz Synthesis **Credit Hours: 1**

Instruction in the art of improvisation in the jazz style. A study of jazz harmony, melodic construction, keyboard voicings and practice materials. Lab instruction in combo performance techniques and repertoire. May be repeated for credit.

Prerequisites: MUS 2620 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS3550 Vocal Pedagogy **Credit Hours: 3**

Intended for classroom music teachers, school choral directors, and private voice teachers. A study of anatomy and acoustics of the vocal instrument and techniques for developing the singing voice, with a survey of materials for class and individual instruction, including appropriate solo and ensemble repertoire for singers in elementary and secondary schools.

MUS3560 Jazz Pedagogy And Conducting **Credit Hours: 2**

A study of teaching materials and conducting techniques of the jazz idiom.

Prerequisites: MUS 2620 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS3580 Functional Piano Techniques **Credit Hours: 2**

Designed for keyboard majors to develop functional skills and harmonization, improvisation, transposition, sight reading, score reading, etc. Successful completion of this course fulfills the piano requirement for student teaching and Licensure.

Prerequisites: MUS 2590 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS3590 Piano Pedagogy **Credit Hours: 2**

Exploration of techniques and materials for comprehensive, private and group instruction.

MUS3610 Form And Analysis **Credit Hours: 3**

The study of musical structures: the theme, the motive, the phrase and analysis of homophonic and polyphonic forms and procedures.

Prerequisites: MUS 2620 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS3630 Instrumentation **Credit Hours: 3**

A study of wind, percussion and string instrumentation; scoring for small ensembles, band and orchestra. Opportunities for performances of student scores by university organizations. Includes computer technology.

Prerequisites: MUS 2620 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS3650 Jazz Arranging And Composition I **Credit Hours: 3**

Scoring for contemporary jazz ensembles. A study of jazz notations, voicing, orchestration and composition for small jazz groups and the rhythm section.

Prerequisites: MUS 2620 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS3660 Jazz Arranging And Composition II **Credit Hours: 3**

Advanced scoring for contemporary jazz ensembles. A study of notations, voicing, orchestration and composition for large jazz groups.

Prerequisites: MUS 3650 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS3700 Jazz Improvisation III **Credit Hours: 2**

Practical application of advanced jazz improvisation techniques as applied to avant-garde, fusion and chromatic playing.

Prerequisites: MUS 2710 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS3710 Jazz Improvisation IV **Credit Hours: 2**

Practical application of jazz improvisation techniques as applied to contemporary jazz composition and performance.

Prerequisites: MUS 3700 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS3800 Applied Music **Credit Hours: 1-4**

Private music lessons for junior music majors.

Prerequisites: MUS 2800 FOR LEVEL UG WITH MIN. GRADE OF B

MUS3810 Recital **Credit Hours: 1**

A juried public performance of no more than 25-minutes of musical compositions selected from repertoire studied in MUS 4800 and in consultation with the student's major applied professor.

Prerequisites: MUS 2800 FOR LEVEL UG WITH MIN. GRADE OF D-

Corequisites: MUS4800

MUS4410 Instrumental Music Literature **Credit Hours: 3**

Course will examine the development of the orchestral and chamber repertoire, from their origins to the present day.

Prerequisites: (MUS 2410 FOR LEVEL UG WITH MIN. GRADE OF D- AND MUS 2420 FOR LEVEL UG WITH MIN. GRADE OF D-)

MUS4420 Vocal Music Literature **Credit Hours: 3**

A study of the vocal literature of western music, including art song, choral and operatic work.

Prerequisites: (MUS 2410 FOR LEVEL UG WITH MIN. GRADE OF D- AND MUS 2420 FOR LEVEL UG WITH MIN. GRADE OF D-)

MUS4450 Keyboard Literature **Credit Hours: 3**

A survey of piano or organ/harpsichord literature from earliest publications to the present. Emphasis on a particular period or genre at the discretion of the instructor.

MUS4620 Counterpoint: Introduction **Credit Hours: 3**

Study of counterpoint in all species, primarily in 18th century style. Development of motive with invertible counterpoint, canon, and analysis and composition of inventions and fugues.

Prerequisites: MUS 2620 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS4690 Seminar In Music Composition **Credit Hours: 2**

May be repeated, but maximum accumulated credit is six hours toward graduation. Beginning composition including writing in the smaller musical forms. Opportunity for performance of original student compositions.

Prerequisites: MUS 2620 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS4800 Applied Music **Credit Hours: 1-4**

Private music lessons for seniors.

Prerequisites: MUS 3800 FOR LEVEL UG WITH MIN. GRADE OF B

MUS4810 Recital **Credit Hours: 1**

A juried public performance of no more than 50-minutes of musical compositions selected from repoertoire studied in MUS 4800 and in consultation with a student's major applied professor.

Prerequisites: MUS 2800 FOR LEVEL UG WITH MIN. GRADE OF D-

Corequisites: MUS4800

MUS4980 Seminar: Special Topics **Credit Hours: 1-3**

Critical inquiry into specific topics through lectures, class seminar reports and discussion. Seminar topics announced in semester schedule of classes.

MUS4990 Special Projects **Credit Hours: 1-3**

Designed to meet the needs of individual students who wish to pursue projects in the area of music.

MUS5010 University Band **Credit Hours: 1**

Students will perform a wide variety of band literature.

MUS5020 Jazz Ensemble **Credit Hours: 1**

Open to any qualified student.

MUS5030 Brass Choir **Credit Hours: 1**

Open to a limited number of qualified students.

MUS5050 Chamber Music Ensembles **Credit Hours: 1**

Open to a limited number of qualified students upon sufficient demand and with the permission of the instructor. The study and performance of chamber music literature.

MUS5090 University Orchestra **Credit Hours: 1**

Open to any qualified student.

MUS5140 Concert Chorale **Credit Hours: 1**

A select group of singers.

MUS5150 Jazz Vocalstra **Credit Hours: 1**

Open to qualified students.

MUS5160 Women's Chorus **Credit Hours: 1**

Open to any qualified student.

MUS5180 Men's Chorus **Credit Hours: 1**

Open to any qualified student.

MUS5190 Opera Workshop **Credit Hours: 1**

Open to any qualified student.

MUS5410 Music History And Literature: World Music **Credit Hours: 3**

Explores the function and styles of music in various cultures.

MUS5440 Music History And Literature: Special Topics **Credit Hours: 3**

The area of study will be announced at the time the course is offered.

MUS5490 Music History And Literature: The Twentieth Century **Credit Hours: 3**

An intensive study of the literature, composers, theorists, trends and musical styles during the 20th century.

MUS5510 Choral Conducting **Credit Hours: 2**

Conducting techniques and rehearsal routine, especially concerned with choral groups. Opportunities to direct student choral groups.

Prerequisites: MUS 3500 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS5520 Instrumental Conducting **Credit Hours: 2**

Conducting techniques and rehearsal routine especially concerned with instrumental ensembles. Opportunities to direct student instrumental groups.

Prerequisites: MUS 3500 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS5590 Piano Pedagogy **Credit Hours: 3**

Exploration of techniques and materials for comprehensive, private and group instruction.

MUS5610 Analytical Techniques **Credit Hours: 3**

Application of various analytical theories of music to selected works from different style periods to further the understanding of musical forms and works.

Prerequisites: MUS 2620 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS5630 Counterpoint: Comparison Of Styles **Credit Hours: 3**

A study of 16th, 18th and 20th century polyphony. Analysis of selected works and composition exercises will be the basis for comparing and contrasting these three styles.

Prerequisites: MUS 4620 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS5800 Applied Music **Credit Hours: 1-2**

1, 2, or 4 hours. Methods and literature of the highest levels (6,7,8). Preparation for professional-level performance. May be repeated for credit with permission of the instructor. Intended for music education majors.

MUS5900 Graduate Studies In Music **Credit Hours: 3**

The study of sources and bibliographical materials in music.

MUS6000 Master's Recital **Credit Hours: 0**

Required for the Master of Music Performance degree. A passing grade documents successful completion of the recital requirement. Must be taken during the semester in which the recital is presented.

Corequisites: MUS6800

MUS6560 Jazz Pedagogy and Conducting **Credit Hours: 2**

An in-depth study of pedagogical materials, rehearsal and conducting.

MUS6600 Jazz Composition and Arranging Seminar **Credit Hours: 2**

Examination and analysis of jazz scores with creative assignments in jazz orchestration and composition in traditional and contemporary styles. May be repeated one time.

MUS6650 Seminar In Music Arranging **Credit Hours: 3**

Examination and analysis of scores of varied composers and styles; creative assignments in orchestration exploring traditional and contemporary textures and timbres.

Prerequisites: MUS 2620 FOR LEVEL UG WITH MIN. GRADE OF D-

MUS6690 Seminar In Music Composition **Credit Hours: 2**

May be repeated, but maximum accumulated credit is six hours. Beginning composition, including writing in the smaller musical forms, to advanced compositions for large.

MUS6700 Jazz Improvisation Seminar **Credit Hours: 2**

Practical application and analysis of jazz improvisation methods and techniques as applied to contemporary jazz composition and performance. May be repeated one time.

MUS6800 Applied Music **Credit Hours: 2-5**

Study of methods and literature of the highest levels (7,8). Preparation for professional-level performance. May be repeated for credit with permission of the instructor.

MUS6980 Seminar: Special Topics **Credit Hours: 1-3**

Selected subjects in music in areas of special interest to the advanced master's degree student. The seminar topic will be announced in the semester schedule of classes.

MUS6990 Independent Study **Credit Hours: 1-3**

Designed to meet the needs of individual students who wish to pursue projects in the area of music.

NASC1100 Our Physical World **Credit Hours: 3**

Elementary study of motion and gravity, thermodynamics, wave phenomena, light, electricity, magnetism, models of the atom, the solar system, stars and galaxies.

NASC1110 Physical World Laboratory **Credit Hours: 1**

Quantitative measurements and predictions concerning the physical universe in a laboratory environment. Motion, electric and magnetic fields, properties of matter, temperature and heat, radioactive decay. Two hours of laboratory per week.

Corequisites: NASC1100

NURA1180 Nursing For Adults I **Credit Hours: 5**

This course focuses on caring for adults in long term and community health settings with an emphasis on at risk popula Pathophysiology of selective organ systems and nursing process are introduced.

Corequisites: NURA1190

NURA1190 Foundations Of Nursing **Credit Hours: 5**

Using Orem's theory and nursing process, this course introduces the student to basic concepts in nursing and foundational skills. Theory is reinforced by caring for individuals in acute-care settings.

Prerequisites: (MATH 1320 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1120 FOR LEVEL UG WITH MIN. GRADE OF D- AND KINE 2560 FOR LEVEL UG WITH MIN. GRADE OF D-)

NURA1290 Nursing For Adults II **Credit Hours: 6**

Nursing management of adults with acute and chronic health deviations. Clinical experiences in acute and community settings under the guidance of faculty.

Prerequisites: (KINE 2570 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURA 1180 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURA 1190 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURA 2110 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY))

NURA2110 Nursing For Mental Health **Credit Hours: 4**

Focuses on nursing care of individuals across the life-span experiencing self-care deficits in mental health in acute/community settings. Clinical emphasis is on coping/adaptation and therapeutic communication.

Prerequisites: (KINE 2570 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURA 1180 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURA 1190 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURA 1290 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY))

NURA2180 Nursing For Maternal, Newborn And Women's Health **Credit Hours: 4**

Focus is on health care needs of childbearing families, newborns and the gynecological care of women with self-care deficits. Clinical experiences are in ambulatory, acute care and community settings.

Prerequisites: (NURA 1290 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURA 2110 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND KINE 2590 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY))

NURA2190 Nursing For Adults III **Credit Hours: 6**

Nursing management of adults with increasingly complex self-care deficits. Clinical experiences in acute and chronic care settings, under the guidance of faculty.

Prerequisites: (NURA 1290 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURA 2110 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND KINE 2590 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY))

NURA2280 Nursing For Infants And Children **Credit Hours: 4**

Focus is on health promotion/health deviations of infants and children in a family centered approach. Clinical will emphasize the elements present in theory in diverse locations with multiple patients.

Prerequisites: (NURA 2180 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURA 2190 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURA 2300 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY))

NURA2290 Nursing For Adults IV **Credit Hours: 6**

Focuses on nursing management of adults with self-care deficits requiring critical, urgent, acute and rehabilitative care. Clinical experiences include leadership/management roles with guidance from faculty and preceptor.

Prerequisites: (NURA 2180 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURA 2190 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURA 2300 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY))

NURA2300 Nursing For Self Care **Credit Hours: 1**

The course is designed to be the capstone experience to assist the senior nursing students as they prepare for their professional practice. Health promotion, maintenance and restoration are emphasized to promote self-care behaviors.

Prerequisites: (NURA 2180 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURA 2190 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURA 2280 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURA 2290 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY))

NURA2990 Independent Study **Credit Hours: 1-4**

A course designed to provide educational opportunities in a specialized academic area under the direct supervision of a faculty member.

NURS1000 Professional Nursing Orientation **Credit Hours: 1**

Course provides opportunity for development of academic, personal, and interpersonal skills required to become a successful, independent learner, introduces student to professional nursing as a career.

NURS3010 Nursing Agency I: Concepts **Credit Hours: 3**

Provides foundational knowledge of nursing theory, professional concepts, theapeutic communication and applied interventions. Incorporates laboratory experience with simulated clients.

NURS3060 Holistic Approach To Nursing Interventions **Credit Hours: 3**

Focuses on the holistic model integrating technology, scientific knowledge, and alternative/complementary clinical caring modalities into basic and advanced practices of nursing. Elective.

NURS3070 Nursing Care Of The Terminally Ill: Issues In Palliative Care **Credit Hours: 2**

This theory course focuses on the concepts, knowledge, and skills necessary to provide holistic nursing care to individuals and their significant others who are affected by a terminal illness. Elective.

Prerequisites: NURS 3120 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY)

NURS3110 Nursing Agency II: Assessment **Credit Hours: 3**

Provides for acquisition of knowledge and development of skill in comprehensive nursing assessment.

Prerequisites: NURS 3010 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3130 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3170 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3180 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY)

NURS3120 Adult Health Nursing I **Credit Hours: 7**

Care of adults with common nursing problems using Orem's Self-Care Deficit Theory of Nursing.

Prerequisites: NURS 3010 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3110 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3130 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3170 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3180 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY)

NURS3130 Gerontological Nursing **Credit Hours: 3**

Focus on theories and concepts of aging and health, based on Universal Self-Care Requisites from Orem's Self-Care Deficit Theory of Nursing.

Prerequisites: NURS 3010 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3110 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3170 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3180 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY)

NURS3170 Concepts Of Pathophysiology **Credit Hours: 3**

Basic science of pathophysiology of disease across the life span. Prepares for critical thinking in application of concepts to nursing practice.

Prerequisites: NURS 3010 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3110 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3130 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3180 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY)

NURS3180 Concepts Of Nursing Pharmacology **Credit Hours: 3**

Fundamental pharmacologic principles of physiological response to drugs, therapeutic outcomes and potential drug interactions. Prepares for critical thinking in application of pharmacotherapy principles to nursing.

Prerequisites: NURS 3010 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3110 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3130 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3170 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY)

NURS3210 Nursing Agency III: Interventions **Credit Hours: 3**

Application of principles of nursing interventions in the learning lab on simulated clients.

Prerequisites: (NURS 3010 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3110 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3130 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3170 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3180 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY))

NURS3620 Women's Health Nursing **Credit Hours: 6**

Provides didactic and clinical opportunities relevant to care of women across lifespan. Various clinical settings used in application of nursing system with a self-care framework.

Prerequisites: (NURS 3120 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3210 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3630 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY))

NURS3630 Mental Health Nursing **Credit Hours: 6**

Psychosocial influences on self-care agency are presented within the context of culturally competent nursing care. Concepts are interpreted within self-care deficit theory and applied in clinical experiences.

Prerequisites: (NURS 3010 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3110 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3130 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3170 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3180 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY))

NURS3640 Parent-Child Nursing **Credit Hours: 6**

Nursing care of infants, children, and adolescents within families and groups using Orem's Self Care Deficit Theory of Nursing. Clinical experiences in wellness, acute, and chronic care settings.

Prerequisites: (NURS 3120 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3170 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3180 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3210 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY))

NURS4010 Community Health Nursing **Credit Hours: 6**

Focuses on design and implementation of nursing care for aggregates and communities. Individual and family care is provided within the context of population health.

Prerequisites: (NURS 3120 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3170 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3180 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3210 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY))

NURS4020 Leadership And Management In Nursing **Credit Hours: 3**

Focus on principles and theories of management/leadership as a basis for provision of nursing care.

Prerequisites: (NURS 3620 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3640 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 4010 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY))

NURS4030 Adult Health Nursing II **Credit Hours: 7**

Design and implementation of nursing systems for the adult population with complex health states. Includes application of nursing leadership principles in clinical settings.

Prerequisites: (NURS 3620 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3640 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 4010 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY))

NURS4040 Interdisciplinary Ethics **Credit Hours: 1**

Interdisciplinary dialogue among health professionals. Explores potential conflicts among nurses, physicians and other health care providers. Includes conflict resolution, truth telling, withdrawing nutrition and hydration, whistle blowing and assisted suicide. Elective.

NURS4050 Oncology Nursing **Credit Hours: 3**

Focuses on concepts, knowledge and skills necessary to assist individuals who have cancer and their families. Emphasizes helping people to care for themselves throughout their illness. Elective.

NURS4080 Perioperative Nursing Care **Credit Hours: 4**

Clinical elective with focus on the practice of perioperative nursing.

Prerequisites: (NURS 3120 FOR LEVEL UG WITH MIN. GRADE OF D- AND NURS 3170 FOR LEVEL UG WITH MIN. GRADE OF D- AND NURS 3180 FOR LEVEL UG WITH MIN. GRADE OF D- AND NURS 3210 FOR LEVEL UG WITH MIN. GRADE OF D-)

NURS4120 Nursing Leadership And Management **Credit Hours: 5**

Focus on principles of management and leadership for the baccalaureate prepared nurse. Provision of professional care in a variety of settings.

Prerequisites: (NURS 4230 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 4180 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 4190 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY))

NURS4140 Research Inquiry I And II **Credit Hours: 4**

Students will critically evaluate publishing research for clinical relevance, identify a research problem, select a conceptual framework, review selected literature, and prepare a quantitative or qualitative research proposal.

NURS4150 Pathophysiology For Advanced Practice Nursing **Credit Hours: 3**

Overview of pathologic processes that influence the development of diseases in humans. Includes discussion of normal function and the impact of disease on health.

NURS4160 Advanced Health Assessment **Credit Hours: 3**

Focuses on specialty specific comprehensive and problem focused advanced patient assessment. Specialty laboratory practice and supervision are required.

NURS4170 Health Care Aspects Of Human Sexuality **Credit Hours: 3**

Examination of impact on health care of selected components of human sexuality. Aspects include sexual assessment, sexual changes during the life span and disturbances in sexuality due to health conditions. Elective.

NURS4180 Theoretical And Professional Foundations In Nursing **Credit Hours: 4**

Focus on RN student's transition to professional higher education and theory-based practice. Current professional issues are explored. Political, socioeconomic, ethical and legal issues are critically examined and discussed.

NURS4190 Interpersonal Strategies In Nursing Of Older Individuals **Credit Hours: 6**

Focus on application of Self-Care Deficit Theory of Nursing and health maintenance for older individuals within the family and environment; emphasis on development of interpersonal skills for RNs.

Prerequisites: (NURS 3770 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 4180 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY))

NURS4200 Population Focused Care **Credit Hours: 5**

Focuses on the design and implementation of nursing care for aggregates and communities. Individual and family care is provided within the context of population focused care.

Prerequisites: (NURS 3770 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 4190 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 4230 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY))

NURS4210 Applied Nursing Research **Credit Hours: 3**

Emphasizes all phases of the research process. Analysis and application of research strategies for the professional nurse.

NURS4220 Applied Pathophysiology And Pharmacology **Credit Hours: 4**

Concepts of pathophysiology and pharmacology. Prepares for critical thinking in application of concepts to nursing practice.

NURS4230 Applied Health Assessment **Credit Hours: 3**

Nursing application of health history, physical and psychosocial assessment skills across the lifespan.

NURS4250 Professional Nursing Competency **Credit Hours: 2**

This course provides an overview of NCLEX and practice in the application of knowledge required for the professional nursing examination.

Prerequisites: (NURS 3620 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3640 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 4010 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY))

NURS4280 Theories Of Addictive Behaviors **Credit Hours: 3**

Research and treatment related to addictive behaviors are critiqued. Nursing interventions specific for addicted persons are evaluated. Implications of legal/social/health policies on services for the population are explored. Elective.

NURS4600 Critical Care Nursing **Credit Hours: 4**

Clinical elective with focus on design and implementation of partially and wholly compensatory nursing systems for clients with critical health states.

Prerequisites: (NURS 3110 FOR LEVEL UG WITH MIN. GRADE OF D- AND NURS 3120 FOR LEVEL UG WITH MIN. GRADE OF D- AND NURS 3130 FOR LEVEL UG WITH MIN. GRADE OF D- AND NURS 3140 FOR LEVEL UG WITH MIN. GRADE OF D- AND NURS 3210 FOR LEVEL UG WITH MIN. GRADE OF D-)

NURS4720 Special Topics In Women's Health **Credit Hours: 4**

Clinical elective with focus on advanced issues in women's and neonatal healthcare.

Prerequisites: (NURS 3130 FOR LEVEL UG WITH MIN. GRADE OF D- AND NURS 3620 FOR LEVEL UG WITH MIN. GRADE OF D- AND NURS 3630 FOR LEVEL UG WITH MIN. GRADE OF D- AND NURS 3640 FOR LEVEL UG WITH MIN. GRADE OF D- AND NURS 4010 FOR LEVEL UG WITH MIN. GRADE OF D- AND NURS 4950 FOR LEVEL UG WITH MIN. GRADE OF D-)

NURS4950 Nursing Research **Credit Hours: 3**

Introduction to concepts, issues and processes in nursing research. Emphasis on critical analysis and evaluation of published research for nursing practice and research role of baccalaureate nurse.

Prerequisites: NURS 3620 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 3640 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY) AND NURS 4010 FOR LEVEL UG WITH MIN. GRADE OF C (MAY BE TAKEN CONCURRENTLY)

NURS4990 Independent Study **Credit Hours: 1-3**

Independent study in nursing.

NURS501 Adult Health Nursing II **Credit Hours: 4**

NURS502 Adult Health Nursing III **Credit Hours: 4**

NURS504 Hlth Assess and Nrs Prmng Hlth **Credit Hours: 6**

Using Orem's SCDT, students assess individuals and families and apply the nursing process in order to promote the health of individuals and families across the life span. Includes 90 clinical hours.

NURS505 Integrative Hlth Science I **Credit Hours: 3**

Examines foundational chemical, physical, cellular biological, and microbiological principles of human physiology. Focuses on advanced physiologic and pathophysiologic mechanisms underlying human responses to genetic, defense, and nervous system disease.

NURS506 Professional Socialization I **Credit Hours: 3**

Focuses on the development of the professional nursing role. Students explore the effects of historical, legal, and ethical influences on professional nursing. Cultural diversity also is examined.

NURS507 Therapeutic Comm Skills Nurses **Credit Hours: 3**

Focuses on therapeutic communication skills at the intrapersonal and interpersonal levels. Explore nursing agency from a holistic perspective. Includes 30 clinical hours.

NURS509 Psych Mental Health Nursing I **Credit Hours: 5**

Investigate human behavior using nursing and other theories from related disciplines. Apply psychotherapeutic intervention theories. Evaluate for clinical application with individuals and groups. Includes 120 clinical hours.

NURS510 Psych Mental Health Nursing II **Credit Hours: 6**

Analyze human responses to biopsychosocial and spiritual stressors. Examine stressors in relation to group and family psychotherapy theories. Includes 180 clinical hours.

NURS511 Psych Mental Health Nurs Pract **Credit Hours: 4-6**

Students maintain a caseload of clients/families/groups experiencing mental health problems in a practicum setting. Motivation for change will be analyzed in relation to human behavior. Includes 240 clinical hours.

NURS514 Design Nurs Sys Promote Slf Cr **Credit Hours: 0-7**

Apply Orem's SCDT in the design and implementation of nursing systems that assist individuals and families in achieving and maintaining optimal health. Includes 90 clinical hours.

NURS516 Professional Socialization II **Credit Hours: 3**

Integrate nursing theory and models into professional nursing practice. Focuses on ethical, political, and economic issues that impact nursing practice. Differentiation of advanced practice and entry level roles are explored.

NURS519 Adv Interpersonal Intervention **Credit Hours: 2-3**

Integrates interpersonal strategies and complementary modalities through peer counseling and supervision. Analyzes personal abilities and limitations in developing therapeutic relationships with individuals and groups. Includes 60 hours clinical.

NURS522 Field Experience Seminar **Credit Hours: 1-3**

Program capstone experience that integrates nursing theory, research, and practice to fulfill the requirements of the MSN degree.

NURS524 Desgn Nurs Sys Com Hlth Sts **Credit Hours: 6**

Using Orem's SCDT, students design and implement nursing systems that assist individuals and families with complex problems to achieve and maintain optimal health. End of life care is addressed. Includes 120 clinical hours.

NURS525 Health Science II **Credit Hours: 3**

Focuses on advanced physiologic and pathophysiologic mechanisms underlying disease across the life span. Examines cardiovascular, respiratory, endocrine, muscular skeletal, nervous, genitourinary, hepatobiliary, renal, integumentary and gastrointestinal systems.

Prerequisites: (NURS 504 FOR LEVEL GR WITH MIN. GRADE OF AND NURS 505 FOR LEVEL GR WITH MIN. GRADE OF AND NURS 506 FOR LEVEL GR WITH MIN. GRADE OF AND NURS 507 FOR LEVEL GR WITH MIN. GRADE OF)

NURS527 Health Care Aspect Human Sex **Credit Hours: 3**

Examination of the impact of selected components of human sexuality on health care. Aspects include sexual assessment, changes during the life span and disturbances in sexuality due to health conditions.

NURS528 Theories of Addictive Behavior **Credit Hours: 2**

Required for Psychiatric-Mental Health Students

NURS533 Health Assessments **Credit Hours: 3**

Focuses on acquisition of graduate level skills in collection and documentation of assessment data across the life-span. Differentiates normal from abnormal findings. Supervised laboratory practice is required.

NURS535 Parent/Child Health Nursing II **Credit Hours: 4**

NURS536 Parent/Child Hlth Nrs Practicu **Credit Hours: 4**

NURS540 Theoretical and Ethical Found **Credit Hours: 3**

Explores roots of nursing as a science and art. Examines personal and professional values in the context of ethical decision-making. Emphasis is on analysis and evaluation of selected nursing and ethical theories. Course Enrollment is Limited.

NURS544 Population Focused Care **Credit Hours: 6**

Students apply epidemiological principles and Orem's SCDT to improve the health status of aggregates, vulnerable populations and communities. Includes 90 clinical hours.

NURS546 Desn Hlth Care Org and Systems **Credit Hours: 3**

NURS550 Family and Cultural Diversity **Credit Hours: 3**

Explores family and cultural diversity theories and processes. Examines assessment, analysis and evaluation of family function. Analyzes cultural competence of advanced practice nursing. Course Enrollment is Limited.

NURS551 Adv Clinical Seminar:Nursing **Credit Hours: 3-4**

Application of nursing theory and research with clients in wellness promotion or complex care states. Emphasis is on the assessment and analysis of human responses and outcomes of care.

NURS553 Public Policy and Health Care **Credit Hours: 2-3**

Explores the public policy process from agenda setting through program evaluation. Focus is on how health problems are brought to the attention of government and solutions are obtained. Some field work is expected.

NURS554 Adv Practicum Nurs Sys Design **Credit Hours: 12**

Students demonstrate integration of nursing knowledge and skill in designing and implementing nursing systems in a capstone clinical experience. Includes 300 clinical hours.

NURS555 Anatomy and Pathophysiology **Credit Hours: 3**

NURS567 Pharmacology **Credit Hours: 3**

Focuses on fundamental pharmacological principles. Prepares for critical thinking in application of pharmacotherapy principles to nursing. Emphasizes physiological responses to drugs, expected outcomes, and potential drug interactions.

Prerequisites: (NURS 504 FOR LEVEL GR WITH MIN. GRADE OF AND NURS 505 FOR LEVEL GR WITH MIN. GRADE OF AND NURS 506 FOR LEVEL GR WITH MIN. GRADE OF AND NURS 507 FOR LEVEL GR WITH MIN. GRADE OF)

NURS568 Adv Phys/Pathphysiology I **Credit Hours: 3**

Focuses on advanced physiologic and pathophysiologic mechanisms underlying human responses to disease illness across the life-span. Students will build on existing knowledge of human anatomy and physiology. Course Enrollment is Limited.

NURS569 Adv Pharmocotherapeutics **Credit Hours: 3**

Focuses on advanced pharmacologic principles in decision-making for pharmacotherapy. Emphasizes responses to drugs, expected outcomes, and potential drug interactions. Discusses professional responsibilities of prescriptive privileges.

NURS570 Clinical Diagnostic Reasoning **Credit Hours: 2**

Focuses on analysis of a clinical problem using clinical reasoning and diagnostic hypothesis formation. Students will practice developing a working diagnosis. Includes 60 hours of laboratory.

NURS574 Advanced Health Assessments **Credit Hours: 4**

Focuses on acquisition of advanced skills in collection and documentation of assessment data across the life span. Differentiates normal from abnormal findings. Supervised laboratory practice is required. Course Enrollment is Limited. Includes 60 hours laboratory.

NURS581 PNP I: Care of Children - Well **Credit Hours: 6**

Focuses on the health care needs of children and adolescents and principles of health promotion and wellness. Students will have an opportunity to begin development of skills in primary and specialty care settings. Includes 180 hours clinical.

NURS582 PNP Clin II: Acute/Chronic **Credit Hours: 6**

Focuses on the care of children and adolescents with an emphasis on the management of common acute and stable chronic illnesses. Includes 180 hours clinical.

NURS583 PEDIATRIC NURSE PRACTITIONER CLINICAL III: COMPLEX, CHRONIC, ILLNESSES, OR DISABILITIES **Credit Hours: 6**

Focuses on management of common and complex acute and chronic conditions of children and adolescents. Issues of disability and developmental conditions are addressed. Emphasis is on integration of the advanced practice role.

Prerequisites: NURS 582 FOR LEVEL GR WITH MIN. GRADE OF D-

NURS585 Prim Care of Women and Childrn **Credit Hours: 6**

NURS586 Primary Care of Adolescents **Credit Hours: 6**

NURS587 Prim Care of Adults and Older **Credit Hours: 6**

NURS591 Advanced Nursing Research **Credit Hours: 3**

Critically evaluate published research for clinical relevance, identify a research problem, select a conceptual framework, review selected literature, and prepare a quantitative or qualitative research proposal.

NURS593 ANP: Care of Adults and Older — Credit Hours: 7

NURS594 ANP:Care of Adolescnts and Adl — Credit Hours: 6

NURS595 ANP-CNS I:Care-Women and Conc — Credit Hours: 4

NURS596 ANP/CNS II:Care of Adolescents — Credit Hours: 6

NURS597 ANP/Clin Nurse Spec III **Credit Hours: 5**

NURS598 Comprehensive Exam in Nursing **Credit Hours: 3**

Program capstone emphasizes independent comprehensive review preparation for exams with synthesis of knowledge from the total graduate nursing curriculum and review of relevant literature in selected field of study.

NURS601 Research Inquiry I **Credit Hours: 2**

NURS602 Research Inquiry II **Credit Hours: 2**

NURS603 ANP-Certificate Clin I **Credit Hours: 7**

Focuses on the care of adolescents and adults with an emphasis on the management of common acute and stable chronic illnesses. Includes 180 clinical hours.

NURS604 ANP-Certificate Clinical II **Credit Hours: 6**

Focuses on the care of women and principles of health promotion and wellness. Students will have the opportunity to continue development of skills in primary care. Includes 180 clinical hours.

NURS605 ANP-Certificate Clinical III **Credit Hours: 6**

Focuses on management of common and complex acute and chronic conditions of adults and older adults. Urgent care issues are addressed. Emphasis is on integration of the advanced practice role. Includes 180 clinical hours.

NURS607 Adv Comm Skils Grp Dynamics **Credit Hours: 3**

Focuses on advanced therapeutic communication skills in the nurse-client relationship and analysis of Self-care agency. Complementary modalities are explored. Includes 45 clinical hours.

NURS608 ANP/CNS Care Adol Adults **Credit Hours: 6-7**

Focuses on the care of adolescents and adults with an emphasis on the management of common acute and stable chronic illnesses. Includes 180 clinical hours.

NURS609 Women and Wellness **Credit Hours: 6-7**

Focuses on the care of women and principles of health promotion and wellness. Students will have an opportunity to begin development of skills in primary and specialty care settings. Includes 180 clinical hours.

NURS610 ANP/CNS III Older Adultsl **Credit Hours: 6-8**

Focuses on management of common and complex acute and chronic conditions of adults and older adults. Urgent care issues are addressed. Emphasis is on integration of the advanced practice role. Includes 240 clinical hours.

NURS614 Adv Pract Nurs: Role and Issue **Credit Hours: 2**

Focuses on the issues and role of the advanced practice nurse, including historical and current perspectives of the advanced role. Examines health care system issues pertaining to advanced practice.

NURS621 FNP Cln I:Adolescent and Adult **Credit Hours: 6-7**

Focuses on primary care of common and chronic illness of adolescents and adults. Clinical experiences will continue to incorporate women and children, adults, and target populations. Includes 180 clinical hours.

NURS622 FNP Clin II:Women and Children **Credit Hours: 6-7**

Focuses on the primary care of children and women's health and includes normal prenatal care. Emphasis is on health promotion and common acute illness. Includes 180 clinical hours.

NURS623 FNP Clin III:Adults/Older Adul **Credit Hours: 6-8**

Focuses on primary care management of acute and chronic conditions of adults and older adults. Urgent care issues are addressed. Emphasizes integration of primary care concepts across the life span. Includes 240 clinical hours.

NURS650 Genetics in Clinical Practice **Credit Hours: 3**

This course focuses on the fundamental concepts and principles of human genetics and the applications of this knowledge to clinical practice situations in a variety of settings.

NURS660 Topics in Nursing **Credit Hours: 2**

Explores selected nursing topics with in-depth analysis and Synthesis. Classroom and independent study required. Students choose one sub-topic. Sub-topics are Nursing Theory, Family Theories, Ethics, Cultural Diversity.

NURS664 Nursing Case Management **Credit Hours: 3**

NURS668 Transcultural Nursing Lifecycl **Credit Hours: 3**

NURS670 Issues of Aging **Credit Hours: 3**

Examination of issues of aging focusing on current research and reading in gerontological and rehabilitation nursing practice. May be repeated for credit.

NURS671 Develop Instruc Progrm Nursing **Credit Hours: 3**

Focuses on skills to develop curricular components for nursing instructional programs. Examines the relationships among mission, philosophy, goals, and outcomes for various learning environments.

NURS672 Tchg, Lrng and Evaluation Nurs **Credit Hours: 4**

Focuses on teaching-learning theories, processes, strategies, and styles. Examines evaluation principles and strategies in the classroom and clinical setting.

NURS673 Practicum/Seminar in Teaching **Credit Hours: 3-4**

Applies knowledge of learning and evaluation theories in the development and implementation of a program of instruction. Within a seminar format, emphasizes significant issues in healthcare education.

NURS689 Independent Study in Nursing **Credit Hours: 0-4**

The student and faculty member agree on a course of study that will enable the student to achieve his/her objectives. An Independent Study Contract and Evaluation Form are submitted to the Associate Dean of the Graduate Nursing Program. May be repeated for credit.

NURS695 Research Practicum **Credit Hours: 2**

NURS696 Res Inquiry III:Scholarly Proj **Credit Hours: 0-2**

Research in nursing to fulfill the requirement of Master of Nursing Program. May be repeated for credit and divided across semesters.

NURS697 Scholarly Project **Credit Hours: 1-2**

Option to develop an in-depth scholarly project to fulfill the research requirement of the Nursing Master's Program. The (required) 2 credit hours may be divided and repeated across semesters. Only 2 credit hours are applicable for the degree. May be repeated for credit.

NURS698 Inquiry III:Thesis **Credit Hours: 0-2**

Implementation of thesis. May be repeated for credit.

NURS699 Thesis Research **Credit Hours: 1-3**

Research in nursing to fulfill the research requirement of the Nursing Master's Program. The (required) 2 credit hours may be divided and repeated across semesters. Only 2 credit hours are applicable for the degree. May be repeated for credit.

NURS701 Scientific Basis Nsg Practice **Credit Hours: 1-3**

NURS702 Org Systems Leadership in Hlth **Credit Hours: 3**

This course examines the application of organizational and leadership theories and strategies to assess process and outcomes in a variety of health care settings. Focus is on the role of the advanced practice nurse in analyzing clinical patterns and issues in complex practice settings, health care organizations, and communities.

NURS703 Qual Mgmt/Perf Improve Hlth Or **Credit Hours: 3**

Examines principles/practice of quality management/clinical performance in care delivery and outcomes. Focuses on role and accountability of the advanced practice nurse/collaborative team for maintaining safety and improving quality of care.

NURS704 Applied Nursing Research **Credit Hours: 3**

This course is an extension of basic research and utilization methods. The focus is on preparing the student for leadership in clinical research, research utilization, and grant-writing activity.

NURS705 Inf Tech Nsg & Hlth Care Syst **Credit Hours: 3**

Systematic assessment of clinical and administrative information needs of health care systems. Examines the technology and strategies needed to support patients, nurses, and health care delivery in dynamic environmental systems.

NURS706 Population Health **Credit Hours: 3**

This course uses epidemiologic models to analyze and construct interventions for health care delivery systems. The focus is on safe, quality, culturally-appropriate advanced nursing practice activities to meet emerging world needs.

NURS707 Mktg/Entrep Act Cmplx Hlth Cr **Credit Hours: 3**

This course examines marketing and entrepreneurial strategies for advanced nursing practice in complex health care systems. The focus is on creating and evaluating marketing plans and entrepreneurial activities.

NURS708 Evdnc Base Diag Mthds Adv Prac **Credit Hours: 3**

This course examines diagnostic laboratory and imaging methods as foundational evidence for assessment and intervention in the care of patient populations. The focus is on examing the basis for diagnosis using laboratory and imaging procedures, assessing the quality and reliability/sensitivity of diagnostic test results, understanding the technology used in diagnostic testing, and utilizing cost-benefit data in ordering diagnostic testing.

NURS709 Project Seminar **Credit Hours: 1-3**

This course provides a forum to articulate and explore advanced nursing practice roles and responsibilities. The focus will be on leading nursing practice in patient advocacy, teaching, collaboration, and the design and provision of care.

NURS710 Evidence-based Practice Proj **Credit Hours: 1-3**

This course is guided, independent project utilizing research to improve patient outcomes, health care delivery, or nursing practice.

NURS718 Evdnc Base Admin Comp Hlth Sys **Credit Hours: 3**

This course examines evidence practices in administrative health care settings. The focus is on examing current status and creating and evaluating innovative administrative practices based on best practices. Competencies include model application for finance and clinical outcomes.

NURS797 Capstone Pract: Direct Care **Credit Hours: 1-6**

Individually precepted practicum that requires advanced nursing practice with individuals and groups. Includes seminar that facilitates synthesis and application of all prior learning for evidence-based practice.

NURS798 Capstone Pract: Indirect Care **Credit Hours: 1-6**

Individually precepted practicum that requires leadership and practice at the aggregate/systems/organizational level of health care. Includes required seminar that facilitates application, synthesis, and evaluation of prior learning in applied practice.

NURSWAC Nursing - Writing Intensive **Credit Hours: 0**

OCCT2550 PURPOSEFUL LIVING ROLE OF OCCUPATIONAL THERAPY **Credit Hours: 3**

Introduces the occupational therapy profession and occupational therapy¿s role in maintaining functional daily living. Explore your daily occupations through self-reflection and develop strategies for personal growth.

OCCT500 Concept Framework Therap Occup — **Credit Hours: 3**

OCCT501 OT Models of Practice I — **Credit Hours: 5**

OCCT502 OT Models of Practice II — **Credit Hours: 5**

OCCT503 OT Models of Practice III — **Credit Hours: 4**

OCCT504 **OT Models of Practice IV** **Credit Hours: 5**

OCCT510 **Research in OT I** **Credit Hours: 4**

OCCT511 **Research in OT II** **Credit Hours: 3**

OCCT520 **OT Advocacy I** **Credit Hours: 2**

OCCT521 **OT Advocacy II** **Credit Hours: 2**

OCCT540 **Conditions in OT** **Credit Hours: 2**

OCCT550 **Fieldwork Seminar I** **Credit Hours: 1**

OCCT551 **Fieldwork Seminar II** **Credit Hours: 1**

OCCT605 OT Models of Practice V — Credit Hours: 5

OCCT606 OT Models of Practice VI — Credit Hours: 4

OCCT607 OT Models of Practice VII — Credit Hours: 4

OCCT610 OT Thesis Research I — Credit Hours: 3

OCCT611 OT Thesis Research II **Credit Hours: 3**

OCCT612 Research in OT III **Credit Hours: 3**

OCCT613 Research in OT IV **Credit Hours: 3**

OCCT622 OT Advocacy III **Credit Hours: 2**

OCCT623 **OT Advocacy IV** **Credit Hours: 2**

OCCT652 **Fieldwork Seminar III** **Credit Hours: 1**

OCCT653 **Fieldwork Seminar IV** **Credit Hours: 1**

OCCT670 **OT Fieldwork Level II** **Credit Hours: 0-5**

OCCT672 **Fieldwork Level II** **Credit Hours: 5**

OCCT680 **Independent Study OT** **Credit Hours: 0-12**

OCCT689 **Community Needs** **Credit Hours: 3**

OCCT690 **Program Development** **Credit Hours: 3**

OCCT700 Conceptual Framework Therapy **Credit Hours: 3**

Provides logical system for occupational therapy models of practice. Applies terminology through student experiences with occupational analysis and synthesis. Includes Level I fieldwork experience (12 hours). Fall Prerequisite: Admission to OTD Program

OCCT701 OT Models of Practice I **Credit Hours: 5**

Examines the biomechanical model of practice including its musculoskeletal and kinesiological foundations. Includes assessments and interventions for prevention, adaptation, and compensation. Includes Level I fieldwork experience (12 hours). Fall Prerequisite: Admission to OTD Program

OCCT702 OT Models of Practice II **Credit Hours: 5**

Part I: Continues OCCT701. Part II: An introduction to the nervous system, with emphasis on the neurological basis of human occupation and the effects of neurological conditions (disease, injury, and mental illness) on occupational performace. Examines a model of practice based on functions of the nervous system. Spring Prerequisite:Occupational Therapy Models of Practice I Co-requisite: Occupational Therapy Models of Practice III

OCCT703 OT Models of Practice III **Credit Hours: 4**

Explores historical and alternative conceptual frameworks of occupation and therapeutic occupation. Examines cognitively based and general models of practice. Presents related assessments and interventions for prevention, adaptation, and compensation. Includes two Level I fieldwork experiences (24 hours and 9 hours). Spring Prerequisite: Occupational Therapy Models of Practice I Co-requisite: Occupational Therapy Models of Practice II

OCCT704 OT Models of Practice IV **Credit Hours: 5**

Examines models of practice specific to pediatric population with neurological impairments. Intervention strategies focus on neurodevelopment, neurorehabilitation, sensory intergration, motor learning, and motor control impairments. Includes two Level I fieldwork experiences (12 hours and 16 hours). Summer Prerequisite: Occupational Therapy Models of Practice II

OCCT711 Research in OT I **Credit Hours: 4**

Examines quantitative and qualitative research methodologies. Includes critical analysis of occupational therapy research. Explores areas of possible research interest with guidance from potential major advisors. Fall Prerequisite: Admission to the OTD Program

OCCT721 OT Advocacy I **Credit Hours: 2**

Explores the role of occupational therapist as educator. Examines educational theory, instructional methods and technology, and evaluation of teaching effectiveness with patients, families, peers, supervisees, and community groups. Fall Prerequisite: Admission to OTD Program

OCCT722 OT Advocacy II **Credit Hours: 2**

Applies teaching principles as students assume the role of educators to the community. Explores the role of the therapist in design, development, implementation, and evaluation of occupational therapy curricula. Integrates presentation of self and professionalism. Summer Prerequisite: Occupational Therapy Advocacy I

OCCT731 FW and Professional Dev I **Credit Hours: 1**

Introduces Level I and Level II Fieldwork, and the Capstone Experience, including policy, procedures, and documentation and the portfolio assignment. Defines professional behavior and health care communication. Encourages discussion of Level I fieldwork experiences. Fall Prerequisite: Admission to the OTD Program

OCCT732 FW and Professional Dev II **Credit Hours: 1**

Emphasizes interviewing clients for an occupational profile. Encourages discussion of Level I fieldwork experiences. Introduces the course sequence of the Capstone Experience. Spring Prerequisite: Fieldwork and Professional Development Seminar I

OCCT733 FW and Professional Dev III **Credit Hours: 1**

Introduces Capstone Seminar opportunities in teaching, research, program development, or clinical practice. Introduces Capstone Manual and structure for planning the individualized Capstone Experience. Provides a forum for discussion fieldwork experiences. Summer Prerequisite: Fieldwork and Professional Development Seminar II

OCCT740 Conditions in OT **Credit Hours: 2**

Reviews the physical and mental health conditions that challenge successful and satisfying occupational performance, with an emphasis on the aspects of medical management and rehabilitation relevant to the role of the occupational therapist. Spring Prerequisite: Occupational Therapy Advocacy I

OCCT803 OT Advocacy III **Credit Hours: 2**

OCCT805 OT Models of Practice V **Credit Hours: 5**

Examines occupational therapy models of practice that support occupational performance throughout the lifespan, including prevention of occupational impairment. Examines the psychosocial aspects of disease and disability. Includes Level I fieldwork experience (56 hours). Fall Prerequisite: Occupational Therapy Models of Practice IV Co-requisite: Occupational Therapy Models of Practice VI

OCCT806 OT Models of Practice VI **Credit Hours: 4**

Examines compensation-oriented models of practice including assistive technology, positioning, patient handling, and mobility. Presents occupational and non-occupational assessments and interventions for prevention, adaptation, and compensation. Includes Level I fieldwork experience (2 hours). Fall Prerequisite: Occupational Therapy Models IV Co-requisite: Occupational Therapy Models V

OCCT807 OT Models of Practice VII **Credit Hours: 4**

Examines contemporary and possible models of practice emphasizing wellness, health promotion, community care, population-based intervention and other emerging trends. Provides students with leadership experiences in program development. Includes two Level I fieldwork experiences (20 hours). Spring Prerequisite: Occupational Therapy Models of Practice VI Corequisite: Occupational Therapy Models of Practice VIII

OCCT808 OT Models of Practice VIII **Credit Hours: 3**

Models of practice emphasizing group occupational forms, group process, and therapeutic use of self in groups. Involves practice in assessment and intervention with persons experiencing both physical and mental health conditions. Includes Level I fieldwork experience at mental health sites (10 hours). Spring Prerequisite: Occupational Therapy Models of Practice VI Co-requisite: Occupational Therapy Models of Practice VII

OCCT812 Research in OT II **Credit Hours: 3**

Provides structure for student, guided by faculty mentor, to define a research question, investigate the literature, explore the site(s) for data collection, and prepare preliminary research proposal. Involves individual faculty contact. Spring Prerequisite: Research in Occupational Therapy I

OCCT813 Research in Occ Therapy III **Credit Hours: 3**

Provides structure for student to begin data collection after obtaining official approval of project by major advisor and institutional review board. Involves individual faculty contact. Fall, Spring, Summer Prerequisite: Research in Occupational Therapy II

OCCT814 Research in OT IV **Credit Hours: 3**

Includes completion of data collection, analysis of results, submission of approved final project in journal article format, and formal presentation of the research project. Involves individual faculty contact. Fall, Spring, Summer Prerequisite: Research in Occupational Therapy III

OCCT823 OT Advocacy III **Credit Hours: 2**

Identifies advocacy issues relevant to occupational therapy and introduces community resources that can enhance successful and satisfying reintegration back into home, school, work, and/or community. Explores legislation and ethical issues that influence health care provision. Fall Prerequisite: Occupational Therapy Advocacy II

OCCT824 OT Advocacy IV **Credit Hours: 4**

Examines leadership, management, and supervision of occupational therapy services in a dynamic health care system. Addresses legislative, regulatory, and payment issues affecting program development. Encourages leadership development. Spring Prerequisite: Occupational Therapy Advocacy III

OCCT834 FW and Professional Dev IV **Credit Hours: 1**

Addresses communication with children, family members, and health care professionals; ethics and safety; and cultural diversity. Students identify Capstone Practicum sites, site mentor(s), and the faculty mentor. Encourages discussion of Level I fieldwork experiences. Fall Prerequisite: Fieldwork and Professional Development Seminar II

OCCT835 FW and Professional Dev V **Credit Hours: 3**

Addresses issues of clinical supervision; Level II fieldwork policy, procedures, and documentation; and professional development. Provides a forum for discussion of fieldwork occupational analysis. Students develop a comprehensive Capstone Proposal. Includes Level I fieldwork experience (40 hours). Spring Prerequisite: Fieldwork and Professional Development Seminar IV

OCCT836 Fieldwork Level II **Credit Hours: 3**

Provides a 12-week, full-time, supervised fieldwork experience where students refine entry-level abilities to integrate occupational therapy theory, research, and practice under supervision and with collaboration of the academic institution. Summer, Fall Prerequisite: Completion of academic content except research, which may be taken concurrently

OCCT837 Fieldwork Level II **Credit Hours: 6**

Provides a 12-week, full-time, supervised fieldwork experience where students refine entry-level abilities to integrate occupational therapy theory, research, and practice under supervision and with collaboration of the academic institution. Fall Prerequisite: OCCT836 and completion of academic content except research, which may be taken concurrently

OCCT838 Capstone Fieldwork Practicum **Credit Hours: 6**

Students develop skills in teaching, research, program development, advocacy or clinical practice with mentorship by faculty and on-site practitioners. This course, in combination with OCCT890 and 891 requires documentation of 640 hours. Spring Prerequisite: Level II fieldwork, competency exam, and completion of academic content except research, which may be taken concurrently. Co-requisites: Mentored Studies in Capstone Area or approved elective and Mentored Capstone Dissemination

OCCT840 Phys Agent Mod and Non Occ Met **Credit Hours: 2**

Addresses non-occupational methods including physical agent modalities and technology used with medically complex patients. Covers scientific underpinnings and regulatory guidelines for appropriate use of physical agent modalities in occupational therapy. Summer Prerequisite: Occupational Models of Practice VI

OCCT880 Independent Study OT **Credit Hours: 0-12**

Intensive study in a field of interest, including theoretical and experimental work. May be repeated for credit. Prerequisite: Admission to OTD program or consent of instructor Fall, Spring, Summer

OCCT890 Mentored Capstone Disseminatio **Credit Hours: 3**

Focuses on individualized issues arising in the Capstone Practicum. Involves mentorship by site and faculty practitioners and culminates in a paper and a presentation dealing with a specific area within occupational therapy. Spring Prerequisite: Level II fieldwork and completion of academic content except research, which may be taken concurrently Co-requisites: Mentored Studies in Capstone Area or approved elective and Capstone Practicum

OCCT891 Mentored Studies:Capstone Area **Credit Hours: 3**

Focuses on mastery of literature and in-depth knowledge of an area within occupational therapy through exploration of library, electronic, and clinical resources. Lends theoretical and research support to the Capstone Practicum. Spring Prerequisite: Level II fieldwork and completion of academic content except research, which may be taken concurrently Co-requisites: Mentored Capstone Dissemination and Capstone Fieldwork Practicum

OPEP4940 Office of Professional Experience Programs Internship/Co-Op **Credit Hours: 0**

Students receive intensive work experience related to their academic course work and career field.

OPMT3310 Computer And Model Based Business Decision Making **Credit Hours: 3**

An introduction to quantitative methods of decision making including linear programming, transportation, simulation, waiting line analysis, advanced decision theory and Markov chains. Computer packages and creative thinking will be emphasized.

Prerequisites: BUAD 2070 FOR LEVEL UG WITH MIN. GRADE OF D-

OPMT3340 Quality Management **Credit Hours: 3**

Covers major aspects of managing total quality functions in manufacturing/service operations. Includes: quality assurance, reliability, SPC, inspection/testing, acceptance sampling, product liability and organization of the quality function.

Prerequisites: BUAD 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

OPMT3600 Facility Planning **Credit Hours: 3**

The study of the design and planning of new facilities. Topics include product and process design, the application of CIM, FMS, capacity planning, facility location and layout, and job design.

Prerequisites: BUAD 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

OPMT3610 Production Planning And Scheduling **Credit Hours: 3**

Production planning, its relation to organizational/operational goals, MRP, MRP II, capacity management, JIT, scheduling of manufacturing/service systems and emerging/new concepts in the discipline will be discussed.

Prerequisites: BUAD 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

OPMT3660 Materials Management And Purchasing — Credit Hours: 3

Relationship between materials management and firm's strategic goals, forecasting, competing through materials management, inventory management of independent demand, aggregate inventory management, joint replenishing, purchasing, state-of-the-art supplier management, distribution and control.

Prerequisites: BUAD 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

OPMT3750 Applied Regression Analysis — Credit Hours: 3

This course emphasizes model formulation, tests of goodness-of-fit and significance of parameters for the traditional linear regression model. Business applications/cases and computer packages will be emphasized.

Prerequisites: BUAD 2070 FOR LEVEL UG WITH MIN. GRADE OF D-

OPMT3760 Management Science: Cases And Applications — Credit Hours: 3

A study of business applications emphasizing model formulation, identification and validation. The course includes linear programming, critical path methods, queuing and various modeling techniques using computer packages.

Prerequisites: OPMT 3310 FOR LEVEL UG WITH MIN. GRADE OF D-

OPMT4020 Statistics For Administrative Services — Credit Hours: 3

An introduction to statistical methods, including measures of central tendency and dispersion, probability and probability distributions, sampling theory, decision theory, regression and correlation. Specifically designed for the Administrative Services program.

Prerequisites: MATH 1270 FOR LEVEL UG WITH MIN. GRADE OF D-

OPMT4150 Operations Management Cases **Credit Hours: 3**

Course includes projects, presentations and case analysis using operation management models and computer software. Role of emerging topics (e.g. bench-marking, reengineering, systems/technology) in operations management will also be covered.

Prerequisites: (OPMT 3340 FOR LEVEL UG WITH MIN. GRADE OF D- AND OPMT 3610 FOR LEVEL UG WITH MIN. GRADE OF D- AND OPMT 3660 FOR LEVEL UG WITH MIN. GRADE OF D-)

OPMT4210 Project Management **Credit Hours: 3**

This course covers planning, organizing and controlling projects. Topics such as project selection, scheduling, budgeting, resource management, project control, time-based competition and concurrent engineering will be discussed.

Prerequisites: BUAD 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

OPMT4420 Service Operations Management **Credit Hours: 3**

The service sector is the dominant sector of the economy. Students will study various aspects of Operations Management as applied to service industries. Services for manufacturing will be emphasized.

Prerequisites: BUAD 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

OPMT4450 Forecasting **Credit Hours: 3**

A study of forecasting techniques including: time series analysis, moving average, exponential smoothing, auto-regressive models and Box-Jenkins. A statistical software package is used.

Prerequisites: BUAD 2070 FOR LEVEL UG WITH MIN. GRADE OF D-

OPMT4750 Analysis Of Variance **Credit Hours: 3**

Analysis of variance and related topics such as factorial design and Latin squares. Experimental designs including repeated measures, factorial and nested designs.

OPMT4760 Simulation Modeling And Analysis Of Manufacturing/Service Systems **Credit Hours: 3**

This course provides an introduction to modeling stochasticity in manufacturing/service systems using various techniques such as simulation, Queuing networks and other techniques using simulation software and business cases.

Prerequisites: BUAD 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

OPMT4940 Internship for OPMT Or SCM **Credit Hours: 3**

A prearranged work study program where students specializing in OPMT or SCM optain on the job experience while learning and applying the basic concepts and techniques of their respective discipline.

OPMT4980 Contemporary Topics In Operations Management **Credit Hours: 3**

Selected current topics in Operations Management practice, trends and technology.

Prerequisites: BUAD 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

OPMT5510 Business Statistics With Computer Applications **Credit Hours: 3**

The application of statistics to business problem solving. Topics include descriptive statistics, probability theory, hypothesis testing, decision making, regression and correlation analysis, and time series analysis.

OPMT5520 Analysis Of Manufacturing & Service Systems **Credit Hours: 3**

Concepts, methods and strategies for designing and managing manufacturing and service systems are discussed. Topics include creating flexible and efficient systems for producing services and goods, total quality management, time-based competition, global production and sourcing, information and computer systems applications.

Prerequisites: OPMT 5510 FOR LEVEL GR WITH MIN. GRADE OF D-

OPMT5730 Modeling And Analysis For Manufacturing **Credit Hours: 3**

An introduction to model building and analysis with special reference to manufacturing and operations management issues. The students will be introduced to linear models, dynamic programming models and stochastic models.

OPMT6100 Time Series Analysis And Forecasting **Credit Hours: 3**

An introduction to time series analysis and forecasting. Moving average, exponential smoothing, trend projection with and without seasonality and regression-based techniques are covered. Statistical software packages are used.

Prerequisites: OPMT 5520 FOR LEVEL GR WITH MIN. GRADE OF D- OR BUAD 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

OPMT6180 Regression Analysis For Business **Credit Hours: 3**

Analysis of business data using simple and multiple regression. Model building, estimation and hypothesis testing in the context of regression, and stepwise regression are covered. Statistical software packages are used.

OPMT6240 Management Science Applications **Credit Hours: 3**

The definition of business problems and the formulation of appropriate models for their study. Cases and readings are discussed to illustrate the use of management science modeling techniques.

Prerequisites: OPMT 5730 FOR LEVEL GR WITH MIN. GRADE OF D-

OPMT6270 Simulation **Credit Hours: 3**

Simulation will be introduced through appropriate software (e.g. SIMAN, ARENA). Fitting distributions, validation, verification, confidence intervals, experimental design, comparison with analytic models will be the topics covered.

Prerequisites: OPMT 5520 FOR LEVEL GR WITH MIN. GRADE OF D- OR BUAD 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

OPMT6510 Project Management **Credit Hours: 3**

This course deals with managing of projects in research and development, manufacturing, construction and service organizations. Students will discuss cases and use extensively a project management software.

Prerequisites: OPMT 5520 FOR LEVEL GR WITH MIN. GRADE OF D-

OPMT6680 Total Quality Management And Spc — Credit Hours: 3

The course introduces students to the TQM philosophy, concepts and tools. Provides student with an overall approach for the design of a system to manage quality along the entire value adding chain.

Prerequisites: OPMT 5520 FOR LEVEL GR WITH MIN. GRADE OF D- OR BUAD 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

OPMT6690 Manufacturing Resources Management — Credit Hours: 3

Study methods such as MRP, JIT and bottleneck approaches used in managing manufacturing activities through business cases where appropriate. Tools such as scheduling, and inventory systems will be studied.

Prerequisites: OPMT 5520 FOR LEVEL GR WITH MIN. GRADE OF D- OR BUAD 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

OPMT6710 Managing Operations — Credit Hours: 3

This course provides an integrative and interdisciplinary approach to managing operations. Strategic and tactical issues will be addressed primarily through business cases with focus on policy setting and problem solving.

Prerequisites: OPMT 5520 FOR LEVEL GR WITH MIN. GRADE OF D-

OPMT6720 Manufacturing Systems Design — Credit Hours: 3

Discusses the design and implementation of cellular and flexible manufacturing systems including the role of group technology. Describes the role of flexible manufacturing systems in the integrated and automated facility.

Prerequisites: OPMT 5520 FOR LEVEL GR WITH MIN. GRADE OF D-

OPMT6960 Master's Thesis **Credit Hours: 1-6**

Master's Thesis

OPMT7520 Analysis Of Manufacturing & Service Systems **Credit Hours: 3**

Concepts, methods and strategies for designing and managing manufacturing and service systems are discussed. Topics include creating flexible and efficient systems for producing services and goods, total quality management, time-based competition, global production and sourcing, information and computer systems applications.

Prerequisites: OPMT 5510 FOR LEVEL GR WITH MIN. GRADE OF D-

OPMT8270 Simulation **Credit Hours: 3**

Simulation will be introduced through appropriate software (e.g. SIMAN, ARENA). Fitting distributions, validation, verification, confidence intervals, experimental design, comparison with analytic models will be the topics covered.

Prerequisites: OPMT 5520 FOR LEVEL GR WITH MIN. GRADE OF D-

OPMT8680 Total Quality Management And Spc **Credit Hours: 3**

The course introduces students to the TQM philosophy, concepts and tools. Provides student with an overall approach for the design of a system to manage quality along the entire value adding chain.

Prerequisites: OPMT 5520 FOR LEVEL GR WITH MIN. GRADE OF D-

OPMT8690 Manufacturing Resources Management **Credit Hours: 3**

Study methods such as MRP, JIT and bottleneck approaches used in managing manufacturing activities through business cases where appropriate. Tools such as scheduling, and inventory systems will be studied.

Prerequisites: OPMT 5520 FOR LEVEL GR WITH MIN. GRADE OF D-

OPMT8720 Manufacturing Systems Design **Credit Hours: 3**

Discusses the design and implementation of cellular and flexible manufacturing systems including the role of group technology. Describes the role of flexible manufacturing systems in the integrated and automated facility.

Prerequisites: OPMT 5520 FOR LEVEL GR WITH MIN. GRADE OF D-

ORGD4240 Communication Strategies For Leading Change **Credit Hours: 3**

An applied course that focuses on development of communication competencies for people leading and facilitating change in organizations. Focuses on preparation for and delivery of intraorganizational and interorganizational communication programs.

Prerequisites: (BUAD 3030 FOR LEVEL UG WITH MIN. GRADE OF D- AND COMM 3880 FOR LEVEL UG WITH MIN. GRADE OF D-)

ORGD6170 The Individual And The Organization **Credit Hours: 3**

Studies the behavior of individuals and small groups in organizations. Includes the behavioral science theories and research applicable to the work environment.

Prerequisites: MGMT 5110 FOR LEVEL GR WITH MIN. GRADE OF D-

ORGD6380 Comparative Organization **Credit Hours: 3**

An analysis of the organizational design and administrative systems in different types of organizations such as business and other profit-making organization; non-profit organization - hospitals, unions, governmental and universities.

ORGD6590 Organization Theory And Design **Credit Hours: 3**

Course focuses on designing and managing innovative, continuously learning organizations in response to today's rapidly changing technological and market environment. The emphasis will be on top-down, macro perspective.

Prerequisites: MGMT 5110 FOR LEVEL GR WITH MIN. GRADE OF D-

ORGD7110 Management Of Organizational Business **Credit Hours: 3**

Organizational behavior (individual and small group) and organizational theory (large group and total organization). Also included is a review of the key functions of management; (1) planning, (2) organizing, (3) directing and (4) controlling.

ORTAARS ARS Rocket Launch **Credit Hours: 0**

ORTAARSH ARS Rocket Launch Honors **Credit Hours: 0**

Prerequisites: HON FOR MIN. SCORE OF 1

ORTAARST ARS Rocket Transition **Credit Hours: 0**

ORTBBUS BUS Rocket Launch **Credit Hours: 0**

ORTBBUSA BUS Rocket Launch Assoc Deg **Credit Hours: 0**

ORTBBUSAT BUS Rocket Transition Assc Deg **Credit Hours: 0**

ORTBBUSH BUS Rocket Launch Honors **Credit Hours: 0**

Prerequisites: HON FOR MIN. SCORE OF 1

ORTBBUST BUS Rocket Transition **Credit Hours: 0**

ORTEEDU EDU Rocket Launch **Credit Hours: 0**

ORTEEDUH EDU Rocket Launch Honors **Credit Hours: 0**

Prerequisites: HON FOR MIN. SCORE OF 1

ORTEEDUT EDU Rocket Transition **Credit Hours: 0**

ORTNALL Rocket Launch - All Colleges **Credit Hours: 0**

ORTNARS Arts and Sciences Orientation **Credit Hours: 0**

ORTNARSH Arts & Sciences Honors Orientn — **Credit Hours: 0**

ORTNARST Arts & Sciences Transfer Ortn — **Credit Hours: 0**

ORTNBUS Business Administration — **Credit Hours: 0**

ORTNBUSA Business Adm Assoc Orientation — **Credit Hours: 0**

ORTNBUSAT Business Admn Assoc Transfer **Credit Hours: 0**

ORTNBUSH Business Adm Honors Orientnt **Credit Hours: 0**

ORTNBUST Business Transfer Orientation **Credit Hours: 0**

ORTNEDU Education Orientation **Credit Hours: 0**

ORTNEDUH Education Honors Orientation **Credit Hours: 0**

ORTNEDUT Education Transfer Orientation **Credit Hours: 0**

ORTNHSHS HSHS Orientation **Credit Hours: 0**

ORTNHSHSH HSHS Honors Orientation **Credit Hours: 0**

ORTNHSHST HSHS Transfer Orientation **Credit Hours: 0**

ORTNNUR Nursing Orientation **Credit Hours: 0**

ORTNNURH Nursing Honors Orientation **Credit Hours: 0**

ORTNNURST Nursing Transfer Orientation **Credit Hours: 0**

ORTNNURT Nursing Transfer Orientation **Credit Hours: 0**

ORTNPHM Pharmacy Orientation **Credit Hours: 0**

ORTNPHMH Pharmacy Honors Orientation **Credit Hours: 0**

ORTNPHMT Pharmacy Transfer Orientation **Credit Hours: 0**

ORTNSHAD Rocket LaunchTransition Shadow — **Credit Hours: 0**

ORTNUNV University College Orientation — **Credit Hours: 0**

ORTNUNVH University Col Honors Orientnt — **Credit Hours: 0**

ORTNUNVT University Coll Transfer Ortn — **Credit Hours: 0**

ORTPPHM PHM Rocket Launch **Credit Hours: 0**

ORTPPHMH PHM Rocket Launch Honors **Credit Hours: 0**

Prerequisites: HON FOR MIN. SCORE OF 1

ORTPPHMT PHM Rocket Transition **Credit Hours: 0**

ORTRNUR NUR Rocket Launch **Credit Hours: 0**

ORTRNURH NUR Rocket Launch Honors **Credit Hours: 0**

Prerequisites: HON FOR MIN. SCORE OF 1

ORTRNURT NUR Rocket Transition **Credit Hours: 0**

ORTSHHS HSHS Rocket Launch **Credit Hours: 0**

ORTSHHSH HSHS Rocket Launch Honors **Credit Hours: 0**

Prerequisites: HON FOR MIN. SCORE OF 1

ORTSHHST HSHS Rocket Transition **Credit Hours: 0**

ORTUUNV UNV Rocket Launch **Credit Hours: 0**

ORTUUNVH UNV Rocket Launch Honors **Credit Hours: 0**

Prerequisites: HON FOR MIN. SCORE OF 1

ORTUUNVT UNV Rocket Transition **Credit Hours: 0**

PED2000 Coaching Of Physical Activity **Credit Hours: 1**

Includes basic fundamentals, offensive and defensive team play, conditioning techniques, and scouting.

PED2100 Sport Skill And Strategy I **Credit Hours: 3**

Sport skill and strategy development for students who are in the physical education major sequence. Must earn minimum grade of C to pass the course.

PED2200 Sport Skill And Strategy II **Credit Hours: 3**

Sport skill and strategy development for students who are in the physical education major sequence. Stunts and tumbling, tennis, volleyball. Must earn minimum grade of C to pass the course.

PED2400 Physical Education In The Elementary School **Credit Hours: 2**

Emphasis on perceptual-motor programs, motor performance, physical fitness, movement activities, testing and evaluation in the K-6 curriculum. Designed for elementary education majors.

PED2450 Physical Education For Early Childhood Education **Credit Hours: 2**

In this course, physical education major students will discuss the integration learned in physical education classes and teaching. Course may be repeated twice for a maximum total credit of 2 hours.

PED2900 Physical Education Linking Seminar **Credit Hours: 1**

Developmentally appropriate activity for children in Pre-K-Grade 3. Includes fundamental motor skill development, assessment skills and evaluation techniques. Stress is on psychomotor, cognitive and affective development through movement.

Corequisites: PED2950

PED2950 Introduction To Teaching In Physical Education **Credit Hours: 3**

Designed to provide students with knowledge of effective instruction, skills in systematic data collection for teacher evaluation, task and skill analysis and instructional design. Field experience included.

Corequisites: PED2900

PED2960 Intensive Field Experience **Credit Hours: 2**

Prerequisites: (PED 2950 FOR LEVEL UG WITH MIN. GRADE OF D- AND PED 2900 FOR LEVEL UG WITH MIN. GRADE OF D-)

PED3000 Developmentally Appropriate Games And Activities **Credit Hours: 3**

Content for elementary school physical education programs including physical fitness, fundamental motor skill, manipulative skills, games, sport-related skills, educational gymnastics, movement activities, etc.

Prerequisites: UPDV FOR MIN. SCORE OF 1

Corequisites: PED3100

PED3100 Physical Education Methods Pre-K - 5 **Credit Hours: 3**

Methods of teaching pre-K - 5 physical education. Students will combine readings, discussions and field experience to learn about different strategies for working in the physical activity environment at these levels.

Prerequisites: UPDV FOR MIN. SCORE OF 1

Corequisites: PED3000

PED3110 Perceptual Motor Development **Credit Hours: 2**

PED3120 Rhythmic Activity And Dance **Credit Hours: 3**

Content for pre-school through high school education programs. Emphasis on fundamental motor skill, rhythmic activities, folk dance, square dance.

Prerequisites: UPDV FOR MIN. SCORE OF 1

PED3130 Understanding Games: Sport Concepts **Credit Hours: 3**

Techniques and concepts of team and individual sport activities in the middle and secondary school. Course will focus on teaching for understanding, game tactics, progressions, technique analysis, appropriate practice and safety procedures.

Prerequisites: UPDV FOR MIN. SCORE OF 1

Corequisites: PED3140

PED3140 Physical Education Methods For Middle/Adolescent Levels **Credit Hours: 3**

Methods of teaching grades 6 - 12 physical education. Students will combine readings, discussions and field experience to learn about different strategies for working in the physical activity environment at these levels.

Prerequisites: UPDV FOR MIN. SCORE OF 1

Corequisites: PED3130

PED3400 Adapted Physical Education **Credit Hours: 3**

Methods for teaching the atypical child. Evaluation and formulation of IEP. Exercise and activity prescription. Emphasis on disorders most prevalent within public school systems. Forty (40) hour field experience included.

Prerequisites: UPDV FOR MIN. SCORE OF 1

PED3740 Measurement, Analysis And Evaluation In Human Performance **Credit Hours: 3**

Lecture and discussion on assessment in human performance, both authentic and traditional. Computer analysis procedures in descriptive and inferential statistics through ANOVA. Designated lab time for specialty areas.

Prerequisites: UPDV FOR MIN. SCORE OF 1

PED3950 Senior Seminar **Credit Hours: 1**

Readings and discussion centering on concepts learned in the professional content sequence and their applicability to teaching in the physical education setting.

Prerequisites: (PED 3000 FOR LEVEL UG WITH MIN. GRADE OF D- AND PED 3100 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (PED 3130 FOR LEVEL UG WITH MIN. GRADE OF D- AND PED 3140 FOR LEVEL UG WITH MIN. GRADE OF D-) AND UPDV FOR MIN. SCORE OF 1

PED4100 Design And Administration Of Physical Activity Programs **Credit Hours: 3**

Procedures for development of curriculum and program design. Administrative issues, problems and concerns for organization and direction of facilities and equipment.

Prerequisites: UPDV FOR MIN. SCORE OF 1

PED4700 The Law And Sport **Credit Hours: 3**

The purpose of this course is to describe the requirements of the law and sports governing bodies, potential problems, possible courses of action and ways to work with legal counsel in the administration of sports activities.

PED4920 Student Teaching Seminar: Physical Education **Credit Hours: 1-3**

This course will focus on reflection and feedback on student teaching, portfolio development, interviewing and resume writing.

Prerequisites: UPDV FOR MIN. SCORE OF 1

Corequisites: PED4930

PED4930 Student Teaching In Physical Education **Credit Hours: 6-12**

Intensive field experience in school classrooms under the direction of university supervisors and master teachers. Observation of teaching of experienced teachers accompanied by full responsibility by student teacher. Student teachers will be expected to teach in two areas.

Prerequisites: UPDV FOR MIN. SCORE OF 1

PED4940 Internship-Practicum **Credit Hours: 2-15**

PED4950 Workshop In Physical Education **Credit Hours: 1-5**

Workshop developed around topics of interest and concern for preservice and inservice teachers and other professionals involved in health, wellness and physical activity.

PED4990 Independent Study In Exercise Science/Physical Education **Credit Hours: 1-3**

Directed individual study. Specialty title and seminar sheet required.

PED5170 Adapted Physical Education **Credit Hours: 3**

Study of disabling conditions as related to physical education. Assessment and consequent development of IEP. Exercise prescription analysis and technique. Program implications for inclusion.

PED5250 Curriculum In Physical Education **Credit Hours: 3**

Perspectives in curriculum theory and design for physical education. Procedures for development of curriculum K-12.

PED5610 Trends And Issues In Physical Education **Credit Hours: 3**

Analysis of contemporary trends and issues facing the physical educator. Content varies per semester: Children and Sport, Sport Sociology, Elementary/Secondary Teaching.

PED5620 Effective Supervision In Physical Education **Credit Hours: 3**

Procedures and methods appropriate for supervision of student teachers or inservice teachers in the area of physical education. Computer analysis, observation techniques, conferencing skills and evaluation procedures are stressed.

PED5950 Workshop In Exercise Science And Physical Education **Credit Hours: 1-4**

Topical workshops developed around areas of interest and concern to inservice teachers and/or exercise scientists. Credit cannot be applied towards a degree program without prior consent of adviser.

PED6920 Master's Project In Exercise Science/Physical Education **Credit Hours: 1-4**

A research project is required for the M.Ed. program for the culminating experience.

PED6940 Internship In Exercise Science **Credit Hours: 1-12**

A field internship designed to supplement classroom experience by providing participation in the area of exercise science through participant-observer experience.

PED6960 Master's Thesis In Exercise Science/Physical Education **Credit Hours: 1-4**

Research thesis is required for M.S. and M.Ed. programs for the culminating experience.

PED6990 Independent Study In Exercise Science/Physical Education **Credit Hours: 1-4**

The student will participate in independent readings, laboratory research, field experience and other activities not suited for class instruction. May be repeated for course credit.

PED7170 Adapted Physical Education **Credit Hours: 3**

Study of disabling conditions as related to physical education. Assessment and consequent development of IEP. Exercise prescription analysis and technique. Program implications for inclusion.

PED7250 Curriculum In Physical Education **Credit Hours: 3**

Perspectives in curriculum theory and design for physical education. Procedures for development of curriculum K-12.

PED7610 Trends And Issues In Physical Education **Credit Hours: 3**

Analysis of contemporary trends and issues facing the physical educator. Content varies per semester: Children and Sport, Sport Sociology, Elementary/Secondary Teaching.

PED7620 Effective Supervision In Physical Education **Credit Hours: 3**

Procedures and methods appropriate for supervision of student teachers or inservice teachers in the area of physical education. Computer analysis, observation techniques, conferencing skills and evaluation procedures are stressed.

PED7950 Workshop In Exercise Science And Physical Education **Credit Hours: 1-4**

Topical workshops developed around areas of interest and concern to inservice teachers and/or exercise scientists. Credit cannot be applied towards a degree program without prior consent of adviser.

PED8940 Internship In Exercise Science **Credit Hours: 1-12**

A field internship designed to supplement classroom experience by providing participation in the area of exercise science through participant-observer experience.

PED8990 Independent Study In Exercise Science/Physical Education **Credit Hours: 1-4**

The student will participate in independent readings, laboratory research, field experience and other activities not suited for class instruction. May be repeated for course credit.

PHCL2220 Drugs, Medicine And Society **Credit Hours: 3**

The course conveys a general knowledge of drugs, including how and where drugs act and the general pharmacology of specific classes of drugs, e.g., central nervous system active agents, bronchodilators, etc.

PHCL2600 Functional Anatomy And Pathophysiology I **Credit Hours: 4**

A study of functional anatomy, physiology and pathophysiology to serve as background for the understanding of the action of drugs.

Prerequisites: (CHEM 1240 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1290 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOL 2150 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOL 2160 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOL 2170 FOR LEVEL UG WITH MIN. GRADE OF D- AND BIOL 2180 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHCL2620 Functional Anatomy And Pathophysiology II **Credit Hours: 4**

A continuation of PHCL 2600.

Prerequisites: PHCL 2600 FOR LEVEL UG WITH MIN. GRADE OF D-

PHCL3700 Pharmacology I: Principles Of Pharmacology, Autonomic Pharmacology And Non-Steroidal Anti-in Credit Hours: 3

An introduction to the principles of pharmacology and the pharmacology of the autonomic nervous system. Non-steroidal anti inflammatory agents are also discussed.

PHCL3720 PHARMACOLOGY II: ENDOCRINE, NSAID AND CARDIOVASCULAR PHARMACOLOGY **Credit Hours: 2**

The pharmacology of drugs acting upon the endocrine and reproductive systems will be discussed followed by a discussion of the non-steroidal antiinflammatory agents and the drugs used to treat hypertension and hyperlipidemia.

Prerequisites: PHCL 3700 FOR LEVEL UG WITH MIN. GRADE OF D-

PHCL3730 BSPS Pharmacology II: Endocrine and CNS Pharmacology **Credit Hours: 3**

The pharmacology of drugs acting upon the endocrine and reproductive systems as well as for the management of sleep disorders, anxiety, affective illness, schizophrenia and seizure disorders.

Prerequisites: PHCL 3700 FOR LEVEL UG WITH MIN. GRADE OF D-

PHCL3810 Pharmacology And Toxicology Laboratory **Credit Hours: 1**

The course will teach undergraduate students current methods in pharmacology and toxicology with an emphasis on practical, hands-on experience. Students will learn a variety of techniques commonly used in the pharmaceutical and toxicology industries.

Prerequisites: PHCL 3700 FOR LEVEL UG WITH MIN. GRADE OF D-

PHCL4140 Interpretation Of Pharmaceutical Data **Credit Hours: 3**

A course designed to emphasize the interpretation of statistical data as it appears in pharmacy literature. The fundamental concepts of statistics will be discussed. Experimental design as well as appropriateness of analytical methodology and conclusions will be emphasized.

PHCL4150 Biopharmaceutics And Pharmacokinetics **Credit Hours: 4**

Application of kinetic models to the processes of drug absorption, distribution, biotransformation and excretion. The influence of dosage form and physiology on these processes. Application of pharmacokinetic principles to clinical situations.

Prerequisites: PHPR 3080 FOR LEVEL UG WITH MIN. GRADE OF D-

PHCL4300 Selected Topics In Pharmacology **Credit Hours: 2**

The pharmacology of selected classes of agents will be discussed. Discussions will include the pharmacology of: Drugs used to treat asthma, antihistamines, drugs used to treat migraine, drugs to manage movement disorders, local anesthetics and antineoplastic agents.

Prerequisites: PHCL 3700 FOR LEVEL UG WITH MIN. GRADE OF D-

PHCL4600 Epidemiology **Credit Hours: 4**

This course is intended to provide fundamental concepts of epidemiology and its basic research methods. The course is designed as a prerequisite for pharmacoepidemiology.

PHCL4620 Pharmacoepidemiology **Credit Hours: 4**

This course is intended to give an overview of and terminology commonly used in pharmacoepidemiology and to teach students how to review and comprehend pharmacoepidemiologic studies.

Prerequisites: PHCL 4600 FOR LEVEL UG WITH MIN. GRADE OF D-

PHCL4630 Cancer Chemotherapy **Credit Hours: 3**

An examination of cancer as a disease, the biology of cancer and an in depth study of the drugs currently used to treat this family of diseases.

Prerequisites: PHCL 3720 FOR LEVEL UG WITH MIN. GRADE OF D-

PHCL4700 Pharmacology III: Cns And Cardiovascular Pharmacology **Credit Hours: 3**

The pharmacology of central nervous system active agents such as opioid analgesics and alcohol. Continues from PHCL 3720. Agents acting on the cardiovascular and renal systems are also discussed.

Prerequisites: PHCL 3720 FOR LEVEL UG WITH MIN. GRADE OF D-

PHCL4720 Pharmacology IV: Chemotherapeutic Agents **Credit Hours: 3**

The pharmacology of anti-infective chemotherapeutic agents is presented. Issues such as the mechanism of antimicrobial action, disposition, resistance and problems attending the use of antimicrobial drugs will be discussed.

Prerequisites: (PHCL 4700 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHCL 4150 FOR LEVEL UG WITH MIN. GRADE OF D- AND MBC 3800 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHCL4730 Toxicology I **Credit Hours: 3**

A synopsis of the basic elements of toxicology including dose-response, lethal dose-50, margin of safety, mechanisms of toxicity and nature of toxic injuries including mutagenesis and carcinogenesis. Treatments for poisonings will not be treated in detail (see PHCL 4740).

Corequisites: PHCL3700

PHCL4740 Introduction To Clinical Toxicology **Credit Hours: 2**

An introduction to the diagnosis and treatment of human poisoning and risk assessment will be discussed utilizing the lecture and case presentation format.

Prerequisites: PHCL 4700 FOR LEVEL UG WITH MIN. GRADE OF D-

PHCL4750 Toxicology II **Credit Hours: 3**

This course provides the students with an overview of environmental toxicology, which emphasizes both air and water pollution. It also reviews the applications of different areas of toxicology, such as food toxicology emphasizing the safety standards of food and methods of evaluation of food safety, analytic toxicology and its applications in forensic toxicology and occupational toxicology, emphasizing the health effects of industrial chemicals on workers and also the permissible levels of these chemicals in the work place.

Prerequisites: PHCL 3700 FOR LEVEL UG WITH MIN. GRADE OF D-

PHCL4760 Toxicokinetics **Credit Hours: 3**

The theory and practice of using kinetic principles to model the time course of toxic chemicals in the body and in the environment. Relation of the chemical time course to negative outcomes and application to risk assessment. Hands-on practice with kinetic analysis methods and software.

PHCL4770 Toxicological Risk Assessment **Credit Hours: 3**

Study of human health risk assessment based on National Research Council paradigm. Topics (pharmacokinetic/dynamic modeling, etc.) are designed to provide the student with the tools necessary to conduct quantitative risk assessment.

PHCL4780 Practicum In Pharmacology/Toxicology **Credit Hours: 6-12**

In this experiential course students will acquire practical knowledge and hands-on experience in the areas of pharmacology and/or toxicology by working at private or government laboratories.

Prerequisites: (PHCL 3720 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHCL 3810 FOR LEVEL UG WITH MIN. GRADE OF D- AND MBC 3320 FOR LEVEL UG WITH MIN. GRADE OF D- AND MBC 3560 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHCL4800 Human-Xenobiotic Interactions **Credit Hours: 3**

This course will summarize the ways in which xenobiotics affect the human condition both in the context of therapeutic benefit and also chemically-induced diseases. Existing strategies for developing xenobiotics to control disease and for managing xenobiotics in order to limit disease will be discussed.

Prerequisites: (PHCL 4140 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHCL 4700 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHCL 4730 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHCL4810 BSPS Pharmacology III: CNS and Cardiovascular Pharmacology **Credit Hours: 3**

The pharmacology of central nervous system active agents such as opioid analgesics and alcohol and agents acting on the cardiovascular and renal systems.

Prerequisites: PHCL 3730 FOR LEVEL UG WITH MIN. GRADE OF D-

PHCL4820 BSPS Pharmacology IV: Chemotherapeutic Agents **Credit Hours: 3**

The pharmacology of anti-infective chemotherapeutic agents including their mechanism of antimicrobial action, disposition, resistance and issues related to use.

Prerequisites: PHCL 4810 FOR LEVEL UG WITH MIN. GRADE OF D-

PHCL4850 Drug Disposition **Credit Hours: 2**

The influence of host factors such as disease states, drug-drug interactions and environmental chemical exposure will be discussed within the framework of basic principles of drug absorption, distribution, metabolism and excretion.

Prerequisites: PHCL 4150 FOR LEVEL UG WITH MIN. GRADE OF D-

PHCL4900 Honors Seminar In Pharmacology **Credit Hours: 1-3**

An examination of a specific question in the context of the primary literature in pharmacology and in the context of the student's own findings based on his/her thesis research.

PHCL4910 Problems In Pharmacology **Credit Hours: 1-3**

An examination of a specific question in pharmacology which can be answered through application of experimental work.

PHCL4960 Honors Thesis In Pharmacology **Credit Hours: 2-5**

An examination of a specific question in pharmacology which can be answered through application of experimental work.

PHCL5140 Interpretation Of Pharmaceutical Data **Credit Hours: 2**

A course designed to emphasize the presentation, analysis and interpretation of data in the pharmaceutical sciences. The concepts of statistics will be discussed. Experimental design as well as appropriateness of analytical methodology and conclusions will be emphasized.

PHCL5300 Selected Topics In Pharmacology **Credit Hours: 2**

This course discusses the pharmacodynamics and pharmacotherapeutics of selected classes of pharmacologic agents. The pathophysiology of the disease states for which these agents are commonly employed will be described.

Prerequisites: PHCL 3700 FOR LEVEL UG WITH MIN. GRADE OF D- OR PHCL 5700 FOR LEVEL GR WITH MIN. GRADE OF D-

PHCL5420 Advanced Neuroscience **Credit Hours: 2**

This course will explore in depth the anatomy, physiology and chemistry of neurological systems with emphasis on the role of the brain in behavior and the etiology of neurological disorders.

PHCL5600 Research Methods In Epidemiology **Credit Hours: 4**

This course is intended to provide fundamental concepts of epidemiology and its basic research methods. The course is designed as a prerequisite for pharmacoepidemiology.

PHCL5620 Pharmacoepidemiology **Credit Hours: 4**

This course is intended to give an overview of and terminology commonly used in pharmacoepidemiology and to teach students how to review and comprehend pharmacoepidemiologic studies.

PHCL5630 Cancer Chemotherapy **Credit Hours: 3**

An overview of cancer as a disease and an in depth study of the drugs currently used to treat this family of diseases.

Prerequisites: PHCL 3720 FOR LEVEL UG WITH MIN. GRADE OF D-

PHCL5700 Pharmacology I -Principles Of Pharmacology, Autonomic Pharmacology And Non-steroidal Anti-in Credit Hours: 3

An introduction to the principles of pharmacology and the pharmacology of the autonomic system. Non-steroidal anti inflammatory agents are also discussed.

PHCL5720 Pharmacology II: Endocrine And Cns Pharmacology **Credit Hours: 3**

The pharmacology of drugs acting upon the endocrine and reproductive systems will be discussed, followed by a treatment of drugs used in the management of sleep disorders, anxiety, affective illness, schizophrenia and seizure disorders.

Prerequisites: PHCL 5700 FOR LEVEL GR WITH MIN. GRADE OF D-

PHCL5730 Toxicology I **Credit Hours: 3**

This course reviews the basic elements of toxicology. It includes those principles most frequently involved in a full understanding of toxicologic events, such as dose-response, lethal dose-50 (LD50) and margin of safety. It also identifies toxic chemicals and their systemic sites and mechanisms of action. Finally, this course provides information about the kinds of toxic injuries produces in specific organs or systems and the toxic agents that produce these effects. Information about the possible management of some cases of intoxication or poisonings by some agents will be briefly reviewed.

Corequisites: PHCL5700

PHCL5750 Toxicology II **Credit Hours: 3**

This course provides the students with an overview of environmental toxicology, which emphasizes both air and water pollution. It also reviews the applications of different areas of toxicology, such as food toxicology emphasizing the safety standards of food and methods of evaluation of food safety, analytic toxicology and its applications in forensic toxicology, and occupational toxicology, emphasizing the health effects of industrial chemicals on workers and also the permissible levels of these chemicals in the work place.

Prerequisites: PHCL 5700 FOR LEVEL GR WITH MIN. GRADE OF D-

PHCL5760 Toxicokinetics **Credit Hours: 3**

The theory and practice of using kinetic principles to model the time course of toxic chemicals in the body and in the environment. Relation of the chemical time course to negative outcomes and application to risk assessment. Hands-on practice with kinetic analysis methods and software.

PHCL5900 Drug Disposition **Credit Hours: 2**

The influence of host factors such as disease states, drug-drug interactions and environmental chemical exposure will be discussed within the framework of basic principles of drug absorption, distribution, metabolism and excretion.

PHCL5990 Problems In Pharmacology **Credit Hours: 1-6**

Tutorial or directed individual research in pharmacology.

PHCL6150 Advanced Pharmacokinetics **Credit Hours: 2**

A study of the mathematical models describing the time course of drugs in the body and their application in the interpretation of in vivo data.

PHCL6600 Seminar In Pharmacology **Credit Hours: 1**

Pharmacology students will attend seminar presentations offered through the seminar/colloquia programs in the departments of Biology and Chemistry and in the College of Pharmacy, and must present at least one seminar.

PHCL6700 Pharmacology III: Cns And Cardiovascular/Renal Pharmacology **Credit Hours: 3**

The pharmacology of central nervous system active agents such as the opiod analgesics and alcohol continues from PHCL 5720. Agents acting on the cardiovascular and renal systems are discussed.

Prerequisites: PHCL 5720 FOR LEVEL GR WITH MIN. GRADE OF D-

PHCL6720 Pharmacology IV; Chemotherapeutics **Credit Hours: 3**

The pharmacology of anti-infective chemotherapeutic agents is presented. Issues such as the mechanism of antimicrobial action, disposition, resistance and problems attending the use of antimicrobial drugs will be discussed.

Prerequisites: PHCL 6700 FOR LEVEL GR WITH MIN. GRADE OF D-

PHCL6770 Toxicological Risk Assessment **Credit Hours: 3**

Study of human health risk assessment on NRC paradigm of: hazard identification, effects characterization, exposure characterization and risk characterization. Topics to be covered (pharmacokinetic/pharmacodynamic modeling, etc.) are designed to provide the student with the tools necessary to conduct quantitative risk assessment.

Prerequisites: PHCL 5760 FOR LEVEL GR WITH MIN. GRADE OF D- OR PHCL 6150 FOR LEVEL GR WITH MIN. GRADE OF D-

PHCL6900 M.s. Thesis Research In Pharmacology **Credit Hours: 1-6**

M.S. thesis research in pharmacology.

PHCL6920 M.s. Thesis Research In Pharmacology **Credit Hours: 1-6**

M.S. thesis research in pharmacology.

PHCL7420 Advanced Neuroscience **Credit Hours: 2**

This course will explore in depth the anatomy, physiology and chemistry of neurological systems with emphasis on the role of the brain in behavior and the etiology of neurological disorders.

PHIL1010 Introduction To Logic **Credit Hours: 3**

(not for major credit) An introduction to the symbolic analysis of argument components and structures. Topics include definition, syllogistic reasoning, semantics, sentential logic and probability.

PHIL1020 Critical Thinking **Credit Hours: 3**

(not for major credit) A study of principles and patterns of good reasoning and writing, including the evaluation and construction of arguments and the identification and avoidance of fallacies.

PHIL2200 Introduction To Philosophy **Credit Hours: 3**

An introduction to philosophical reflection on such issues as the existence of God, free will, knowledge and objectivity, social justice and moral responsibility. Humanities core course.

PHIL2400 Contemporary Moral Problems **Credit Hours: 3**

A study of topics such as abortion, euthanasia, environmental responsibility, famine relief, affirmative action and sexuality. Attention is paid to moral argument and the bases of moral decisions.

PHIL3000 Symbolic Logic **Credit Hours: 3**

A study of propositional and predicate logic, techniques used to evaluate deductive arguments. Topics may include computability, set theory, Bayesianism and other formal systems with philosophical and mathematical relevance.

PHIL3060 Philosophy Of Language **Credit Hours: 3**

A historical and critical examination of topics in the philosophy of language such as truth, reference, representation, metaphor and interpretation.

PHIL3120 Business Ethics **Credit Hours: 3**

An examination of the ethical dimensions of the relationships between a business and employees, consumers, other businesses, society, government, the law and the environment.

PHIL3140 Computers And Culture **Credit Hours: 3**

A study of the philosophical issues computers raise which affect and reflect human values. Topics include censorship and privacy on the internet, virtual reality and the possibility of artificial intelligence.

PHIL3180 Environmental Ethics **Credit Hours: 3**

An examination of our relation and responsibility to the natural environment. Topics include risk assessment, the value of non-human living things, resource use, economics, technology, environmental racism and ecology.

PHIL3210 Ancient And Medieval Philosophy **Credit Hours: 3**

A study of ancient and medieval philosophy from the pre-Socratics to Aquinas.

PHIL3230 Modern Philosophy **Credit Hours: 3**

A study of early modern philosophy from Descartes to Kant. Writing intensive course.

PHIL3240 Existentialism **Credit Hours: 3**

A study of existential philosophers, including Nietzsche, Kierkegaard, Sartre, Camus, Jaspers, Heidegger and others. Topics may include anxiety, meaning and meaninglessness, freedom, and human sociability.

PHIL3250 Current European Philosophy **Credit Hours: 3**

An examination of some of the most influential developments in European thought since 1960, such as structuralism, hermeneutics, deconstruction, feminism and post-modernism.

PHIL3300 Philosophy Of Biology **Credit Hours: 3**

An examination of philosophical topics raised by evolutionary biology including the relation between theory and fact, the characterization of natural kinds, teleology, reductionism and the history of human morality.

PHIL3310 Science And Society **Credit Hours: 3**

A study of twentieth-century science and its relationships with government, industry, religion and medicine, including the emergence of Big Science and the future of science education and research.

PHIL3370 Medical Ethics **Credit Hours: 3**

The application of ethics to the practice of medical professionals. Topics include authority, paternalism, truth-telling, informed consent, health care reform, genetic manipulation, abortion, infanticide and euthanasia.

PHIL3400 Ethical Theory **Credit Hours: 3**

A study of the moral philosophies of Aristotle, Hume, Kant, Mill and their critics, focusing on knowledge and justification, virtue, justice, happiness, conflicts of obligation and ideals of community.

PHIL3500 Eastern Thought **Credit Hours: 3**

An examination of major philosophies of Asia and the Far East, their specific concerns and their relevance to contemporary problems.

PHIL3510 Zen Philosophy **Credit Hours: 3**

An intensive examination of the philosophical, literary and historical roots of Zen (Ch'an) teachings and meditative praxis as found in Madhyamika, Yogacara, Hua-yen and Taoism and an exploration of the ontological and phenomenological dimensions of Zen thought.

PHIL3540 Feminism And Philosophy **Credit Hours: 3**

An examination of feminist perspectives in philosophy, exploring the relevance of gender to central questions in ethics, political theory and epistemology.

PHIL3550 Philosophy Of Culture **Credit Hours: 3**

Examines the relevance of cultural differences to values and modes of thought through case studies in non-Western culture. Topics may include cultural relativism and cultural imperialism.

PHIL3560 Aesthetics **Credit Hours: 3**

An analysis and evaluation of aesthetic topics such as the definition of art, truth in the arts, the role of representation, the nature of aesthetic value and the character of aesthetic experience.

PHIL3570 Philosophy Of Religion **Credit Hours: 3**

A critical and philosophical analysis of topics in religion including the problem of evil, faith and reason, the existence of God and the nature of the religious experience.

PHIL3600 Theory Of Knowledge **Credit Hours: 3**

An historical and contemporary inquiry into the nature and limits of knowledge and justification. Topics include truth, skepticism, objectivity and relativism.

PHIL3630 Philosophy Of Psychology **Credit Hours: 3**

A philosophical examination of problems concerning the nature of mind such as the relation between mind and body, self knowledge, free will and personal identity.

PHIL3710 Philosophy Of Law **Credit Hours: 3**

A study of philosophical issues raised by law such as the relation of law to morality, obligation to obey the law, paternalism, censorship and free speech.

PHIL3750 Social And Political Philosophy **Credit Hours: 3**

A study of classic and contemporary treatments of justice, authority, the relations between individual and community, the meaning of freedom and equality, power and violence, and race and gender.

PHIL3760 Crime And Punishment **Credit Hours: 3**

A philosophical study of topics such as crime, responsibility, justice and punishment. Special attention is paid to current practices in the criminal justice system.

PHIL3900 Seminar **Credit Hours: 3**

Topics vary.

PHIL4210 Ancient Philosophy Seminar **Credit Hours: 3**

An intensive study of the texts and arguments of Presocratic philosophers, Plato, Aristotle, or Hellenistic philosophers. Course may be repeated as topics vary.

PHIL4230 Modern Philosophy Seminar **Credit Hours: 3**

An intensive study of one or more Continental or British philosophers from the sixteenth through eighteenth centuries. Course may be repeated as topics vary.

PHIL4240 19th C. European Philosophy **Credit Hours: 3**

An intensive study of European philosophy after Kant, including Hegel, Marx, Kierkegaard and Nietzsche.

PHIL4250 Phenomenology **Credit Hours: 3**

An intensive study of major works from phenomenological philosophers, such as Husserl, Heidegger, Sartre, or Merleau-Ponty. Course may be repeated as topics vary.

PHIL4260 Recent European Philosophy **Credit Hours: 3**

An examination of texts and problems in the Frankfurt school, post-structuralism, deconstruction and post-modernism, or of such thinkers as Habermas, Foucault, Derrida and Lyotard. Course may be repeated as topics vary.

PHIL4270 American Philosophy **Credit Hours: 3**

A study of the development of American Philosophy, or one or more of Pierce, James, Dewey, or Mead. Course may be repeated as topics vary.

PHIL4280 20th C. Analytic Philosophy **Credit Hours: 3**

Selected readings from Frege, Russell, Wittgenstein, the Vienna Circle, the Ordinary Language school, and American neo-pragmatists such as Quine, Rorty and Davidson. Course may be repeated as topics vary.

PHIL4400 Ethics Seminar **Credit Hours: 3**

Selected topics or philosophers in ethical theory. Course may be repeated as topics vary.

PHIL4500 Buddhist Philosophy **Credit Hours: 3**

An examination of significant developments in Buddhist philosophical thought including that of Abhidharmika, Madhyamika, Yogacara, Hua-yen and Ch'an (Zen).

PHIL4650 Philosophy Of Mind **Credit Hours: 3**

Advanced study of issues in the philosophy of mind such as: intentionality and misrepresentation, rationality and interpretation, supervenience and reductionism, folk psychology and eliminative materialism. Course may be repeated as topics vary.

PHIL4900 Advanced Seminar **Credit Hours: 2-4**

Topics vary.

PHIL4920 Directed Readings **Credit Hours: 1-4**

PHIL4990 Independent Study - Honors **Credit Hours: 3**

PHIL5210 Ancient Philosophy Seminar **Credit Hours: 3**

An intensive study of the texts and arguments of Presocratic philosophers, Plato, Aristotle, or Hellenistic philosophers. Course may be repeated as topics vary.

PHIL5230 Modern Philosophy Seminar **Credit Hours: 3**

An intensive study of one or more Continental or British philosophers from the sixteenth through eighteenth centuries. Course may be repeated as topics vary.

PHIL5240 19th Century European Philosophy **Credit Hours: 3**

An intensive study of European philosophy after Kant, including Hegel, Marx, Kierkegaard and Nietzsche.

PHIL5250 Phenomenology **Credit Hours: 3**

An intensive study of major works from phenomenological philosophers, such as Husserl, Heidegger, Sartre, or Merleau-Ponty. Course may be repeated as topics and texts vary.

PHIL5260 Recent European Philosophy **Credit Hours: 3**

An examination of texts and problems in the Frankfurt School, post-structuralism, deconstruction, post-modernism, or of such thinkers as Habermas, Foucault, Derrida and Lyotard. Course may be repeated as topics vary.

PHIL5270 American Philosophy **Credit Hours: 3**

A study of the development of American philosophy, or of one or more of Pierce, James, Dewey, or Mead. Course may be repeated as topics vary.

PHIL5280 20th Century Analytic Philosophy **Credit Hours: 3**

Selected readings from Frege, the Russell, Wittgenstein, the Vienna Circle, the Ordinary Language school and American neopragmatists such as Quine, Rorty and Davidson. Course may be repeated as topics vary.

PHIL5400 Ethics Seminar **Credit Hours: 3**

Selected topics or philosophers in ethical theory. Course may be repeated as topics vary.

PHIL5600 Epistemology **Credit Hours: 3**

An advanced study of issues in the theory of knowledge, such as: the nature and limits of knowledge, a priori and empirical knowledge, skepticism, empiricism and pragmatism.

PHIL5650 Philosophy Of Mind **Credit Hours: 3**

Advanced study of issues in the philosophy of mind such as: intentionality and misrepresentation, rationality and interpretation, supervenience and reductionism, folk psychology and eliminative materialism. Course may be repeated as topics vary.

PHIL5750 Political Philosophy Seminar **Credit Hours: 3**

Selected topics or philosophers in political philosophy. Course may be repeated as topics vary.

PHIL5920 Readings In Philosophy **Credit Hours: 3**

Critical inquiry into selected works of a particular philosopher or a specific philosophical problem.

PHIL5990 Independent Study **Credit Hours: 1-3**

Directed study in philosophy under supervision of a philosophy faculty member.

PHIL6000 Advanced Logic **Credit Hours: 3**

A study of propositional and predicate logic, as well as examination of issues in the philosophy of logic.

PHIL6370 Ethics And Health Care **Credit Hours: 3**

Advanced level course in ethics for health care related majors. An emphasis on ethical theory and its application to ethical problems in health care practices. Not open to philosophy majors.

PHIL6800 Proseminar **Credit Hours: 1-6**

Participation in departmental faculty-graduate student colloquia and mentoring program. Credit will carry the grade of S or U, and will not count toward credit hour requirements for the M.A. degree.

PHIL6930 Seminar **Credit Hours: 3**

Advanced philosophy seminar open only to graduate students.

PHIL6960 Thesis **Credit Hours: 1-16**

PHPR1000 Orientation **Credit Hours: 0-1**

Lectures and small group discussions include University, Freshman Orientation, FYI subjects, plus introductory elements of Pharmacy professional culture.

PHPR2010 Introduction To Patient Care **Credit Hours: 2**

Introduction to the primary dimensions of the profession of pharmacy with an emphasis on the pharmacist's responsibility to assure that drug therapy is used appropriately to improve patient outcomes.

PHPR3010 Pharmaceutical Calculations **Credit Hours: 2**

This course is intended to present the principles involved in solving any mathematical problem which may be encountered in the practice of pharmacy-logical thought processes will be used.

PHPR3020 Pharmaceutical Technology I **Credit Hours: 4**

A lecture and laboratory introduction to the principles, theory, and processes involved in the manufacture and compounding of fundamental classes of dosage forms.

Corequisites: PHPR3010

PHPR3030 Pharmaceutical Technology **Credit Hours: 4**

A continuation of PHPR 3020 as a lecture and laboratory to the principles, theory, and processes involved in the manufacture and compounding of fundamental classes of dosage forms.

Prerequisites: PHPR 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

PHPR3070 Pharmaceutics And Pharmaceutical Technology I **Credit Hours: 4**

Course considers the principles and thought processes involved in solving pharmacy-related mathematical problems and the theory and processes involved in the manufacture and extemporaneous compounding of dosage forms.

PHPR3080 Pharmaceutics And Pharmaceutical Technology II **Credit Hours: 4**

Further exploration of the principles, theory and processes involved in the development and preparation of parenteral, ophthalmic and other non-oral drug delivery systems.

Prerequisites: (PHPR 3070 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHPR 3010 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHPR3130 PPT-1 **Credit Hours: 2**

Discussion of pathophysiology, clinical presentation, etiologic causes, laboratory findings, diagnosis and therapy of attention deficit hyperactivity disorder, sleep disorders, acid-base, fluid & electrolytic imbalances, pain and substance abuse.

Corequisites: MBC3310

PHPR3140 PPT-2 **Credit Hours: 2**

Discussion of pathophysiology, clinical presentation, etiologic causes, laboratory findings, diagnosis and therapy of endocrine disorders and reproduction.

Corequisites: MBC3560

PHPR3260 PHCAD-1 **Credit Hours: 2**

Description and analysis of the organization, financing and delivery of healthcare in the U.S.. Development of communication skills for pharmacists to function optimally in the system is emphasized.

Prerequisites: ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

PHPR3510 Pharmaceutical Dimensions Of Health Care System **Credit Hours: 3**

Description and analysis of the organization, financing and delivery of healthcare in the U.S. Development of communication skills for pharmacists to function optimally in the system is emphasized.

Prerequisites: ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

PHPR3920 Introductory Pharmacy Practice Experience I **Credit Hours: 1**

First professional year course designed to enhance professional growth through an introduction to clinical skill development and direct patient care activities within institutional and community pharmacy practice settings. Prerequisite: Admission into the Pharm.D. Program.

PHPR3940 Introductory Pharmacy Practice **Credit Hours: 1**

The purpose of this course is to increase students' awareness and involvement in areas related to the contemporary practice of pharmacy. Students will participate in projects that nurture their professional growth.

PHPR4250 Sterile Product Technology **Credit Hours: 2**

Study of the design, formulation, production, packaging and manipulation of parenteral products used as for therapeutic and nutritional purposes, including the use of blood and blood-related products.

Prerequisites: PHPR 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

PHPR4330 RESEARCH DESIGN AND DRUG LITERATURE EVALUATION 1 **Credit Hours: 2**

Concepts of research design, statistical analysis, literature evaluation and evidence based medicine are introduced and integrated in a manner that depicts their practical relevance to pharmacy practice.

Prerequisites: PHPR 4130 FOR LEVEL UG WITH MIN. GRADE OF D-

Corequisites: PHPR4080

PHPR4400 Human Interaction In Healthcare **Credit Hours: 2**

An introduction to interpersonal communication with emphasis upon application of one-to-one communication in a variety of healthcare contexts, especially patient counseling.

Prerequisites: PHPR 3510 FOR LEVEL UG WITH MIN. GRADE OF D-

PHPR4410 Professional Practice Development I **Credit Hours: 3**

Instruction in the broad dimension of professional pharmacy practice and identification of the pharmacist's responsibility for providing pharmaceutical care, including medication distribution, patient education and use of drug information resources.

Prerequisites: PHCL 3720 FOR LEVEL UG WITH MIN. GRADE OF D-

PHPR4420 Professional Practice Development II **Credit Hours: 3**

Building on competencies from PHPR 4400 and 4410, this course enhances professional development to meet specific patient and health care practitioner needs. Instruction includes effective literature analysis, presentation of care plans and pharmacy jurisprudence.

Prerequisites: (PHPR 3510 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHPR 4410 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHPR4430 Pathophysiology And Pharmacotherapy (ppt): Introduction **Credit Hours: 1**

An introduction to clinical practice and concepts which will be utilized in the PPT course sequence.

Prerequisites: PHPR 3080 FOR LEVEL UG WITH MIN. GRADE OF D-

PHPR4440 Pathophysiology And Pharmacotherapy (ppt): Immunology **Credit Hours: 2**

This course will consider current concepts and applications of immunological principles for disease prevention, for transplantation, and for treatment of cancer, autoimmune and infectious disease, using a seminar-discussion-student presentation format.

PHPR4450 Pathophysiology And Pharmacotherapy: Renal **Credit Hours: 3**

Discussion of pathophysiology, clinical presentation, etiological causes, laboratory findings, diagnosis and therapy of renal disease states.

PHPR4520 Pharmaceutical Management And Marketing **Credit Hours: 3**

An introduction to the theoretical concepts and applied techniques for resource management and marketing issues that affect the delivery of pharmaceutical care.

Corequisites: PHPR4420

PHPR4550 Analysis Of The Phrmaceutical Environment **Credit Hours: 3**

A theoretical and practical examination of the pharmaceutical environment and drug distribution system using the science of marketing as a tool for analysis.

PHPR4590 READINGS IN ACCESS AND CULTURAL COMPETENCE **Credit Hours: 2**

Examination of the literature related to access and cultural competence in the US health care system. Various types of readings will be used to analyze the relationships that exist between access, cultural competence and positive health care outcomes.

Prerequisites: PHPR 4520 FOR LEVEL UG WITH MIN. GRADE OF D-

PHPR4600 Seminar in Pharmacy Adminstration **Credit Hours: 1**

This course provides a global perspective on pharmacy administration and healthcare related issues, including economic, humanistic, clinical, and other aspects of disease management. Prerequisite: Enrollment in the BSPS in Pharmacy Administration program or permission of instructor

PHPR4610 Pharmacoeconomics And Outcomes I **Credit Hours: 3**

This course emphasizes introductory concepts, methods, and practical procedures for pharmacoeconomic analysis and outcomes research. The student will understand and develop instruments for assessing patients' health status, quality of life, satisfaction and cost-effectiveness for pharmacoeconomic and health outcomes research. Prerequisite: Enrollment in the BSPS in Pharmacy Administration program or permission of instructor

PHPR4680 Parenteral Manufacturing **Credit Hours: 2**

The theory and technology of parenteral and ophthalmic formulation design, production, sterilization, packaging and stability.

Prerequisites: (PHPR 3010 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHPR 3070 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHPR 3080 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHPR4690 Dosage Form Design **Credit Hours: 3**

The utilization of pharmaceutical principles and practices for the design and manufacture of modern commercial dosage forms such as tablets, aerosols, emulsions, suspensions and solutions emphasizing biopharmaceutically efficacious products.

Prerequisites: (PHPR 3070 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHPR 3080 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHPR 3010 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHPR4700 Equilibrium Phenomena **Credit Hours: 2**

A theoretical and practical examination of the principles of chemical equilibrium and the techniques used in their calculation. Physical and chemical concepts focus on pharmaceutical systems as well as selected areas of chemistry.

Prerequisites: (PHPR 3010 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHPR 3070 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHPR4710 Selected Topics In Pharmaceutical Technology **Credit Hours: 3**

Discussion, evaluation, experimentation and production of selected dosage forms. A forum for the discussion of new dosage form technology and advances.

Prerequisites: (PHPR 3010 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHPR 3070 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHPR4720 Pharmaceutical Rate Processes **Credit Hours: 3**

A theoretical and practical application of kinetic principles applied to pharmaceutic and cosmetic systems in liquid and solid state. A mathematical treatment and development of the equations which support each reaction mechanism.

PHPR4780 Internship in Pharmacy Administration **Credit Hours: 6-12**

Students will acquire practical knowledge and hands-on experience in the areas of pharmacy administration or industrial pharmacy/pharmaceutics by working in the pharmaceutical industry or with health care systems.

Prerequisites: (PHCL 3720 FOR LEVEL UG WITH MIN. GRADE OF D- AND MBC 3320 FOR LEVEL UG WITH MIN. GRADE OF D- AND MBC 3560 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHPR4810 Finance and Personal Planning for Pharmacists **Credit Hours: 1**

Practical topics on financial, professional, and personal situations to better prepare students to make knowledgeable decisions that affect future security and success.

PHPR4880 Practicum In Pharmaceutics **Credit Hours: 6-12**

Students will acquire practical knowledge and hands-on experience in the areas of pharmacy administration or industrial pharmacy/pharmaceutics by working in the pharmaceutical industry or with health care systems.

Prerequisites: (PHPR 3080 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHCL 3720 FOR LEVEL UG WITH MIN. GRADE OF D- AND MBC 3320 FOR LEVEL UG WITH MIN. GRADE OF D- AND MBC 3560 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHPR4900 Honors Seminar In Pharmacy Practice **Credit Hours: 1-3**

An examination of a specific question in the context of the primary literature in pharmacy practice for advanced students.

PHPR4910 Pharmacy Practice Problems **Credit Hours: 1-5**

Selected undergraduate research projects in pharmacy practice.

PHPR4920 Introductory Pharmacy Practice Experience II **Credit Hours: 1**

The purpose of this course is to increase students' awareness and involvement in areas related to the contemporary practice of pharmacy. Students will participate in projects that nurture their professional growth.

Prerequisites: PHPR 3920 FOR LEVEL UG WITH MIN. GRADE OF D-

PHPR4960 Honors Thesis In Pharmacy Practice **Credit Hours: 2-5**

An examination of a specific research question in pharmacy practice which can be answered through application of experimental work.

PHPR5680 Parenteral Manufacturing **Credit Hours: 2**

The theory and technology of parenteral and ophthalmic formulation design, production, sterilization, packaging and stability.

Prerequisites: (PHPR 3010 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHPR 3070 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHPR5690 Dosage Form Design **Credit Hours: 3**

The utilization of pharmaceutical principles and practices for the design and manufacture of modern commercial dosage forms such as tablets, aerosols, emulsions, suspensions and solutions emphasizing biopharmaceutically efficacious products.

Prerequisites: (PHPR 3010 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHPR 3070 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHPR5700 Equilibrium Phenomenon **Credit Hours: 2**

A theoretical and practical examination of the principles of chemical equilibrium and the techniques used in their calculation. Physical and chemical concepts focus on pharmaceutical systems as well as selected areas of chemistry.

PHPR5710 Selected Topics In Pharmaceutical Technology **Credit Hours: 2-3**

Discussion, evaluation, experimentation and production of selected dosage forms. A forum for the discussion of new dosage form technology and advances.

Prerequisites: (PHPR 3010 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHPR 3070 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHPR5720 Pharmaceutical Rate Processes **Credit Hours: 3**

A theoretical and practical application of kinetic principles applied to pharmaceutic and cosmetic systems in liquid and solid state. A mathematical treatment and development of the equations which support each reaction mechanism.

PHPR5810 FINANCE AND PERSONAL PLANNING FOR PHARMACISTS **Credit Hours: 1**

Practical topics on financial, professional, and personal situation to better prepare students to make knowledgeable decisions that affect future security and success. (Prerequisites: Third Professional Year PharmD or permission of instructor.)

PHPR5990 Problems In Pharmacy Practice **Credit Hours: 1-6**

Tutorial or directed, individual research problems in administrative pharmacy, or other related fields.

PHPR6160 Advanced Applied Pharmacokinetic **Credit Hours: 3**

Detailed discussion of pharmacokinetic characteristics of drugs which are commonly included in therapeutic drug monitoring including clinical application.

Prerequisites: PHCL 6150 FOR LEVEL GR WITH MIN. GRADE OF D- OR PHCL 4150 FOR LEVEL UG WITH MIN. GRADE OF D-

PHPR6210 Introduction To Research Methods **Credit Hours: 2**

General overview and introduction to research process as it pertains to clinical pharmacy practice. Special emphasis given to design issues, particularly those involving human subjects.

PHPR6230 Patient Care Rounds I **Credit Hours: 3**

The course will provide students with advanced experiences in applying and integrating biomedical, psychosocial and pharmacoeconomic principles to patient care. Students will present and discuss how they would identify, prevent and resolve the medication-related problems encountered by a diversity of patient populations.

PHPR6240 Patient Care Rounds II **Credit Hours: 3**

The course will provide students with advanced experiences in applying and integrating biomedical, psychosocial and pharmacoeconomic principles to patient care. Students will present and discuss how they would identify, prevent and resolve the medication-related problems encountered by a diversity of patient populations.

Prerequisites: PHPR 6230 FOR LEVEL GR WITH MIN. GRADE OF D-

PHPR6250 Self-Care **Credit Hours: 3**

The course will discuss issues surrounding the self-medication decision-making process. Special emphasis will be placed on how pharmacists should help patients safely and effectively treat common medical problems. The course will provide information about how pharmacists should educate and counsel patients about diagnostic tests that the public can purchase without a prescription.

Prerequisites: PHPR 6230 FOR LEVEL GR WITH MIN. GRADE OF D-

PHPR6370 Nutrition **Credit Hours: 1**

An overview of the fundamental principles of nutritional support and the pharmacist's role in providing nutritional support services.

PHPR6380 Pathophysiology And Pharmacotherapy: Endocrinology **Credit Hours: 2**

Discussion of the pathophysiology, clinical presentation, etiologic causes, laboratory findings, diagnosis and therapy of endocrine disorders.

PHPR6420 Pathophysiology And Pharmacotherapy: Cardiology **Credit Hours: 4**

Discussion of pathophysiology, clinical presentation, etiological causes, laboratory findings, diagnosis and therapy of cardiovascular disease states.

PHPR6430 Pathophysiology And Pharmacotherapy: Pulmonary **Credit Hours: 3**

Discussion of pathophysiology, clinical presentation, etiological causes, laboratory findings, diagnosis and therapy of pulmonary disease states.

PHPR6440 Pathophysiology And Pharmacotherapy: Infectious Disease **Credit Hours: 4**

Discussion of pathophysiology, clinical presentation, etiological causes, laboratory findings, diagnosis and therapy of infectious disease states.

PHPR6450 Pathophysiology And Pharmacotherapy: Renal **Credit Hours: 3**

Discussion of pathophysiology, clinical presentation, etiological causes, laboratory findings, diagnosis and therapy of renal disease states.

PHPR6490 Pathophysiology And Pharmacotherapy: Hematology And Oncology **Credit Hours: 3**

Discussion of pathophysiology, clinical presentation, etiological causes, laboratory findings, diagnosis and therapy of hematologic and oncologic disease states.

PHPR6510 Pathophysiology And Pharmacotherapy: Poison Management **Credit Hours: 1**

Discussion of pathophysiology, clinical presentation, etiological causes, laboratory findings, diagnosis and therapy of poisoning and drug overdose management.

PHPR6520 Analysis Of The Pharmaceutical Environment **Credit Hours: 3**

A theoretical and practical examination of the pharmaceutical environment and drug distribution system using administrative pharmacy sciences as a tool for analysis.

Prerequisites: PHPR 4520 FOR LEVEL UG WITH MIN. GRADE OF D-

PHPR6530 Research Methods In Pharmacy Practice **Credit Hours: 3**

An introduction to research methods and principles used in designing, planning, implementing, analyzing and interpreting research projects in pharmacy practice.

PHPR6550 Management Topics For Clinical Practice **Credit Hours: 2**

Description of nature of management, basic management concepts and tools and environmental concerns pertinent to pharmacy practice in all of its practice settings.

PHPR6600 Seminar In Administrative Pharmacy **Credit Hours: 1**

A critical analysis of current problems in pharmacy practice with individual case presentations.

PHPR6610 Seminar I **Credit Hours: 1**

Instruction on preparation and presentation of clinical and/or scientific seminars.

PHPR6800 Monitoring Therapy **Credit Hours: 1**

An introduction to medical terminology and procedures with reference to physical exam, patient history, common diagnostic procedures and applications to drug and disease state monitoring.

PHPR6810 Hospital Pharmacy Administration **Credit Hours: 3**

An examination of the administrative and supervisory aspects of hospital pharmacy practice. Emphasis is placed on management techniques rather than functions performed.

PHPR6820 Selected Topics In Hospital Pharmacy **Credit Hours: 3**

A treatment of contemporary trends which influence the practice of hospital pharmacy such as drug distribution systems. Emphasis is placed upon these concepts in light of the resources present.

PHPR6830 Advanced Community Pharmacy Administration **Credit Hours: 3**

An advanced analysis of concepts, practices and issues related to retail pharmacy management.

PHPR6840 Selected Topics In Community Pharmacy **Credit Hours: 3**

Examination of contemporary trends influencing community pharmacy, such as home healthcare and prescription drug programs. Emphasis is placed on the impact of these trends on community pharmacy management.

PHPR6850 Product Development **Credit Hours: 3**

A study of various stages of development of pharmaceutical products. The student will develop formulations, using stability data and production technology for three products.

Prerequisites: PHPR 5690 FOR LEVEL GR WITH MIN. GRADE OF D-

PHPR6890 M.s. Project In Administrative Pharmacy **Credit Hours: 1-4**

Development of a practical project in the pharmacy environment on a practicum basis. A written, bound report and oral presentation are required.

PHPR6920 IPPE-3 **Credit Hours: 1**

Third professional year course designed to enhance professional growth through application of skills and knowledge gained in IPPE-1 and IPPE-2 to various areas of pharmacy practice to provide the best possible patient care.

Prerequisites: PHPR 4920 FOR LEVEL GR WITH MIN. GRADE OF D-

PHPR6940 Early Practice Exposure **Credit Hours: 2**

Supervised instruction and participation in pharmacy practice at actual practice sites such as community, hospital, managed care, long-term care and nuclear pharmacies.

PHPR6950 Seminar In Industrial Pharmacy **Credit Hours: 1**

A seminar course composed of graduate student presentations on their research and special topics as well as outside speakers from both the community and pharmaceutical industry.

PHPR6960 M.s. Thesis Research In Pharmacy **Credit Hours: 1-6**

Advanced and in-depth study of an issue pertinent to contemporary pharmacy practice. Part of degree requirement for M.S. in Pharmaceutical Sciences.

PHPR6980 Special Topics **Credit Hours: 1-5**

Selected study of topics in Pharmacy Practice. New pharmacy and healthcare strategies are examined in detail.

PHPR8260 Jurisprudence & Ethics For Pharmacy **Credit Hours: 1**

Discussion of federal, state and local laws affecting the profession and practice of pharmacy. Ethical principles involved in patient care will be reviewed and applied.

PHPR8390 Pathophysiology And Pharmacotherapy: Gastroenterology **Credit Hours: 2**

Discussion of the pathophysiology, clinical presentation, etiologic causes, laboratory findings, diagnosis and therapy of gastrointestinal disorders.

PHPR8470 Pathophysiology And Pharmacotherapy: Rheumatology **Credit Hours: 1**

Discussion of the pathophysiology, clinical presentation, etiologic causes, laboratory findings, diagnosis and therapy of rheumatologic disease states.

PHPR8480 Pathophysiology And Pharmacotherapy: Neurology And Psychiatry **Credit Hours: 3**

Discussion of pathophysiology, clinical presentation, etiological causes, laboratory findings, diagnosis and therapy of neurologic and psychiatric disease states.

PHPR8500 Pathophysiology And Pharmacotherapy: Geriatrics And Pediatrics **Credit Hours: 2**

Discussion of pathophysiology, clinical presentation, etiological causes, laboratory findings, diagnosis and therapy of geriatric and pediatric disease states.

PHPR8540 Geriatric Monitoring Principles **Credit Hours: 3**

Application of didactic geriatric drug therapy principles in a geriatric patient care environment. Emphasis will be placed on geriatric drug monitoring skills.

Corequisites: PHPR8500

PHPR8620 Seminar II **Credit Hours: 1**

Discussion of current topics relating to pharmacy practice.

PHPR8630 Seminar III **Credit Hours: 2**

Presentation of clinical and/or scientific seminar and completion of in-depth pharmacy practice related paper.

PHPR8640 Ppt: Capstone **Credit Hours: 2**

Advanced experiences in applying and integrating biomedical, psychosocial and pharmacoeconomic principles to drug literature evaluation and patient care.

Prerequisites: PHPR 6240 FOR LEVEL GR WITH MIN. GRADE OF D-

PHPR8940 Clinical Clerkship **Credit Hours: 4**

Advanced clinical experience in various specialties of medicine and pharmacy. This course will consist of 340 practicum/internship hours for each section (2 months).

PHPR8980 Special Topics **Credit Hours: 1-5**

Selected study of topics in Pharmacy Practice. New Pharmacy and healthcare strategies are examined in detail.

PHRM502 Medical Pharmacology II **Credit Hours: 5**

PHRM525 Fundament Medical Pharmacology **Credit Hours: 2**

The first part of the course consists of a series of lectures covering the fundamental principles of drug action which are the basis for understanding the use of drugs in modern medicine. In the second half, students will choose a class of drugs to review and, using the principles previously taught, prepare a written review of that class of drug.

PHRM607 Receptors and Signal Transduct **Credit Hours: 3**

An introduction to drug receptors and the diverse signal mechanisms by which drugs initiate cellular responses. Topics to be covered include: macro-molecular structure of receptors dose-response relationships and principles of signal transduction. The core of the course will be devoted to an in-depth examination of the following types of signal transduction mechanisms; Nuclear (steroid) receptors, G-protein-linked receptors, transmembrane kinase receptors and ion-channels.

PHRM620 Read Mechanism Hormone Action **Credit Hours: 0-4**

The properties of hormone receptors and the biochemical consequences of hormone-receptor interactions. May be repeated for credit.

PHRM631 Cardiovascular Pharmacology **Credit Hours: 4**

Research-oriented presentation of the pharmacology of cardiovascular drugs with special emphasis on antiarrhythmic agents and cardiac glycosides. May be repeated for credit.

PHRM633 Neurophrm Tolerance and Depend **Credit Hours: 4**

The neurochemical and neurophysiological basis of tolerance and dependence on drugs of abuse. Some laboratory work may be required. May be repeated for credit.

PHRM640 Read Biophys/Pharma Bio Membr **Credit Hours: 0-2**

Function of membranes and drug action on membranes. May be repeated for credit

PHRM641 Read Phrm Aspct Membrn Trnsprt **Credit Hours: 2**

PHRM642 Bioerg/Ion Trnsprt Mitchndr I **Credit Hours: 2**

Designed to integrate the mitochondrial membrane processes of energy conservation. Included are detailed discussions of respiration-linked H+ flux, coupled oxidative phosphorylation, ion diffusion and carrier mediated transport of cations, substrate anions, phosphate and adenine nucleotides. The differential effects of drugs and ionophores on each of these processes will be discussed. May be repeated for credit.

PHRM643 Bioenrg Ion Trnsprt Mitchmd II **Credit Hours: 0-3**

Advanced readings in current problems in energy conservation and mitochondrial ion transport. Theoretical and experimental aspects of bioenergetics will be discussed. May be repeated for credit.

PHRM655 Jrnl Review in Pharmacology **Credit Hours: 1**

A weekly report on recent advances in pharmacology taken from original papers to give students an opportunity to find, assess, and report on important developments in the field. May be repeated for credit.

PHRM656 Read Biochemical Pharmacology **Credit Hours: 0-3**

Library research project on special topics in the biochemical interactions between drugs and biological systems. May be repeated for credit.

PHRM658 Read in Neuropharmacology **Credit Hours: 0-3**

Discussion of mechanism of action of drugs acting on the CNS based on reading original research articles. May be repeated for credit.

PHRM660 Prblms in Biochem Pharmacology **Credit Hours: 0-5**

Discussion of mechanism of action of drugs acting on the CNS based on reading original research articles. May be repeated for credit.

PHRM661 Prblms Autonom Nrvs Sys Pharm **Credit Hours: 0-5**

Introduction to laboratory research on a selected research topic. May be repeated for credit.

PHRM672 Curremt Topics in Pharmacology **Credit Hours: 0-4**

A lecture and/or seminar course on topics of current interest in pharmacology with special emphasis on the fundamentals of mammalian, especially human, life under normal, experimental, or pathological conditions. Students and department faculty will present and moderate the discussion of original research publications. May be repeated for credit.

PHRM673 Research in Pharmacology **Credit Hours: 0-8**

Students will participate in selected ongoing research programs of members of the department faculty. May be repeated for credit.

PHRM702 Medical Pharmacology II **Credit Hours: 5**

PHRM725 Fundamental Medical Pharmacol **Credit Hours: 2**

The first part of the course consists of a series of lectures covering the fundamental principles of drug action which are the basis for understanding the use of drugs in modern medicine. In the second half, students will choose a class of drugs to review and, using the principles previously taught, prepare a written review of that class of drug.

PHRM807 Receptors and Signal Transduct **Credit Hours: 3**

An introduction to drug receptors and the diverse signal mechanisms by which drugs initiate cellular responses. Topics to be covered include: macro-molecular structure of receptors dose-response relationships and principles of signal transduction. The core of the course will be devoted to an in-depth examination of the following types of signal transduction mechanisms; Nuclear (steroid) receptors, G-protein-linked receptors, transmembrane kinase receptors and ion-channels.

PHRM820 Read Mechanism Hormone Actio **Credit Hours: 0-4**

The properties of hormone receptors and the biochemical consequences of hormone-receptor interactions. May be repeated for credit.

PHRM831 Cardiovascular Pharmacology **Credit Hours: 4**

Research-oriented presentation of the pharmacology of cardiovascular drugs with special emphasis on antiarrhythmic agents and cardiac glycosides. May be repeated for credit.

PHRM833 Neurophrm Tolerance and Depend **Credit Hours: 4**

The neurochemical and neurophysiological basis of tolerance and dependence on drugs of abuse. Some laboratory work may be required. May be repeated for credit.

PHRM840 Read Biophys/Pharma Bio Membrn **Credit Hours: 0-2**

Function of membranes and drug action on membranes. May be repeated for credit

PHRM841 Read Phrm Aspct Membrn Trnsprt **Credit Hours: 2**

PHRM842 Bioenrg/Ion Trnsprt Mitchndr I **Credit Hours: 2**

Designed to integrate the mitochondrial membrane processes of energy conservation. Included are detailed discussions of respiration-linked H+ flux, coupled oxidative phosphorylation, ion diffusion and carrier mediated transport of cations, substrate anions, phosphate and adenine nucleotides. The differential effects of drugs and ionophores on each of these processes will be discussed. May be repeated for credit.

PHRM843 Bioenrg/Ion trnsprt Mitchnd II **Credit Hours: 0-3**

Advanced readings in current problems in energy conservation and mitochondrial ion transport. Theoretical and experimental aspects of bioenergetics will be discussed. May be repeated for credit.

PHRM855 Jrnl Review in Pharmacology **Credit Hours: 1**

A weekly report on recent advances in pharmacology taken from original papers to give students an opportunity to find, assess, and report on important developments in the field. May be repeated for credit.

PHRM856 Read Biochemical Pharmacology **Credit Hours: 0-3**

Library research project on special topics in the biochemical interactions between drugs and biological systems. May be repeated for credit.

PHRM858 Read in Neuropharmacology **Credit Hours: 0-3**

Discussion of mechanism of action of drugs acting on the CNS based on reading original research articles. May be repeated for credit.

PHRM860 Prblms in Biochem Pharmacology **Credit Hours: 0-5**

Discussion of mechanism of action of drugs acting on the CNS based on reading original research articles. May be repeated for credit.

PHRM861 Prblms Autonom Nrvs Sys Pharm **Credit Hours: 0-5**

Introduction to laboratory research on a selected research topic. May be repeated for credit.

PHRM872 Current Topics in Pharmacology **Credit Hours: 0-4**

A lecture and/or seminar course on topics of current interest in pharmacology with special emphasis on the fundamentals of mammalian, especially human, life under normal, experimental, or pathological conditions. Students and department faculty will present and moderate the discussion of original research publications. May be repeated for credit.

PHRM873 Research in Pharmacology **Credit Hours: 0-8**

Students will participate in selected ongoing research programs of members of the department faculty. May be repeated for credit.

PHSL505 Human Physiology **Credit Hours: 3**

This course addresses cellular, regulatory and organ system physiology including blood and immune system, cardiovascular, respiratory, gastrointestinal, renal reproductive and endocrine physiology

PHSL505M Human Physiology **Credit Hours: 3**

PHSL510 Basic Genomics **Credit Hours: 3**

A basic course on the fundamental concept and techniques employed to study nucleus, chromosomes, cell cycle, DNA, DNA damage and repair, gene expression, genetic analysis of complex traits, and functional genomics.

PHSL613 Psychophysiology **Credit Hours: 3**

PHSL620 Advanced Human Physiology **Credit Hours: 6**

This course will address the basic and advanced topics on cardiovascular, respiratory, renal, gastrointestinal, endocrine and reproductive physiology. The students will acquire fundamental knowledge in human system physiology. This course is intended primarily for students in the MSBS program, but also is open to others.

PHSL622 Reproductive Physiology **Credit Hours: 4**

PHSL625 Reproductive Endocrinology **Credit Hours: 1-3**

PHSL632 Physiology Kidney/Body Fluids **Credit Hours: 1-3**

PHSL650 Seminar in Physiology **Credit Hours: 1**

PHSL655 Jrnl Paper Review Physiology **Credit Hours: 1**

PHSL657 Readings Behavioral Medicine **Credit Hours: 0-2**

Readings in theory, physiological basis and applications of behavioral medicine.

PHSL672 Current Topics in Physiology **Credit Hours: 0-3**

A lecture and/or seminar course on topics of current interest in physiology with special emphasis on the fundamentals of mammalian, especially human, life under normal, experimental, or pathological conditions. Students and department faculty members will present and moderate the discussion of original research publications. May be repeated for credit.

PHSL673 Research in Physiology **Credit Hours: 1-3**

PHSL689 Indep Study in Physiology **Credit Hours: 0-12**

Intensive study in field of interest including theoretical and experimental work. May be repeated for credit.

PHSL701 Medical Physiology I **Credit Hours: 5**

PHSL702 Medical Physiology II — Credit Hours: 5

PHSL803 Experimental Physiology — Credit Hours: 1-3

PHSL813 Psychophysiology — Credit Hours: 3

PHSL820 Advanced Human Physiology — Credit Hours: 6

PHSL822 **Reproductive Physiology** **Credit Hours: 4**

PHSL825 **Reproductive Endocrinology** **Credit Hours: 1-3**

PHSL832 **Physiology Kidney/Body Fluids** **Credit Hours: 1-3**

PHSL850 **Seminar in Physiology** **Credit Hours: 1**

PHSL855 Jrnl Paper Review Physiology **Credit Hours: 1**

PHSL857 Readings Behavioral Medicine **Credit Hours: 1-2**

PHSL872 Current Topics in Physiology **Credit Hours: 0-3**

A lecture and/or seminar course on topics of current interest in physiology with special emphasis on the fundamentals of mammalian, especially human, life under normal, experimental, or pathological conditions. Students and department faculty members will present and moderate the discussion of original research publications. May be repeated for credit.

PHSL873 Research in Physiology **Credit Hours: 1-3**

PHSL889 Indep Study in Physiology **Credit Hours: 0-12**

Intensive study in field of interest including theoretical and experimental work. May be repeated for credit.

PHYA501 Introduction to PA Profession **Credit Hours: 1**

An overview of the history and philosophy of the physician assistant profession. Includes a review of current professional issues relevant to the PA profession.

PHYA510 Prin.Interview/Medical History **Credit Hours: 3**

An introduction to the art of patient/practitioner communication and effective interviewing for the purpose of establishing a health database and follow-up care.

PHYA511 Pathophysiology **Credit Hours: 4**

PHYA512 Patient Evaluation **Credit Hours: 4**

PHYA513 Patient Evaluation **Credit Hours: 3**

Students will develop the knowledge and skills to competently perform a complete physical examination, recognizing normal and abnormal findings and communicating their findings verbally and in written form.

PHYA514 Health Care Teams and Systems **Credit Hours: 2**

Introduction to issues and systems related to the delivery of health care in the U.S. to include settings, costs, and reimbursement issues and the evaluation of health care quality.

PHYA520 Diagnostic Therapeutic Skills **Credit Hours: 5**

PHYA521 Diag and Therapeutic Skills I **Credit Hours: 2**

Introduction to the use and interpretation of commonly used diagnostic and therapeutic tools, including laboratory studies, radiographic studies, and electrocardiography.

PHYA522 Diag Therapeutic Skills II **Credit Hours: 1**

Introduction to the use and interpretation of commonly used diagnostic and therapeutic tools, including laboratory studies, radiographic studies, and electrocardiography.

PHYA523 Diag Therapeutic Skills III **Credit Hours: 2**

Introduction to the use and interpretation of commonly used diagnostic and therapeutic tools, including laboratory studies, radiographic studies, and electrocardiography.

PHYA530 Clinical Medicine **Credit Hours: 6**

PHYA531 Clinical Medicine I **Credit Hours: 4**

An intensive, three semester sequence of study which examines human diseases and disorders from the perspectives of etiology, epidemiology, clinical manifestations, diagnosis, management, potential complications and prognosis.

PHYA531M Clinical Medicine **Credit Hours: 4**

PHYA532 Clinical Medicine II **Credit Hours: 2**

An intensive, three semester sequence of study which examines human diseases and disorders from the perspectives of etiology, epidemiology, clinical manifestations, diagnosis, management, potential complications and prognosis.

PHYA533 Clinical Medicine III **Credit Hours: 6**

An intensive, three semester sequence of study which examines human diseases and disorders from the perspectives of etiology, epidemiology, clinical manifestations, diagnosis, management, potential complications, and prognosis.

PHYA534 Clinical Medicine II **Credit Hours: 3**

An intensive, three semester sequence of study which examines human diseases and disorders from the perspectives of etiology, epidemiology, clinical manifestations, diagnosis, management, potential complications and prognosis.

PHYA540 Pathophysiology I **Credit Hours: 2**

An overview of physiological and pathologic processes that influence the human organism at the cellular, organ and systemic levels.

PHYA540M Pathophysiology **Credit Hours: 2**

PHYA541 Pathophysiology II **Credit Hours: 2**

An overview of physiological and pathologic processes that influence the human organism at the cellular, organ and systemic levels.

PHYA542 Pathophysiology III **Credit Hours: 2**

An overview of physiological and pathologic processes that influence the human organism at the cellular, organ and systemic levels.

PHYA550 Clinical Pharmacology **Credit Hours: 3**

PHYA551 Fundamentals of Pharmacology I **Credit Hours: 2**

A study of the general principles of pharmacotherapeutics and the rational use of drugs for the diagnosis, prevention and treatment of diseases.

PHYA551M Fundamentals of Pharmacology I **Credit Hours: 2**

PHYA552 Fundamentals Pharmacology II **Credit Hours: 2**

A study of the general principles of pharmacotherapeutics and the rational use of drugs for the diagnosis, prevention and treatment of diseases.

PHYA553 Fundamentals Pharmacology III **Credit Hours: 2**

A study of the general principles of pharmacotherapeutics and the rational use of drugs for the diagnosis, prevention and treatment of diseases.

PHYA560 Emergency Medicine and Surgery **Credit Hours: 2**

PHYA570 Obstetrics and Gynecology **Credit Hours: 2**

PHYA580 Pediatrics **Credit Hours: 2**

PHYA590 ACLS for PAs **Credit Hours: 1**

PHYA600 Data Analysis Scholarly Projec **Credit Hours: 1**

Statistical analysis of data collected by students.

PHYA601 Basic Genetics **Credit Hours: 1**

PHYA602 Long Term Care **Credit Hours: 1**

Clinical experience introducing the student to medical and non-medical care to people who have a chronic illness or disability.

PHYA605 Ethics for PA Profession **Credit Hours: 2**

This course provides the foundation for ethics in the primary care clinical setting. Analyze common bioethical issues confronting physician assistants, and give the student the opportunity to share their experiences with peers.

PHYA610 Hlth Promo/Disease Prev Strat **Credit Hours: 2**

PHYA611 Hlth Promo Disease Prevention **Credit Hours: 1**

An introduction to basic concepts of health promotion and disease prevention, analysis of risk factors for disease, and an emphasis on strategies to modify lifestyles to promote health in the individual and community.

PHYA612 Principles Rsrch and Statistcs **Credit Hours: 3**

PHYA612M Principles Rsrch and Statistcs **Credit Hours: 3**

PHYA613 Prin of Research and Statistcs **Credit Hours: 2**

Presentation of methods of research and their application to clinical research in clinical practice. Present useful knowledge and understanding of the basic language, logic and methods of research design and statistical analysis.

PHYA615 Behavioral Science **Credit Hours: 2**

Study of concepts and practices related to evaluation and management of psychiatric diseases and conditions as well as behavioral issues which impact upon the health and well-being of patients.

PHYA616 **Humanities for PA Profession** **Credit Hours: 3**

PHYA622 **Clinical Practice** **Credit Hours: 5**

PHYA623 **Clinical Preceptorship** **Credit Hours: 7**

PHYA627 **Physician Assistant Seminar** **Credit Hours: 1**

PHYA641 Clinical Practice - ER **Credit Hours: 2**

To provide the students with the opportunity to gain medical knowledge, develop proficiency and directed practical experience working directly with patients and health care personnel.

PHYA642 Clinical Practice-Family Med **Credit Hours: 2**

To provide the students with the opportunity to gain medical knowledge, develop proficiency and directed practical experience working directly with patients and health care personnel.

PHYA643 Clinical Prac-Internal Med **Credit Hours: 2**

To provide the students with the opportunity to gain medical knowledge, develop proficiency and directed practical experience working directly with patients and health care personnel.

PHYA644 Clinical Practice-Pediatrics **Credit Hours: 2**

To provide the students with the opportunity to gain medical knowledge, develop proficiency and directed practical experience working directly with patients and health care personnel.

PHYA645 Clinical Practice-Surgery **Credit Hours: 2**

To provide the students with the opportunity to gain medical knowledge, develop proficiency and directed practical experience working directly with patients and health care personnel.

PHYA646 Clin Prac-GYN/Prenatal **Credit Hours: 2**

To provide the students with the opportunity to gain medical knowledge, develop proficiency and directed practical experience working directly with patients and health care personnel.

PHYA647 Clincal Practice Elective **Credit Hours: 2**

To provide the students with the opportunity to gain medical knowledge, develop proficiency and directed practical experience working directly with patients and health care personnel.

PHYA648 Clin Prac - Long Term Care **Credit Hours: 2**

To provide the students with the opportunity to gain medical knowledge, develop proficiency and directed practical experience working directly with patients and health care personnel.

PHYA650 Intro to Clinical Practice **Credit Hours: 1**

Students will review history taking and patient interview skills and patient evaluation skills. Clinical orientation will consist of clinical assignments and review of clinical manual. Students will acquire ACLS certification.

PHYA651 Clinical Practice I **Credit Hours: 3**

Provides supervised inpatient and ambulatory primary care clinical experiences for PA students. Students will demonstrate ability to integrate knowledge and skills in the evaluation and treatment of patients and their families.

PHYA652 Clinical Practice II **Credit Hours: 3**

Provides supervised inpatient and ambulatory primary care clinical experiences for PA students. Students will demonstrate ability to integrate knowledge and skills in the evaluation and treatment of patients and their families.

PHYA653 Clinical Practice III **Credit Hours: 3**

Provides supervised inpatient and ambulatory primary care clinical experiences for PA students. Students will demonstrate ability to integrate knowledge and skills in the evaluation and treatment of patients and their families.

PHYA660 Research Practicum **Credit Hours: 1**

Students will develop and implement a scholarly project under the supervision of the student's major advisor.

PHYA661 Scholarly Project I **Credit Hours: 1**

Students will develop and implement a scholarly project related to their professional goals. The project is negotiated between the student and the student's advisory committee.

PHYA662 Scholarly Project II **Credit Hours: 1**

Students will develop and implement a scholarly project related to their professional goals. The project is negotiated between the student and the student's advisory committee.

PHYA663 Scholarly Project III **Credit Hours: 1**

Students will develop and implement a scholarly project related to their professional goals. The project is negotiated between the student and the student's advisory committee.

PHYA670 Clinical Seminar I **Credit Hours: 2**

Explores current topics relevant to the physician assistant profession and health care; develops leadership, problem solving and clinical reasoning skills and prepares the student to enter professional practice.

PHYA671 Clinical Seminar II **Credit Hours: 2**

Explores current topics relevant to the physician assistant profession and health care; develops leadership, problem solving and clinical reasoning skills and prepares the student to enter professional practice.

PHYA672 Clinical Seminar III **Credit Hours: 2**

Explores current topics relevant to the physician assistant profession and health care; develops leadership, problem solving and clinical reasoning skills and prepares the student to enter professional practice.

PHYA675 Clinical Preceptorship **Credit Hours: 3**

Final clinical experience designed to provide physician assistant students the opportunity to fully integrate and apply in clinical practice the relevant and advanced concepts from the discipline's studies.

PHYA689 PA Independent Study **Credit Hours: 0-4**

The student and instructor will agree on a program of study that will enable the student to achieve his/her objectives. Requires approval of the Program Director. May be repeated for credit.

PHYA695 Scholarly Project I **Credit Hours: 2**

PHYA696 Scholarly Project II **Credit Hours: 2**

PHYS1050 The World Of Atoms **Credit Hours: 3**

The atomic structure of matter and the ideas of quantum physics. The sizes of objects from galaxies to nucleons. Molecules, solids, the wave nature of the electron, quarks and gluons.

PHYS1300 Physics In Everyday Life **Credit Hours: 3**

Not for major credit. Selected subjects of current interest, with their relation to the principles and concepts of physics. Content may vary from year to year. No special science or mathematics background needed.

PHYS1310 Physics Of Music And Sound **Credit Hours: 3**

Not for major credit. Physics of waves and vibration. Human sound perception. Physics principles of wind, string and percussion instruments. Analog and digital reproduction of sound.

PHYS1320 Jurassic Physics **Credit Hours: 3**

Not for major credit. Mechanics, energy, sound and thermodynamics of dinosaurs. The physics of vision and hearing. Fluids and flight. Radioactivity. Climate and the effects of an asteroid collision with the Earth.

PHYS1330 Physics Of Light And Color **Credit Hours: 3**

Not for major credit. Physics of light and human vision. Atmospheric phenomena, images, depth perception, color analysis, pigments and dyes, color perception, the physics of art, the reproduction of color, thin film interference and holography.

PHYS1340 The Nature Of Science **Credit Hours: 3**

An interdisciplinary course that discusses major scientific discoveries, the role of hypothesis testing in science, the use of mathematics in science; data presentation; and moral and ethical issues that stem from science.

PHYS1750 Introduction To Physics **Credit Hours: 4**

Not for major credit. High school mathematics including plane geometry, trigonometry and two years of algebra is strongly recommended. Fundamental laws of nature pertaining to mechanics, thermodynamics, waves, electricity, magnetism, optics, atoms and particles.

PHYS1910 Frontiers Of Physics And Astronomy **Credit Hours: 3**

An examination of our current understanding of the physical world at the conceptual level. Topics may include the ultimate structure of matter, quantum theory, relativity, astrophysics, cosmology and contemporary applications.

PHYS2010 Technical Physics I **Credit Hours: 4**

Topics include measurement, statics, Newton's laws, friction, work, energy, power, impulse and momentum, and simple machines. Includes integrated laboratory.

Prerequisites: MATH 1340 FOR LEVEL UG WITH MIN. GRADE OF D-

PHYS2020 Technical Physics II **Credit Hours: 4**

Topics include thermodynamics, electricity, and magnetism, electromagnetic radiation, optics, atomic and nuclear physics. Includes integrated laboratory.

Prerequisites: MATH 1340 FOR LEVEL UG WITH MIN. GRADE OF D-

PHYS2070 General Physics I **Credit Hours: 0-5**

Calculus not required. Mechanics of energy and motion, gravitation, harmonic motion, fluids, heat, entropy and the laws of thermodynamics. Four hours lecture and discussion, two hours laboratory per week.

PHYS2080 General Physics II **Credit Hours: 0-5**

Calculus not required. Electricity and magnetism, capacitors and inductors, electromagnetic waves, optics, atomic physics, nuclear physics, and elementary particles. Four hours lecture and discussion, two hours laboratory per week.

Prerequisites: PHYS 2070 FOR LEVEL UG WITH MIN. GRADE OF D-

PHYS2100 Physics With Calculus **Credit Hours: 2**

A bridge course for students wishing to continue in physics after taking PHYS 2070-2080. The application of calculus and elementary differential equations in various physical contexts. No credit for students who take PHYS 2130-2140.

Prerequisites: (PHYS 2080 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1860 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (PHYS 2080 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1840 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (PHYS 2080 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1880 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (PHYS 2080 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1930 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHYS2130 Physics For Science And Engineering Majors I **Credit Hours: 0-5**

Calculus based general physics. Mechanics of motion and energy, rotation, gravitation, harmonic motion, waves, fluids and the laws of thermodynamics. Five hours lecture and discussion, two hours laboratory per week.

Prerequisites: MATH 1830 FOR LEVEL UG WITH MIN. GRADE OF C OR MATH 1850 FOR LEVEL UG WITH MIN. GRADE OF C OR MATH 1920 FOR LEVEL UG WITH MIN. GRADE OF C

PHYS2140 Physics For Science And Engineering Majors II **Credit Hours: 0-5**

Calculus based general physics. Electricity and magnetism, capacitors and inductors, electromagnetic oscillations, Maxwell's equations and electromagnetic radiation, optics, images, interference, and diffraction. Five hours lecture and discussion, two hours laboratory per week.

Prerequisites: PHYS 2130 FOR LEVEL UG WITH MIN. GRADE OF D-

PHYS3150 Methods Of Theoretical Physics **Credit Hours: 3**

Basic theoretical methods of physics. Topics include mechanical oscillations, wave propagation, electromagnetic fields, symm and eigenfunctions. Emphasis is on techniques that are common to many areas of physics and astrophysics.

Prerequisites: (MATH 1890 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 2850 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHYS3180 Intermediate Laboratory **Credit Hours: 3**

Physical measurements laboratory related to the development of modern physics, emphasizing techniques such as electronics, computer-aided experimental control and data acquisition, and data analysis. May be offered as writing intensive.

Prerequisites: PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D- OR PHYS 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

PHYS3310 Quantum Physics I **Credit Hours: 3**

Quantum mechanics: atomic and molecular structure and spectra.

Prerequisites: (PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1840 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1860 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1880 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1930 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHYS3320 Quantum Physics II **Credit Hours: 3**

Quantum statistics, applications of quantum mechanics and quantum statistics in laser physics and solid state physics, nuclear physics.

Prerequisites: PHYS 3310 FOR LEVEL UG WITH MIN. GRADE OF D-

PHYS3400 PHYSICAL PRINCIPLES FOR ENERGY SOURCES FOR HUMANS **Credit Hours: 3**

This course will involve the study of various conventional and unconventional sources of energy for human consumption. Past, present, and future energy sources will be examined on scientifically established principles and data.

Prerequisites: PHYS 2080 FOR LEVEL UG WITH MIN. GRADE OF D- AND CHEM 1240 FOR LEVEL UG WITH MIN. GRADE OF D-

PHYS3410 Thermal Physics **Credit Hours: 3**

Statistical mechanics, kinetic theory and thermodynamics from a unified microscopic point of view, with applications to a variety of topics from different areas of physics.

Prerequisites: PHYS 3310 FOR LEVEL UG WITH MIN. GRADE OF D-

PHYS3610 Optics And Lasers **Credit Hours: 3**

Electromagnetic theory, ray and wave optics including matrix methods, polarization, interference, diffraction, basic laser physics and survey of current laser systems.

Prerequisites: PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D-

PHYS4130 Computational Physics **Credit Hours: 3**

Working knowledge of computer operations and programming required. Numerical accuracy, advanced programming, graphics and spreadsheet packages, numerical techniques for differentiation, integration, matrices, solving differential equations and eigenvalue problems.

PHYS4210 Theoretical Mechanics **Credit Hours: 3**

Statics and dynamics of particles, work, energy, Lagrange equations of motion, small oscillations, dynamics of rigid bodies.

Prerequisites: (PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1890 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 2890 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHYS4230 Electricity And Magnetism I **Credit Hours: 3**

Mathematical formulation of electrostatic and magnetostatic fields, potential theory solution of boundary value problems, method of images, dielectric and magnetic materials.

Prerequisites: (PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1890 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (PHYS 2140 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 2890 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHYS4240 Electricity And Magnetism II **Credit Hours: 3**

Maxwell's field equations, production and propagation of electromagnetic waves, solution of boundary value problems with application to the laws of optics and guided waves.

Prerequisites: PHYS 4230 FOR LEVEL UG WITH MIN. GRADE OF D-

PHYS4310 Quantum Mechanics **Credit Hours: 3**

Formalism and applications of quantum mechanics: Hilbert space, time-independent and time-dependent perturbation theories, atomic and molecular structure and spectra, and scattering theory.

Prerequisites: (PHYS 3320 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 1890 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (PHYS 3320 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 2890 FOR LEVEL UG WITH MIN. GRADE OF D- AND MATH 3860 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHYS4400 Principles and Varieties of Solar Energy **Credit Hours: 3**

Types and extent of solar energy used in human society including photosynthesis, photovoltaic, solar thermal, and concentrating solar electric; scope of the necessary energy storage and long distance electricity transmission.

Prerequisites: CHEM 1240 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 2080 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 3400 FOR LEVEL UG WITH MIN. GRADE OF D-

PHYS4510 Physics Of Condensed Matter **Credit Hours: 3**

Crystal lattices and structures, reciprocal lattice and kinematical diffraction theory, binding in crystals, lattice dynamics and phonons, thermodynamic, electronic, and optical properties of insulators, semiconductors, metals and alloys.

Prerequisites: (PHYS 3320 FOR LEVEL UG WITH MIN. GRADE OF D- AND PHYS 3410 FOR LEVEL UG WITH MIN. GRADE OF D-)

PHYS4580 Molecular And Condensed Matter Laboratory **Credit Hours: 3**

Experiments in molecular and condensed matter physics such as Raman scattering and photoluminescence X-ray diffraction, Mossbauer effect, Hall effect, NMR and scanning tunneling microscopy. One 4 hour lab and 1 hour lecture per week. May be offered as writing intensive.

Prerequisites: PHYS 3320 FOR LEVEL UG WITH MIN. GRADE OF D-

PHYS4620 The Physics Of Lasers **Credit Hours: 3**

Longitudinal and transverse coherence, stimulated emission, optical pumping, resonator structures, Q-switching, mode-locking and laser systems (gas, dye, diode, doped insulator and free electron lasers).

Prerequisites: PHYS 3320 FOR LEVEL UG WITH MIN. GRADE OF D-

PHYS4780 Atomic And Nuclear Physics Laboratory **Credit Hours: 3**

Detectors and electronics, beta, gamma, and X-ray spectroscopy, grating and interferometric spectroscopy, laser applications, solar spectroscopy. One 4 hour lab and 1 hour lecture per week. May be offered as writing intensive.

Prerequisites: PHYS 3320 FOR LEVEL UG WITH MIN. GRADE OF D-

PHYS4910 Research Problems-Physics And Astronomy **Credit Hours: 1-3**

Individual experimental or theoretical projects selected with the approval of the department.

PHYS4940 Internship in Renewable Energy **Credit Hours: 1-4**

Experential learning in an advisor-approved business, non-profit, or academic organization. Maximum of three hours may count toward minor.Credit hours 1-4; may be repeated once for credit

Prerequisites: PHYS 3400 FOR LEVEL UG WITH MIN. GRADE OF D-

PHYS4980 Special Topics In Physics **Credit Hours: 1-4**

Individual or small group study of selected topics not covered in regular undergraduate courses.

PHYS510 Basic Genomics **Credit Hours: 3**

PHYS5210 Theoretical Mechanics **Credit Hours: 3**

Kinematics and dynamics of particles and rigid bodies. Lagrangian and Hamiltonian equations of motion.

PHYS5230 Classical Electricity And Magnetism I **Credit Hours: 3**

Electrostatics: the equations of Laplace and Poisson-Maxwell's equations and their solutions.

PHYS5240 Electricity And Magnetism II **Credit Hours: 3**

Maxwell's equations and their solutions; electromagnetic radiation.

Prerequisites: PHYS 5230 FOR LEVEL GR WITH MIN. GRADE OF D-

PHYS5310 Quantum Mechanics **Credit Hours: 3**

Formalism and applications of quantum mechanics: Hilbert space, time independent and time-dependent perturbation theories, atomic and molecular structure and spectra, and scattering theory.

PHYS5510 Condensed Matter Physics **Credit Hours: 3**

Crystal lattices and structures, reciprocal lattice and kinematical diffraction theory. Survey of binding in crystals. Lattice dynamics and phonons. Thermodynamic, electronic, and optical properties of insulators, semiconductors, metals and alloys.

PHYS5620 The Physics Of Lasers **Credit Hours: 3**

Longitudinal and transverse coherence, stimulated emission, optical pumping, resonator structures, Q-switching, mode-locking and laser systems (gas, dye, diode, doped insulator and free electron lasers).

PHYS5800 Astronomy In The Planetarium **Credit Hours: 3**

Theory and practice of astronomical outreach programming. Sky and calendar, mythology, constellations, astrophysics, buying and using small telescopes, operating and maintaining planetarium projectors, sky simulation software, projects and program production.

PHYS5810 Astrophysics I **Credit Hours: 3**

Spherical coordinate systems, astronomical time, celestial mechanics, the solar system and planetary physics, photometry, radiative transfer, stellar spectra and classification, binary stars and stellar masses.

PHYS5820 Astrophysics II **Credit Hours: 3**

Stellar structure and evolution, close binaries, origin of the elements, the sun, variable stars, star clusters, the interstellar medium, the Milky Way Galaxy, stellar statistics, galaxy structure and evolution, cosmology.

Prerequisites: PHYS 5810 FOR LEVEL GR WITH MIN. GRADE OF D-

PHYS5880 Astrophysics Laboratory **Credit Hours: 3**

Astronomical, optical and electronic principles of operation of a modern astronomical observatory. Observing with the 1-meter telescope of Ritter Observatory, reduction, analysis and interpretation of astronomical spectra, Six hours laboratory per week.

Corequisites: PHYS5810

PHYS5900 Research Techniques In Physics And Astronomy **Credit Hours: 1-6**

Research work under the guidance of a member of the graduate faculty. Designed to prepare the student to propose and carry out the thesis research required for the M.S. degree.

PHYS5950 Education Workshop In The Physical Sciences **Credit Hours: 1-4**

For teachers in grades K-12. Introduction to modern physical science concepts suitable for classroom use; lecture and laboratory. Not acceptable for physics degree program.

PHYS6010 Physics And Astronomy Colloquium **Credit Hours: 2**

Topical lectures by visiting and local professionals.

PHYS6020 Physics And Astronomy Journal Seminar **Credit Hours: 1**

Literature review seminar.

PHYS6130 Computational Physics For Research **Credit Hours: 3**

Software packages for display and analytic manipulation, numerical methods for linear and non-linear systems of differential equations, matrix algebra, and the Schrodinger equation. Vector and parallel processing.

PHYS6140 Fundamentals Of Modern Physics **Credit Hours: 3**

An intensive course which reviews the fundamentals of atomic, statistical and condensed matter physics. Provides a common foundation for entering graduate students for succeeding courses in physics and astronomy.

PHYS6180 Modern Physics Laboratory **Credit Hours: 2-3**

Experiments in atomic, condensed matter and nuclear physics, such as Zeeman, Raman, Mossbauer and Hall Effects, Doppler shifts, X-ray diffraction, NMR, STM, and alpha, beta and gamma ray spectroscopies.

Prerequisites: PHYS 6140 FOR LEVEL GR WITH MIN. GRADE OF D-

PHYS6220 Classical Mechanics **Credit Hours: 3**

Advanced classical mechanics, including the variational principles, Lagrange and Hamilton mechanics, and linear and nonlinear systems.

PHYS6250 Classical Electrodynamics I **Credit Hours: 3**

Solutions to Poisson's equation in Cartesian, spherical and cylindrical coordinates with Dirichlet, Neuman and mixed boundary conditions. Maxwell's equations and their solutions applied to waveguides and nonlinear materials.

PHYS6260 Classical Electrodynamics II **Credit Hours: 3**

Solutions to the wave equation with time dependent source terms, energy loss from high energy charged particles in dense materials, special relativity, classical field theory, invariant Lagrangians and conserved quantities.

Prerequisites: PHYS 6250 FOR LEVEL GR WITH MIN. GRADE OF D-

PHYS6320 Quantum Mechanics I **Credit Hours: 3**

Quantum theory and its application to physical problems. Topics include dynamics in the Schrodinger and Heisenberg pictures, invariance principles and angular momentum theory, perturbation theory, the variational method.

PHYS6330 Quantum Mechanics II **Credit Hours: 3**

The quantum theory of scattering, electromagnetic interactions, quantization of the electromagnetic field and introduction to the Dirac equation.

PHYS6450 Statistical Mechanics **Credit Hours: 3**

A fundamental quantum-mechanical development of statistical thermodynamics. Non-interacting and weakly interacting many-particle systems in the classical and quantum regimes, with applications to various fields of physics.

PHYS6490 Current Issues In Theoretical Physics **Credit Hours: 3**

Problems in theory relative to the research programs pursued at the University.

PHYS6520 Condensed Matter Physics I **Credit Hours: 3**

A study of the electromagnetic, thermal and elastic properties of condensed matter through the quantum-mechanical treatment of the electrons and elementary excitations.

Prerequisites: PHYS 6330 FOR LEVEL GR WITH MIN. GRADE OF D-

PHYS6530 Condensed Matter Physics II **Credit Hours: 3**

A survey of condensed matter phenomena of interest to experimentalists, as elucidated by theory.

Prerequisites: PHYS 6330 FOR LEVEL GR WITH MIN. GRADE OF D-

PHYS6540 Structure, Defects And Diffusion **Credit Hours: 4**

A generic materials science approach to the study of crystalline structure, defects (point, line and planar) in crystalline materials, and the mechanisms and kinetics of diffusion in the condensed state.

PHYS6550 Thermodynamics And Phase Transformations In Condensed Systems **Credit Hours: 4**

A materials science approach to the thermodynamics of condensed state equilibria and phase transformation kinetics.

Prerequisites: PHYS 6450 FOR LEVEL GR WITH MIN. GRADE OF D-

PHYS6630 Semiconductors I **Credit Hours: 3**

Review of modern theory of solids. Semiconducting and metallic materials. Semiconductor devices including p-n junctions and solar cells.

Prerequisites: PHYS 4510 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 4400 FOR LEVEL UG WITH MIN. GRADE OF D-

PHYS6690 Current Issues In Optics **Credit Hours: 3**

Current research in optics and the optical excitation of material modes.

PHYS6710 Atomic Physics **Credit Hours: 3**

A study of the fundamental properties of atoms, their theoretical description and experimental measurement. Topics include atomic structure, radiative transitions, external field interactions and atomic collisions.

PHYS6720 Atomic & Molecular Spectroscopy **Credit Hours: 3**

Theory and experimental methods of atomic and molecular spectroscopy. Topics include the theory of interpretation of atomic and molecular spectra and the experimental means to measure the spectra.

Prerequisites: PHYS 6710 FOR LEVEL GR WITH MIN. GRADE OF D-

PHYS6770 Accelerator Physics **Credit Hours: 3**

Basic electrodynamic functioning of charged-particle accelerators, particle dynamics of non-relativistic and relativistic accelerators, accelerator applications, static field and dynamic field accelerator designs.

PHYS6810 Stellar Astrophysics I **Credit Hours: 3**

Stellar atmospheres and their emergent spectra. Physics of radiation, matter and their interaction. Radiative transfer, hydrostatic and radiative equilibrium, convection, line formation and spectral signatures of atmospheric physics.

PHYS6820 Stellar Astrophysics II **Credit Hours: 3**

Stellar structure and evolution. Equation of state, nuclear reactions and nucleosynthesis, stellar formation, evolution and death, enrichment of the interstellar medium, formation of planetary systems, solar physics and helioseismology.

PHYS6830 Galactic Astronomy I **Credit Hours: 3**

Stellar spectra, colors, compositions and ages; star clusters; pulsating stars; calibration of distance indicators. Interstellar dust, interstellar extinction, interstellar gas, nebulae; structure of the interstellar medium.

PHYS6840 Galactic Astronomy II **Credit Hours: 3**

Structure and dynamics of the Galaxy, shocks and explosions, stellar kinematics, galactic rotation, and dynamical and chemical evolution.

PHYS6960 M.s. Thesis Research **Credit Hours: 1-15**

Thesis research required for the M.S. degree.

PHYS6980 Special Topics **Credit Hours: 1-4**

Course reserved for visiting lecturers and topics not covered otherwise.

PHYS6990 Independent Study **Credit Hours: 1-4**

PHYS7130 Computational Physics For Research **Credit Hours: 3**

Software packages for display and analytic manipulation, numerical methods for linear and non-linear systems of differential equations, matrix algebra, and the Schrodinger equation. Vector and parallel processing.

PHYS7140 Fundamentals Of Modern Physics **Credit Hours: 3**

An intensive course which reviews the fundamentals of atomic, statistical and condensed matter physics. Provides a common foundation for entering graduate students for succeeding courses in physics and astronomy.

PHYS7180 Advanced Atomic & Nuclear Physics Laboratory **Credit Hours: 2-3**

Experiments in atomic, condensed matter and nuclear physics, such as Zeeman, Raman, Mossbauer, and Hall Effects, Doppler shifts, X-ray diffraction, NMR, STM, and alpha, beta and gamma ray spectroscopies.

Prerequisites: PHYS 6140 FOR LEVEL GR WITH MIN. GRADE OF D- OR PHYS 7140 FOR LEVEL GR WITH MIN. GRADE OF D-

PHYS7220 Classical Mechanics **Credit Hours: 3**

Advanced classical mechanics, including the variational principles, Lagrange and Hamilton mechanics, and linear and nonlinear systems.

PHYS7250 Classical Electrodynamics I **Credit Hours: 3**

Solutions to Poisson's equation in Cartesian, spherical and cylindrical coordinates with Dirichlet, Neuman and mixed boundary conditions. Maxwell's equations and their solutions applied to waveguides and nonlinear materials.

PHYS7260 Classical Electrodynamics II **Credit Hours: 3**

Solutions to the wave equation with time dependent source terms, energy loss from high energy charged particles in dense materials, special relativity, classical field theory, invariant Lagrangians and conserved quantities.

Prerequisites: PHYS 6250 FOR LEVEL GR WITH MIN. GRADE OF D- OR PHYS 7250 FOR LEVEL GR WITH MIN. GRADE OF D-

PHYS7320 Quantum Mechanics I **Credit Hours: 3**

Quantum theory and its application to physical problems. Topics include dynamics in the Schrodinger and Heisenberg pictures, invariance principles and angular momentum theory, perturbation theory, the variational method.

PHYS7330 Quantum Mechanics II **Credit Hours: 3**

The quantum theory of scattering, electromagnetic interactions, quantization of the electromagnetic field and introduction to the Dirac equation.

PHYS7450 Statistical Mechanics **Credit Hours: 3**

A fundamental quantum-mechanical development of statistical thermodynamics. Non-interacting and weakly interacting many-particle systems in the classical and quantum regimes, with applications to various fields of physics.

PHYS7520 Condensed Matter Physics I **Credit Hours: 3**

A study of the electromagnetic, thermal and elastic properties of condensed matter through the quantum-mechanical treatment of the electrons and elementary excitations.

Prerequisites: PHYS 6330 FOR LEVEL GR WITH MIN. GRADE OF D-

PHYS7530 Condensed Matter Physics II **Credit Hours: 3**

A survey of condensed matter phenomena of interest to experimentalists, as elucidated by theory.

Prerequisites: PHYS 6330 FOR LEVEL GR WITH MIN. GRADE OF D-

PHYS7710 Atomic Physics **Credit Hours: 3**

A study of the fundamental properties of atoms, their theoretical description and experimental measurement. Topics include atomic structure, radiative transitions, external field interactions and atomic collisions.

PHYS7720 Atomic & Molecular Spectroscopy **Credit Hours: 3**

Theory and experimental methods of atomic and molecular spectroscopy. Topics include the theory of interpretation of atomic and molecular spectra and the experimental means to measure the spectra.

Prerequisites: PHYS 6710 FOR LEVEL GR WITH MIN. GRADE OF D-

PHYS7810 Stellar Astrophysics I **Credit Hours: 3**

Stellar atmospheres and their emergent spectra. Physics of radiation, matter and their interaction. Radiative transfer, hydrostatic and radiative equilibrium, convection, line formation, and spectral signatures of atmospheric physics.

PHYS7820 Stellar Astrophysics II **Credit Hours: 3**

Stellar structure and evolution. Equation of state, nuclear reactions and nucleosynthesis, stellar formation, evolution and death, enrichment of the interstellar medium, formation of planetary systems, solar physics and helioseismology.

PHYS7830 Galactic Astronomy I **Credit Hours: 3**

Stellar spectra, colors, compositions, and ages; star clusters; pulsating stars; calibration of distance indicators. Interstellar dust, interstellar extinction, interstellar gas, nebulae; structure of the interstellar medium.

PHYS7840 Galactic Astronomy II **Credit Hours: 3**

Structure and dynamics of the Galaxy, shocks and explosions, stellar kinematics, galactic rotation, and dynamical and chemical evolution.

PHYS7910 Advanced Research In Physics And Astronomy **Credit Hours: 1-15**

Research work under the guidance of a member of the graduate faculty. Designed to prepare the student to propose and carry out the thesis research required for the Ph.D. degree.

PHYS8010 Physics And Astronomy Colloquium **Credit Hours: 2**

Topical lectures by visiting and local professionals.

PHYS8020 Physics And Astronomy Journal Seminar **Credit Hours: 1**

Literature review seminar.

PHYS8490 Current Issues In Theoretical Physics **Credit Hours: 3**

Problems in theory relative to the research programs pursued at the University.

PHYS8540 Structure, Defects And Diffusion **Credit Hours: 4**

A generic materials science approach to the study of crystalline structure, defects (point, line and planar) in crystalline materials, and the mechanisms and kinetics of diffusion in the condensed state.

PHYS8550 Thermodynamics And Phase Transformations In Condensed Systems **Credit Hours: 4**

A materials science approach to the thermodynamics of condensed state equilibria and phase transformation kinetics.

Prerequisites: PHYS 6540 FOR LEVEL GR WITH MIN. GRADE OF D- OR PHYS 8540 FOR LEVEL GR WITH MIN. GRADE OF D-

PHYS8590 Current Issues In Condensed Matter And Material Science **Credit Hours: 3**

A survey of various areas in the physics of condensed matter and materials. Content will vary with instructor and from year to year.

PHYS8630 Semiconductors I **Credit Hours: 3**

Review of modern theory of solids. Semiconducting and metallic materials. Semiconductor devices including p-n junctions and solar cells.

Prerequisites: PHYS 4510 FOR LEVEL UG WITH MIN. GRADE OF D- AND EECS 4400 FOR LEVEL UG WITH MIN. GRADE OF D-

PHYS8690 Current Issues In Optics **Credit Hours: 3**

Current research in optics and the optical excitation of material modes.

PHYS8860 General Relativity **Credit Hours: 3**

Differential geometry, exterior calculus of tensors, the stress-energy tensor and Einstein field equation, stellar evolution and black holes, gravitational lensing, tests of the theory, and gravitational wave detection.

Prerequisites: PHYS 7260 FOR LEVEL GR WITH MIN. GRADE OF D-

PHYS8870 Cosmology **Credit Hours: 3**

Cosmological solutions for Einstein's field equation, the standard cosmological model, particle physics, nucleosynthesis and the cosmic background radiation. Inflation, dark matter and mass distribution, gravitational evolution, and formation of galaxies.

Prerequisites: PHYS 8860 FOR LEVEL GR WITH MIN. GRADE OF D-

PHYS8960 Ph. D. Thesis Research **Credit Hours: 1-15**

Thesis research required for the Ph.D. degree.

PHYS8980 Special Topics **Credit Hours: 1-4**

Course reserved for visiting lecturers and topics not covered otherwise.

PHYS8990 Independent Study **Credit Hours: 1-4**

PHYT500 Gross Anatomy **Credit Hours: 4**

Students will study the structure of the human body using the struction-function relationship as the course paradigm. Musculoskeletal, vascular, and peripheral nervous system natomy will be emphasized, as will the coordinated role of these structures, both locally and regionally, in producing movement of the axial skeleton and extremities. Competencies serve as a foundation for clinical science coursework, particularly in the musculoskeletal and neuromuscular areas of practice.

PHYT501 Lifespan I **Credit Hours: 3**

Examination of typical lifespan development from conception to adolescence. Emphasis on physical therapy assessment, gross motor development and movement analysis. Includes overview of fine motor development, cognition, public laws, child abuse, maternal wellness issues, and interaction with families.

PHYT502 Lifespan I **Credit Hours: 2**

The first of two, this course examines typical lifespan development from birth to adolescence. Emphasis is on theoretical constructs, gross motor development, physical therapy examination, diagnosis, prognosis and evaluation of findings. Also includes an overview of fine motor development, cognitive development, reflex development, interaction with families, public laws and child abuse.

PHYT504 Health Care Systems **Credit Hours: 1**

This course will familiarize students with various health care delivery systems in use and how they influence the practice of physical therapy. Attention is given to the role of government and regulatory policy and practices and how they influence decision-making and strategies. Strategic and operative role of managed care will be explored.

PHYT505 Analysis of Movement I **Credit Hours: 3**

The first of two, this course is an integrated study of kinesiology through the application of the concepts of biomechanics, and neuromusculoskeletal anatomy as they relate to human movement. As the student develops skill in understanding normal movement, emphasis will be placed on generating hypotheses involving impaired movement and the identification of examination data necessary for effective clinical reasoning.

PHYT506 Analysis of Movement II **Credit Hours: 1**

Second of two, this is an integrated study of applied kinesiology in the study of human gait, and the neuromuscular control of simple and complex movement. Observational skills are emphasized in analyzing gait and neuromuscular control (normal and pathological), including the use of various evaluation tools such as EMG, motion analysis, videography, and observation. Focuses on generating hypotheses in pathological conditions and identification of exam data necessary for effective clinical reasoning.

PHYT507 Neuroscience **Credit Hours: 3**

An integrated study of structure-function relationship in the central and peripheral nervous systems, emphasizing the neuromuscular control of movement. Content serves as the foundation for discussion in PHYT508.

PHYT508 Neuroscience Seminar **Credit Hours: 1**

Principles of neurophysiological and neuropathological sensory and motor function will be applied to clinical manifestations of neurological impairments commonly seen in PT settings. Procurement of basic assessment skills for clients with neuromuscular impairments will provide the clinical focus for integration of foundation neuroscience information with clinical practice.

PHYT510 Research Design **Credit Hours: 2**

Using scientific inquiry as a foundation, the student will formulate a relevant research question and design a research proposal as the first step in completing the required scholarly project.

PHYT511 Clinical Pathophysiology **Credit Hours: 3**

Integrated study of physiological and pathophysiological processes that influence the human body at the cellular, organ and systemic levels. Emphasis on mechanisms of and clinical manifestations of common diseases with discussion of potential impact on the delivery of PT services. Content to serve as the basis for discussion of pharmacology in subsequent courses.

PHYT515 Scholarly Project in PT I **Credit Hours: 1**

The student will initiate the formal research proposal through refinement of a scholarly project proposal and submission of the proposal to the Institutional Review Board for Human Subjects (IRB) for approval.

PHYT516 Scholarly Project in PT II **Credit Hours: 2**

Includes completion of data collection, analysis of the data, and preparation of a scholarly project.

PHYT517 Research Desn and Measurement **Credit Hours: 2**

Introduction to scientific inquiry and research design. Content focuses on developing research skills to search, retrieve and organize scientific evidence. Various Evidence Based Practice perspectives will guide review and critique of research methodology. Students will be introduced to psychometrics and principles of sound measurement in healthcare; and will work with peers to summarize literature toward development of a clinical practice guideline.

PHYT518 Applied Biostatistics **Credit Hours: 2**

Builds on PHTY517. Topics include descriptives, correlation, linear regression, comparison of means, and categorical data analysis (chi-square and logistic regression). Statistics for comparison of results across studies will be discussed (e.g., effect size, odds ratio). Knowledge and skills gained from completion of a clinical practice guideline will assist students in choosing a focus for a scholarly project.

PHYT520 Health Promotion **Credit Hours: 2**

Discussion and application of the elements of health and wellness as described by Healthy People 2010. Emphasis on health assessment, obesity, physical activity, nutrition, complementary/alternative management, and behavior modification strategies.

PHYT521 Therapeutic Interventions I **Credit Hours: 2**

Treatment planning throughout the continuum of care focusing on concepts of acute care. Integration of theoretical basis for application techniques of patient positioning and mobility and thermal modalities as they relate to inflammation, tissue repair, pain.

PHYT522 Therapeutic Interventions II **Credit Hours: 3**

An integrated study of the theoretical basis for and the application of mechanical and electrical modalities used for the evaluation and management of clients. Current scientific literature will be used to determine the efficacy of these modalities.

PHYT525 Applied Exercise in Physiology **Credit Hours: 3**

Continued exploration of principles of exercise physiology as applied to physical therapy settings and promotion of clients' health and wellness. Emphasis on client assessment, identification of needs, design of exercise programs.

PHYT526 Cardiovascular/Pulmonary PT **Credit Hours: 3**

Explore impact of cardiovascular-pulmonary disease/dysfunction on health and functional status. Emphasis on role of physical therapy in interdisciplinary management of clients with cardiopulmonary dysfunction across the lifespan and continuum of care. Physical therapy assessment and management of clients with cardiovascular-pulmonary dysfunction.

PHYT527 Applied Exercise Physiology **Credit Hours: 3**

Exploration of exercise physiology principles as related to promotion of PT patients/clients' health and wellness. Emphasizes physiological and biochemical changes with exercise/training and exercise testing and prescription for PT patients/clients.

PHYT528 Therapeutic Interventions I **Credit Hours: 2**

The theory and practice of physical therapy in the acute care setting as it relates to improvement of functional mobility, prevention of complications, and preparation for next level of care.

PHYT530 Therapeutic Exercise **Credit Hours: 1**

Application of scientific principles in anatomy, applied biomechanics, and exercise physiology to develop sound therapeutic exercise procedures. Emphasis on development of skills associated with therapeutic exercise for patients with musculoskeletal and/or general movement dysfunction. Students will learn how to use and apply a variety of common fitness and rehabilitation exercise apparatus and develop appropriate PT treatment plans that include exercise for a given patient problem.

PHYT531 Therapeutic Exercise **Credit Hours: 3**

Application of sciences of exercise physiology, anatomy, and applied biomechanics to develop sound therapeutic exercise procedures. Emphasis is on musculoskeletal systems and movement dysfunction. Focuses on empirical evidence of validity for exercise prescription.

PHYT535 Intro to Examination **Credit Hours: 2**

Introduction to the physical examination process, including history-taking, systems review and screening. Emphasis on basic PT examination skills of the cardiovascular, musculoskeletal, and integumentary systems. Skills include: assessment of tolerance to functional activity (vital signs), posture, pain, peripheral pulses and edema; goniometry; and strength testing.

PHYT540 Clinical Reasoning II **Credit Hours: 2**

Presentation of selected case studies with an emphasis placed on clinical decision-making based on advanced evaluation skills, integrated assessment and treatment planning, and one's individual problem-solving process.

PHYT545 Foundations of PT **Credit Hours: 2**

Addresses the professional socialization process. Professional codes and guides of behavior will be discussed in relation to delivery of competent, ethical, legal and compassionate PT services. Topics include: therapeutic communication, cultural competency, stress management and conflict resolution. Introduction to basic principles of teaching and learning for the role of educator is included.

PHYT550 Musculoskeletal Rehab I **Credit Hours: 4**

Theories and principles of pathophysiology and musculoskeletal screening. This course will emphasize pertinent examination, evaluation, assessment (physical therapy diagnosis and prognosis), and intervention principles. Focus will be on the extremities.

PHYT551 Musculoskeletal Rehab II **Credit Hours: 3**

Continuation of theories and principles of pathophysiology and musculoskeletal screening. Emphasizes pertinent examination, evaluation, assessment, and intervention principles. Focuses on spine (cervical, thoracic, pelvic) and lower quarter biomechanical evaluation as it relates to lumbar/pelvic spine dysfunction.

PHYT560 Neuromuscular Rehab I **Credit Hours: 3**

Theories and principles of therapeutic exercise related to the client with neuromuscular impairment across the lifespan. Emphasizes motor control, motor learning, neurofacilitation, analysis of abnormal movement and client assessment and treatment.

PHYT561 Neuromuscular Rehab II **Credit Hours: 3**

An integrated study of the principles of the rehabilitation process for clients with long-term disability. Theories, philosophies, and evaluation treatment strategies will be explored as well as the complex psychodynamics associated with disability/chronic illness.

PHYT565 Pharmacology of PT **Credit Hours: 1**

Integrated study of pharmacology that presents the pharmacodynamics and pharmacotherapeutics of common classes of drugs. Drugs covered include: anti-inflammatory, analgesic, muscle relaxant, psychotropic, anti-microbial, and diabetic medications. Emphasis on indications, contraindications, adverse drug reactions, and the implications for physical therapy care.

PHYT572 Special Topic Physical Therapy **Credit Hours: 0-3**

Intensive exploration of a topic influencing the delivery of physical therapy services, which is designed to meet the student's special interest and professional goals. Subject matter will vary upon demand. Current topics: Manual Therapy - Diagnosis and Treatment of the Lumbar Spine and Pelvis, and Women's Health. May be repeated for credit.

PHYT575 Clinical Reasoning I **Credit Hours: 1**

Introduction to basic concepts of problem solving and critical thinking used in PT, including evidence-based practice. Includes an overview of professional decision-making models and an examination of the steps associated with the student's method of decision-making. Introduction to the Guide to Physical Therapist Practice (APTA) as a tool for enhancing clinical reasoning. Models of documentation will be explored as a means to enhance the student's clinical reasoning abilities.

PHYT580 Clinical Practicum I **Credit Hours: 2**

Clinical observation and supervised application of appropriate assessment and treatment skills/procedures. An emphasis is placed on professional socialization, basic examination skills and basic treatment planing/progression skills. 160 hours/4 weeks.

PHYT581 Clinical Practicum II **Credit Hours: 2**

Clinical observation and supervised application of appropriate assessment and treatment skills/procedures. Emphasis is placed on further professional socialization, integrative evaluation skills, and treatment planning progression. 320 hours/8 weeks.

PHYT585 Clinical Practicum I **Credit Hours: 1**

Clinical observation and supervised application of appropriate examination and intervention skills/procedures. An emphasis is placed on professional socialization, demonstration of further development of the generic abilities of the profession, and self- assessment of one's professional development in the clinical setting.

PHYT586 Clinical Practicum II **Credit Hours: 1**

Clinical observation and supervised application of advancing physical therapy skills at the same clinical facility as Clinical Practicum I. An emphasis will be on continued progression in the generic abilities and a more focused approach toward the development of specific technical, cognitive or affective areas in need of improvement as identified during Clinical Practicum I.

PHYT599 Independent Study in PT **Credit Hours: 0-4**

In-depth study of clinically related problems or topic of interest. May be repeated for credit.

PHYT601 Lifespan II **Credit Hours: 3**

Principles of aging with emphasis on the developmental, physiological, functional, and psychosocial changes manifested in the transition from middle age to old age. Integrating previous course work, the student will analyze and synthesize complex evaluation findings of older adults and develop a comprehensive physical therapy plan of care.

PHYT602 Lifespan II **Credit Hours: 2**

The principles of normal aging including the physiological, functional, and psychosocial changes associated with aging, and a review of diseases and disorders common to the aging population.

PHYT604 Supervision/Management **Credit Hours: 3**

Examination of management and supervisory issues encountered in a contemporary physical therapy practice. Topics include: organizational structure and behavior, human resources, finance and operations management, and marketing.

PHYT605 Hlth Care Policy and Delivery **Credit Hours: 1**

Overview of the origins and components of the American health care system and major policy initiatives that influence it. Access, cost, and quality factors in health care delivery will be explored. Serves as a starting point for the student's study of the continuously expanding sector of the American economy in which they will practice.

PHYT615 Scholarly Project PT III **Credit Hours: 3**

Includes completion of data collection, analysis of the data, and preparation of a scholarly project. The student will present the scholarly project.

PHYT617 Scholarly Project I **Credit Hours: 2**

The student will initiate the formal research process through refinement of a research/scholarly project proposal and, if necessary, submission of the proposal to the Institutional Review Board for human subjects for approval.

PHYT618 Scholarly Project II **Credit Hours: 2**

Includes completion of data collection, analysis of the data, and initial preparation of a scholarly paper, in accordance with specific manuscript guidelines.

PHYT619 Scholarly Project III **Credit Hours: 1**

Includes the final preparation of a scholarly paper which must meet the guidelines established by the College of Graduate Studies, and the oral defense/presentation of the scholarly project as required by the College of Graduate Studies.

PHYT625 Advanced Evaluation **Credit Hours: 3**

Further exploration of the physical therapy examination and evaluation process, with emphasis on differential diagnosis. Emphasis on dysfunctions that mimic neuro-musculoskeletal dysfunction. Determination of need for referral to another member of the health care team will be emphasized.

PHYT626 Cardiovascular-Pulmonary PT **Credit Hours: 3**

Integrative study of the role of PT in interdisciplinary management of patients with cardiovascular and/or pulmonary dysfunction. Application of skills associated with PT examination, evaluation, diagnosis, prognosis and interventions for patients with CV-P dysfunction.

PHYT628 Therapeutics Interventions II **Credit Hours: 2**

Study of the theoretical basis for, and the application of thermal, mechanical, and electrical modalities used for the PT management of clients. Emphasis is on evidence-based practice, critical thinking, and clinical decision-making using a case-based format, and review of the scientific literature will be used in determining the most appropriate use of modalities within a comprehensive PT plan of care.

PHYT645 Teaching and Learning II **Credit Hours: 1**

Continued exploration of the principles of patient education, group differences, and development of appropriate educational materials. An emphasis will be placed on health promotion, in-service education and instruction of client and families.

PHYT646 Teaching and Learning **Credit Hours: 2**

Study of a physical therapist's role as educator of peers, patients and families, community members, and students in the clinical setting. Emphasis on instructional design, instructional strategies, teaching methods, and evaluation of learning.

PHYT650 Musculoskeletal Rehab I **Credit Hours: 3**

First of two courses, focused on the synthesis of principles of pathophysiology and screening and examination of musculoskeletal system. Emphasis on pertinent special examination techniques, principles of evaluation, PT diagnosis and prognosis, and intervention for the upper and lower extremities. Case-based discussion of role of common M-S pharmacological management, radiographic procedures and findings, and interpretation of special tests for diagnostic purposes.

PHYT651 Musculoskeletal Rehab II **Credit Hours: 3**

Second of two courses, continued discussion of the principles of pathophysiology and musculoskeletal examination, evaluation, PT diagnosis and prognosis, and intervention. Emphasis on spine and lower quarter biomechanical examination and evaluation as it relates to lumbopelvic dysfunction. Includes discussion of: pharmacological management of inflammation and pain, and synthesis of radiological findings (radiographs, MRI, CT scans), as they relate to rendering PT diagnosis and prognosis.

PHYT660 Neuromuscular Rehab I **Credit Hours: 3**

Theories and principles of client examination, evaluation, PT diagnosis, prognosis, and therapeutic intervention for clients with stroke and spinal cord injury. Historic and modern evidence-based treatment approaches for the neurologic patient, in general, will be discussed with emphasis on the approach's influence in the design of a PT plan of care.

PHYT661 Neuromuscular Rehab II **Credit Hours: 3**

Principles of rehabilitation for clients with chronic neuromuscular impairments and long-term disability. Emphasis on theories, philosophies, and the PT plan of care including examination, evaluation, and intervention strategies. Includes pediatric module.

PHYT670 Professional Issues **Credit Hours: 1**

Prerequisite: PHYT685 Discussion of current events and issues faced by the profession of physical therapy as identified by the APTA and other pertinent sources, and as encountered during clinical education experiences.

PHYT672 Special Topics in PT **Credit Hours: 2**

Intensive exploration of a topic related to the profession of physical therapy and designed to meet the student's special interest and professional goals. Subject matter will vary depending upon student interest.

PHYT675 Clinical Reasoning II **Credit Hours: 1**

Second of two, emphasizes the application of problem solving and critical thinking for a variety of diagnoses and practice settings using complex patient scenarios. An emphasis is placed on evidence-based decision-making, comprehensive evaluation, progressive intervention planning, and evaluation of one's own clinical reasoning processes and skills.

PHYT685 Clinical Practicum III **Credit Hours: 4**

Clinical observation and supervised application of basic and comprehensive PT examination, evaluation, and intervention skills. An emphasis is placed on further professional socialization, integrative evaluation skills, and treatment planning/progression and documentation of care.

PHYT689 Clinical Internship **Credit Hours: 8**

Orientation to physical therapy practices including supervised examination, evaluation, assessment and treatment procedures. Development of entry-level physical therapy skills and competency will be emphasized. 640 hours/16 weeks.

PHYT690 Graduate Symposium **Credit Hours: 2**

Addresses current professional issues in the practice of physical therapy. Students will be responsible for presenting the pros and cons of each issue and facilitating discussion of these issues. Will serve as Capstone experience.

PHYT699 Independent Study in PT **Credit Hours: 0-4**

In-depth exploration and study of clinically related problems or topic of interest. May be repeated for credit.

PHYT705 Practice Management **Credit Hours: 2**

Examination of management and supervisory issues encountered in contemporary physical therapy practice. Discussion will include identification, analysis, and resolution of issues that compromise the delivery of effective and efficient PT services in a variety of practice settings. Topics include: organizational structure and behavior, human resources, finance and operations management, and marketing.

PHYT708 Integrated Movement **Credit Hours: 1**

Serves to further integrate the concepts of neuroscience, biomechanics, muscle function, and motor control for the multidimensional understanding of skilled movement. Emphasis will be on analyzing current information regarding "normal" control of simple and complex movements used in functional activities and the role of PT intervention in maximizing function.

PHYT721 Advanced Interventions **Credit Hours: 1**

Emphasizes advanced concepts in determining a prognosis and PT interventions for patients with complex movement dysfunction involving impairments in multiple body systems. Scientific principles from earlier coursework are used as the basis for chosen interventions, particularly when practice guidelines and literature provide limited data regarding the efficacy of a given intervention. Student's ability to manage clinical ambiguity is emphasized throughout the course.

PHYT735 Advanced Exam and Evaluation **Credit Hours: 2**

Further exploration of the PT examination and evaluation process, emphasizing PT differential diagnosis. Foci on systemic dysunction mimicking neuromusculoskeletal dysfunction, applied pharmacology, and introduction to principles of radiological-nuclear imaging. Discusses the procedures necessary for evaluating the quality and utility (reliability and validity) of medical diagnostic tests. Determination of need for referral to another health care team member will be emphasized.

PHYT762 Trauma Rehab **Credit Hours: 2**

Integrated study of the principles of rehabilitation for clients who have sustained substantial trauma including, but not limted to: TBI, multiple fractures and burns. Students will be asked to integrate previous coursework in making decisions regarding the role of PT in the interdisciplinary management throughout the continuum of care for clients who have multi-system impairments due to physical trauma.

PHYT789 Clinical Internship I **Credit Hours: 4**

Clinical observation and supervised application of comprehensive PT examination, evaluation, and intervention skills/procedures. An emphasis is placed on further professional socialization and development of entry-level PTskills and competency.

PHYT790 Clinical Internship II **Credit Hours: 4**

Clinical observation and supervised application of comprehensive PT examination, evaluation, and intervention skills/procedures. An emphasis is placed on further professional socialization and development of entry-level PT skills and competency.

PHYT799 Specialty Internship **Credit Hours: 4**

Extended period of supervised, advanced clinical practice and/or formal experience in administrative or professional organizational environments, which is designed to meet the student's special interests and professional goals.

PMED1000 Hospital Field Experience **Credit Hours: 1-3**

Supervised independent study designed to provide pre-medical students with volunteer experiences in a health care institution. To receive 1 hr credit, students must complete 4 hrs of volunteer work per week. May be taken only as PS/NC.

POLS6200 Public Admin and Public Policy **Credit Hours: 3**

PORT1000 Porfolio Credit **Credit Hours: 0-22**

PSC1200 American National Government **Credit Hours: 3**

An introductory survey of the institutions, processes and politics of the government of the United States and its relationship to state governments. (not for major credit)

PSC1300 Multicultural Perspectives **Credit Hours: 3**

Studies the history and institutions of US government emphasizing the dynamics of difference, including race, class and gender, amongst the governed and governing groups.

PSC1400 Current Issues In U.s. Public Policy **Credit Hours: 3**

A course designed to introduce the student to the policy process in the United States through an examination of current social, social, economic and political issues facing local, state and national governments.

PSC1710 Current International Problems **Credit Hours: 3**

A course designed to give the student a perspective on world affairs through an examination of some contemporary international problems.

PSC2210 Women And Politics **Credit Hours: 3**

An exploration of women and gender relations in US political life. Special attention is paid to differences among women, their socializing experiences, political power bases, and legal status. Multicultural course.

PSC2300 Principles Of State And Local Government **Credit Hours: 3**

A study of the political processes and institutions of American state and local governments, with attention given to selected areas of public policy and intergovernmental relations.

Prerequisites: PSC 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1400 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1300 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC2400 Topics in Political Science **Credit Hours: 3**

Examination of current topics in Political Science. Area and topic to be determined by instructor.

PSC2610 Government Of Great Britain **Credit Hours: 3**

An analysis of British parliamentary democracy and an examination of modern British politics. Recommended: PSC 1200 or 1400.

PSC2620 Comparative Politics: Continental Europe **Credit Hours: 3**

A comparative analysis of the politics of continental Europe focusing on the French and German political systems. Recommended: PSC 1200 or 1400.

PSC2660 Politics In Africa **Credit Hours: 3**

The character and development of African political institutions and processes with a special emphasis on patterns in the post-independence period and prospects for the future.

PSC2700 Principles Of International Relations **Credit Hours: 3**

An examination of such basic forces as nationalism, ideology and power that promote conflict and cooperation among states in the international community.

PSC2790 Political Science Study Abroad **Credit Hours: 1-3**

An examination of topics in political science or public administration requiring study and travel in other countries. Topics vary.

PSC2800 Principles Of Political Theory **Credit Hours: 3**

An investigation of important themes in classical and contemporary political theory, including: justice, liberty and democracy. These issues are approached through discussion of a number of original works by political theorists.

PSC3110 Social Science Statistics **Credit Hours: 3**

Descriptive statistics, introduction to inferential statistics, data processing and computer applications in the social sciences.

PSC3210 Political Parties **Credit Hours: 3**

An analysis of the theory, organization, techniques and dynamics of the American party system.

Prerequisites: PSC 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1300 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1400 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC3250 Public Opinion **Credit Hours: 3**

A study of American public opinion with attention to polling and voting data and analysis.

Prerequisites: PSC 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1400 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1300 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC3260 Government And The Economy **Credit Hours: 3**

An examination of the politics of the American economic system including the role of government in both the public and private sectors of the economy.

Prerequisites: PSC 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1400 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1300 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC3310 Municipal Government **Credit Hours: 3**

A survey of urban government and politics, including the philosophy of local government, urban political processes, structural problems and relations with other units of government.

PSC3420 Principles Of Public Administration **Credit Hours: 3**

An overview of public administration including organization theory, decision making, budgeting, public policy and the changing role of public institutions.

Prerequisites: PSC 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1400 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC3500 Principles Of Law **Credit Hours: 3**

An overview of law, legal procedures and the legal professions.

Prerequisites: PSC 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1400 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1300 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC3510 Constitutional Law I **Credit Hours: 3**

The development of the American legal system and the implications of judicial decisions affecting the institutions and powers of government, the federal system and the relationship of the individual to government.

Prerequisites: PSC 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1400 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1300 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC3520 Constitutional Law and Politics II **Credit Hours: 3**

Prerequisite(s): 6 hours in PSC or 9 hours in social sciences, or permission of instructor Catalog Description: Examines the role of the Supreme Court in the US system of civil liberties, the relationship between judicial decisions and state actions affecting rights such as free speech, religion, and privacy, and the underlying theories of civil liberty in a democratic society.

PSC3730 American Foreign Policy **Credit Hours: 3**

An examination of the American foreign policy-making process as well as an analysis of the major problems facing the United States in its interaction with the international environment.

Prerequisites: (PSC 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1300 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (PSC 1400 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1710 FOR LEVEL UG WITH MIN. GRADE OF D-) OR PSC 2700 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC3800 Sexual Politics **Credit Hours: 3**

This course examines sexual politics through studying canonical literature of Western political theory, feminism and postmodern theory.

PSC3820 Contemporary Political Ideas **Credit Hours: 3**

Surveys trends in 20th century political and social thought, including critical theory, post-structuralist theory, feminism and anti-racist politics. Particular issues addressed include bureaucracy, mass society, state and civil violence, and identity politics.

PSC3900 Honors Seminar **Credit Hours: 3**

Seminar focused on timely topics in political science chosen by rotating faculty in the department.

PSC3990 Independent Study For Honors Students **Credit Hours: 3**

Individual reading and research in selected topics for honors students.

PSC4230 Presidency **Credit Hours: 3**

The nomination, election, responsibilities and performance of the American president. The course includes decision making, policy making, personality, and relations with Congress, the courts, news media and interest groups.

Prerequisites: PSC 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1400 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1300 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC4250 Intergovernmental Relations **Credit Hours: 3**

A study of the relationships among the various types and levels of government in the United States with an examination of the fields in which the major governmental contacts occur.

Prerequisites: PSC 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1400 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC4280 U.s. Congress **Credit Hours: 3**

An intensive study of the development, functions, committees, party and factional organizations of the U.S. Congress and state legislatures.

Prerequisites: PSC 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1400 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1300 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC4320 Urban Policy And Administration **Credit Hours: 3**

An examination of the policy process in modern cities, focusing on the interactions between the principal political and administrative organizations in formulating and implementing policy.

Prerequisites: (PSC 3310 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSC 3420 FOR LEVEL UG WITH MIN. GRADE OF D-)

PSC4330 Health Care Policy **Credit Hours: 3**

An examination of United States health care policy and its progression to the current era of cost controls. In addition, the principal actors and theories influencing health care policy are analyzed.

Prerequisites: PSC 3420 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC4340 Environmental Policy **Credit Hours: 3**

Policy for air and water pollution control, hazardous wastes, nuclear wastes. Examination of EPA, Congressional committees, state and city agencies. Some international issues.

Prerequisites: PSC 1200 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 1400 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC4350 Health Care Delivery Systems **Credit Hours: 3**

An overview of the United States health care delivery system. The roles, responsibilities and relationships of various components are discussed and analyzed, with emphasis on interrelationships between government, providers and institutions.

Prerequisites: (PSC 1200 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSC 3420 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (PSC 1400 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSC 3420 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (PSC 1300 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSC 3420 FOR LEVEL UG WITH MIN. GRADE OF D-)

PSC4360 Ethics In Public Policy And Administration **Credit Hours: 3**

Examination of values and principles which influence public policy and public administration. Applications to policy problems and responsibilities of public administrators will be emphasized.

Prerequisites: PSC 3420 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC4410 Management Of Nonprofit Organizations **Credit Hours: 3**

Examination of forces that influence management of nonprofit organizations in the United States, and their roles and responsibilities. Consideration of organizational structures, leadership, fiscal administration, and relations with citizens and other organizations.

Prerequisites: PSC 3420 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC4430 Public Personnel Administration **Credit Hours: 3**

The organization, operation and problems of public personnel systems in the functions of selection, training, classification and employee relations.

Prerequisites: PSC 3420 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC4440 Budgeting And Financial Administration **Credit Hours: 3**

An examination of the institutions and techniques of financial administration, including government accounting, budgeting, financial management and governmental choice. Prior knowledge of spreadsheet applications recommended

Prerequisites: PSC 3420 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC4470 Public Organization Theory **Credit Hours: 3**

A systematic consideration of theories of political organization and administration, including institutional, behavioral, sociological, psychological and political theories, with emphasis on decision-making in governmental organizations.

Prerequisites: PSC 3420 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC4490 Current Topics In Public Administration **Credit Hours: 3**

Examination of selected current problems in public policy and administration. Topics vary and are listed in each term's schedule of classes.

Prerequisites: PSC 3420 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC4530 Civil Rights **Credit Hours: 3**

Prerequisite(s): 6 hours in PSC or 9 hours in social sciences, or permission of instructor. Catalog Description: A study of judicial policy-making and administrative implementation involving issues related to race, gender and sexual orientation.

PSC4540 Race And Public Policy **Credit Hours: 3**

This course examines theories of race relations and applies these theories to select public policy issues, such as affirmative action, welfare, criminal justice and others.

PSC4550 Issues In Contemporary Law **Credit Hours: 3**

Examines current controversies in US law and politics drawing on recent research in political theory, constitutional history, and legal doctrine. Includes issues such as freedom of speech, presidential war powers, and religious freedom.

Prerequisites: PSC 3500 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 3510 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 3520 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC4580 International Law **Credit Hours: 3**

An examination of the legal status of nation states and dependencies and of the rules concerning international diplomacy, treatment of persons and peaceful settlement of disputes. Recommended: PSC 1710 or PSC 2700

PSC4610 Comparative Government **Credit Hours: 3**

A study of political functions such as elections, political parties, interest groups, executive-legislative relations and centralization of powers in various nations. Recommended: PSC 2610 or PSC 2620

PSC4630 Government Of Canada **Credit Hours: 3**

The government and politics of Canada with particular emphasis on federalism and the operation of parliamentary government in a changing party system. Recommended: PSC 1200 or 1400.

PSC4640 The European Union **Credit Hours: 3**

An analysis of the evolution, institutuinal structure and operation of the European Union.

PSC4650 International Political Economy **Credit Hours: 3**

An examination of the relationship between political and economic structures, organizations and events, including such issues as the politics of trade, foreign aid and economic development.

PSC4660 Governmental & Political Institutions Of Africa **Credit Hours: 3**

An examination of political behavior in selected African states using a case method to examine alternative courses of action available to decision makers.

PSC4670 Governments Of The Middle East **Credit Hours: 3**

A survey of the institutions of government, political processes, parties and interest groups and problems of development in the Middle East. Recommended: PSC 1710 or PSC 2610 or PSC 2620.

PSC4690 Government Of China **Credit Hours: 3**

A study of the development of Chinese governmental institutions and political process, interest groups, political culture, political participation, economic development, national defense and foreign relations.

PSC4710 Theories Of International Politics **Credit Hours: 3**

An analysis of the major concepts of international politics that attempt to construct a general theory of behavior in world affairs. Recommended PSC 2800.

PSC4720 International Organization **Credit Hours: 3**

A study of the background, general concepts and problems of international organizations including the United Nations, historical models, regional organizations and non-governmental organizations. Recommended: PSC 2700

PSC4730 The United Nations **Credit Hours: 3**

An investigation of the origins, organization, political practices, administrative activities and problems of the United Nations and its related agencies. Recommended: PSC 1710 or PSC 2700

PSC4740 International Relationsmiddle East **Credit Hours: 3**

An examination of political, economic and geographic actors affecting international relations of the Middle East, including the role of the major world and regional powers. Recommended: PSC 1710 or PSC 2700

PSC4860 Feminist Political Theory **Credit Hours: 3**

An analysis and discussion of contemporary feminist political theory.

PSC4900 Seminar In Asian Affairs **Credit Hours: 3**

An interdisciplinary and comparative study of the major issues in Asia with special emphasis on political and economic development and international relations in Asia.

PSC4940 Applied Politics Internship **Credit Hours: 3**

A study of electoral politics, public decision-making or policy implementation through internships with candidates, political parties, public officials or governmental or nonprofit agencies.

Prerequisites: PSC 2300 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC4960 Senior Honors Thesis **Credit Hours: 3**

Supervised research and writing for honors students only.

PSC4980 Current Topics In Political Science **Credit Hours: 3**

Timely examination of emerging issues within the various segments of the discipline of political science.

PSC4990 Independent Study In Political Science **Credit Hours: 1-3**

Individual study in selected topic.

PSC5110 Social Science Statistics **Credit Hours: 3**

A course covering descriptive statistics and providing an introduction to inferential statistics, data processing and computer applications specifically tailored for the needs of the social sciences.

PSC5140 Intermediate Social Science Statistics **Credit Hours: 3**

An approach to regression analysis designed for social scientists. Development of a common conceptual basis for correlation and regression analysis and analyses of variance and covariance.

PSC5230 Presidency **Credit Hours: 3**

The nomination, election, responsibilities and performance of the American president. The course includes decision making, policy making, personality, and relations with Congress, the Courts, news media and interest groups.

PSC5250 Intergovernmental Relations **Credit Hours: 3**

National, state and local governmental relationships are examined with emphasis on grant-in-aid, formal and informal cooperative devices, and current problems of the federal system in the United States.

PSC5280 Legislative Process **Credit Hours: 3**

An intensive study of the development, functions, committees, party and factional organizations of the U.S. Congress, state legislatures and non-American legislative bodies.

PSC5320 Urban Policy & Administration **Credit Hours: 3**

An examination of the policy process in modern cities, focusing on the interactions between the principal political and administrative organizations in formulating and implementing policy.

PSC5330 Health Care Policy **Credit Hours: 3**

An examination of United States health care policy and its progression to the current era of cost controls. In addition, the principal actors and theories influencing health care policy are analyzed.

Prerequisites: PSC 3420 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC5340 Environmental Policy And Administration **Credit Hours: 3**

Policy for air and water pollution control, hazardous wastes, nuclear wastes. Examination of EPA, Congressional committees, state and city agencies as well as some international issues.

PSC5350 Health Care Delivery Systems **Credit Hours: 3**

An overview of the United States health care delivery system. The roles, responsibilities and relationships of various components are discussed and analyzed with emphasis on interrelationships between government, providers and institutions.

Prerequisites: PSC 3420 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC5360 Ethics In Public Policy And Administration **Credit Hours: 3**

Examination of values and principles which guide public policy formation and public administration. Applications of philosophical concepts to policy problems and the responsibilities of public administrators will be emphasized.

PSC5390 Applied Politics Internship **Credit Hours: 3**

A study of electoral politics, public decision-making or policy implementation through internships with candidates, political parties, public officials or governmental or nonprofit agencies.

PSC5410 Management Of Nonprofit Organizations **Credit Hours: 3**

Examination of social, cultural, organizational, economic and political forces that influence management of nonprofit organizations in the United States. Historical and theoretical origins of their roles and responsibilities.

PSC5430 Public Personnel Administration **Credit Hours: 3**

A study of developments and problems in the recruitment and management of public employees.

PSC5440 Budgeting And Financial Administration **Credit Hours: 3**

An examination of the institutions and techniques of financial administration, including government accounting, budgeting, financial management and governmental choice.

Prerequisites: PSC 3420 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC5470 Public Organization Theory **Credit Hours: 3**

Relates a diverse body of literature known as "organization theory" to the behavior of public organizations in their political setting.

Prerequisites: PSC 3420 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC5490 Current Topics In Public Administration **Credit Hours: 3**

Examination and analysis of a current policy or administrative issue. Topics vary and are listed in each term's schedule of courses.

PSC5530 Civil Rights **Credit Hours: 3**

A study of policy-making and implementation related to issues of race, gender and sexual orientation.

PSC5540 Race And Public Policy **Credit Hours: 3**

This course examines theories of race relations and applies these theories to select public policy issues, such as affirmative action, welfare, criminal justice and others.

PSC5550 Contemporary Issues In Law and Politics **Credit Hours: 3**

Examines current controversies in U.S. law and politics, drowing on recent research in political theory, constitutional history, and legal doctrine. Includes issues such as freedom of speech, presidential powers, and religious freedom.

PSC5580 International Law **Credit Hours: 3**

A study of the legal system governing interstate relations. Cases will be reviewed. State jurisdiction and responsibilities will be examined, emphasizing the rules of war.

PSC5610 Comparative Government **Credit Hours: 3**

An examination of selected topics in comparative politics, with special emphasis on the problems of advanced industrial democracies.

PSC5630 Government Of Canada **Credit Hours: 3**

An examination of the political institutions and parties of Canada with special attention to the effect of federalism on a parliamentary system of government.

PSC5640 The European Union **Credit Hours: 3**

An analysis of the evolution, institutional structure and operation of the European Unions.

PSC5650 International Political Economy **Credit Hours: 3**

An analysis of the interaction of the international political and economic systems with focus on the political aspects of the international economy. Topics include economic development, interdependence, trade and multilateral institutions.

PSC5670 Governments Of The Middle East **Credit Hours: 3**

A survey within a historical context of the states in the Middle East. Study of political processes and structures. Conferences with the instructor and a paper are required.

PSC5710 Theories Of International Politics **Credit Hours: 3**

An analysis of the leading approaches to the study of international politics that contribute to the construction of a general theory.

PSC5720 International Organizations **Credit Hours: 3**

A study of the background, aims, purposes and problems of international organizations. An examination of the functions of the specialized agencies and other organizations of the United Nations system.

PSC5730 The United Nations **Credit Hours: 3**

An investigation of the origins of the United Nations. Study of the relevant articles of the charter of the United Nations, emphasizing problems of the United Nations through case study.

PSC5740 International Relations - Middle East **Credit Hours: 3**

A survey of geopolitical, economic and sociocultural factors affecting foreign policy processes; an examination of the role of the Big Powers and the United Nations. Conferences with the instructor are required.

PSC5860 Feminist Political Theory **Credit Hours: 3**

An analysis and discussion of contemporary feminist political theory.

PSC5950 Mpa Research Report **Credit Hours: 2**

Independent research, under the direction of a faculty adviser, analyzing experience as a public official.

PSC5980 Current Topics In Political Science **Credit Hours: 3**

Examination of emerging issues within the various segments and subfields of the discipline of political science.

PSC5990 Independent Study In Political Science **Credit Hours: 1-3**

Individual study in selected topic.

PSC6110 Research Methods in Political Science And Public Administration **Credit Hours: 3**

An examination of the development, fields of study and methodological approaches of political science and of research techniques and the process of thesis writing.

PSC6200 Seminar In American Politics **Credit Hours: 3**

A seminar in selected topics of American political behavior.

PSC6410 Proseminar In Public Administration **Credit Hours: 3**

An extensive examination of the field of public administration designed to acquaint advanced students with the major academic literature of the major subfields.

PSC6420 Quantitative Meth-Decisn Makng **Credit Hours: 3**

Examination of analytical techniques appropriate for public sector decision making and applications to specific problems. Decision analysis, cost benefit analysis and tools for evaluating public policies will be considered.

Prerequisites: (PSC 3420 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSC 5140 FOR LEVEL GR WITH MIN. GRADE OF D- AND PSC 6430 FOR LEVEL GR WITH MIN. GRADE OF D-)

PSC6430 Seminar In Public Policy Theory And Analysis **Credit Hours: 3**

Models, theories, approaches and techniques used to analyze public policy with application to policy areas such as discrimination, welfare, mental health or the environment.

PSC6440 Health Systems Management **Credit Hours: 3**

An overview of the management process and the opportunity to develop skills to apply the process of health-related settings. Emphasis is placed on the premise that an effective manager must be a leader.

Prerequisites: PSC 3420 FOR LEVEL UG WITH MIN. GRADE OF D-

PSC6500 Seminar In Public Law **Credit Hours: 3**

A seminar in selected topics of constitutional administrative or international law.

PSC6600 Seminar In Comparative Politics **Credit Hours: 3**

A seminar in selected topics of comparative political processes or area of studies.

PSC6700 Seminar In International Politics **Credit Hours: 3**

A seminar in selected topics of international politics or national foreign policies.

PSC6800 Seminar In Political Theory **Credit Hours: 3**

A seminar in selected political theorists or political ideas.

PSC6940 Public Service Internship **Credit Hours: 1-6**

Internship in public or nonprofit agency and preparation of an internship paper analyzing the internship experience.

PSC6960 Thesis Seminar **Credit Hours: 1-6**

Supervision of master's thesis writing.

PSLS3000 Sales Career Orientation And Management **Credit Hours: 1**

This course is designed to provide an overview of careers in professional selling. This course will also deal with resume writing, interviewing, business etiquette and dressing for success.

PSLS3080 Purchasing And Business Relationship Management **Credit Hours: 3**

This course looks at the purchasing function from a strategic and behavioral perspective, using role plays, simulations, exercises and cases to investigate issues relating to negotiation, relationship management and other strategic purchasing issues.

Prerequisites: BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

PSLS3440 Professional Sales **Credit Hours: 3**

Techniques for prospecting and qualifying potential customers and making presentations and demonstrations are considered, as well as personal management of the selling function. Analyzes the role of selling in Marketing.

Prerequisites: BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

PSLS3450 Account And Territory Management **Credit Hours: 3**

Introduction to activities involved in supporting buyer-seller interactions. Exposes students to software and analysis skills needed for prospecting, sales paperwork, technology, time and territory management, and customer follow-up.

Prerequisites: BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D-

PSLS4710 Salesforce Leadership **Credit Hours: 3**

The role and functions of the first line sales manager will be examined, including sales force size and organization, and management of the sales force. Issues related to hiring, training, supervising, compensating and evaluating salespersons are also emphasized.

Prerequisites: PSLS 3440 FOR LEVEL UG WITH MIN. GRADE OF D-

PSLS4740 Advanced Sales **Credit Hours: 3**

The course provides in-depth study of advanced sales concepts including relationship management, negotiation, proposal writing and account management. Course involves presentations by business, field work, video-taped role-playing.

Prerequisites: (PSLS 3440 FOR LEVEL UG WITH MIN. GRADE OF D- AND BUAD 3010 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSLS 3450 FOR LEVEL UG WITH MIN. GRADE OF D-)

PSLS4940 Integrative Capstone: Sales Internship **Credit Hours: 3**

Receive practical business experience working in an organization.

Prerequisites: PSLS 3440 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY1010 Principles Of Psychology **Credit Hours: 3**

A survey of the branches of psychology and the scientific approach to the study of behavior.

PSY2100 Statistical Methods **Credit Hours: 3**

Descriptive and inferential statistics as applied to research in basic behavioral science and to clinical application.

Prerequisites: MATH 1320 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1330 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1340 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1750 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1830 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1850 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 1920 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 2450 FOR LEVEL UG WITH MIN. GRADE OF D- OR MATH 2600 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY2200 Abnormal Psychology **Credit Hours: 3**

Disordered human behavior; its etiology, classification and treatment. Consideration of different theories.

Prerequisites: PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY2400 Cognitive Psychology **Credit Hours: 3**

Theoretical and empirical approaches to the role of pattern recognition, attention, memory, language, problem solving and decision making in human thinking.

Prerequisites: PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY2500 Developmental Psychology **Credit Hours: 3**

Emphasizes change and continuity in development, with a focus on research and theory during infancy, childhood and adolescence.

Prerequisites: PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY2510 Lifespan Developmental Psychology **Credit Hours: 3**

Emphasizes research and theory from conception through old age, and integrates important developmental issues within a lifespan approach.

Prerequisites: PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY2600 Psychobiology **Credit Hours: 3**

The neural bases of behavior; topics include organization of the nervous system, perception and movement, learning and memory, emotion and motivation, drugs, language, and mental disorders.

PSY2610 Learning And Motivation **Credit Hours: 3**

Extended treatment of learning, conditioning and motivation including operant learning, reinforcement schedules, symbolic reward, generalization and related theoretical developments.

Prerequisites: PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY2700 Social Psychology **Credit Hours: 3**

Theoretical and empirical treatment of socially-based perception and cognition, interpersonal influence, small group processes and interpersonal relations.

Prerequisites: PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY3010 Culture And Psychology **Credit Hours: 3**

Theoretical and empirical examination of the generality of psychological concepts across cultural and ethnic groups. A cultural analysis of key topics in clinical, cognitive, developmental and social psychology.

Prerequisites: PSY 2200 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSY 2400 FOR LEVEL UG WITH MIN. GRADE OF D- OR (PSY 2500 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSY 2510 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSY 2700 FOR LEVEL UG WITH MIN. GRADE OF D-)

PSY3110 Research Methods In Psychology **Credit Hours: 4**

Design, execution, analysis and reporting of research in psychology. Lecture and laboratory.

Prerequisites: PSY 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY3120 Understanding Psychological Research **Credit Hours: 3**

Emphasis on the interpretation (as opposed to execution) of psychological research. Features overview of statistical methods and experimental design principles. Required for Psychology majors on liberal Arts track.

Prerequisites: PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY3200 Personality And Individual Differences **Credit Hours: 3**

Overview of major theoretical ideas and empirical research in personality and individual differences.

PSY3210 Clinical Psychology **Credit Hours: 3**

An overview of the field of Clinical Psychology including clinical assessment, psychotherapy, community intervention methods and professional/ethical issues.

Prerequisites: PSY 2200 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY3220 Psychopathology Of Childhood **Credit Hours: 3**

Clinical and experimental perspectives on behavioral, developmental and emotional disturbances in childhood.

Prerequisites: (PSY 2500 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSY 2200 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (PSY 2510 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSY 2200 FOR LEVEL UG WITH MIN. GRADE OF D-)

PSY3400 Cognitive Neuropsychology **Credit Hours: 3**

Analysis of the neural basis of higher level mental functions (e.g., perception, language, emotion), with an emphasis on anatomic and functional differences between the left and right cerebral hemispheres.

Prerequisites: PSY 2400 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY3500 Adolescence **Credit Hours: 3**

Views the biological and psychosocial changes during adolescence from a systems perspective. Emphasizes issues of identity and cognitive growth.

Prerequisites: PSY 2500 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSY 2510 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY3510 The Adult Years **Credit Hours: 3**

Emphasizes growth and change throughout adulthood. Issues of personality and cognitive change are investigated, and theory and research are highlighted.

Prerequisites: PSY 2500 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSY 2510 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY3520 Perceptual And Cognitive Development **Credit Hours: 3**

Emphasizes both theory and research in perceptual and cognitive development, with a focus on infants, children and adolescents.

Prerequisites: PSY 2500 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSY 2510 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY3610 Behavioral Neuroscience **Credit Hours: 3**

In-depth treatment of the structure and function of neurons and their mediation of behavior, both normal and abnormal: circadian rhythms, eating, emotions, sexual behavior, memory, language and mental disorders. The scientific study of the brain and methods of neuroscience are emphasized.

Prerequisites: PSY 2600 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY3620 Sensory Processes **Credit Hours: 3**

In-depth treatment of the neural organization of the sensory and motor systems. A comparative and evolutionary approach to the study of perception is emphasized.

PSY3630 Everyday Behavior Analysis **Credit Hours: 3**

Application of learning and motivation in the home, classroom and workplace. Covers how to define and measure behavior principles of positive and negative reinforcement, and the effects of aversive control.

PSY3710 Psychology And The Law **Credit Hours: 3**

Emphasizes the utilization of theoretical and empirical notions of psychological science as they apply to both civil and criminal law.

Prerequisites: PSY 2700 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY3730 Stereotyping, Prejudice, & Discrimination **Credit Hours: 3**

This course will examine issues of and related to stereotyping, prejudice, and discrimination from a social psychological perspective with a special emphasis on racism and sexism.

Prerequisites: PSY 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY3800 Honors Proposal **Credit Hours: 1-3**

Literature review and design of an experiment that will form the basis for an Honors Thesis; a formal written proposal will be prepared in conjunction with, and approved by, the thesis advisor and must be submitted to the departmental honors advisor.

Prerequisites: PSY 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY3820 Honors Meeting For Juniors **Credit Hours: 1**

Topics include advanced research tools, research design, practical approach to experiments, ethics in research and career planning. Admission to Psychology Honors and consent of instructor.

PSY3910 Honors Research **Credit Hours: 1-3**

Data collection for research that will form the basis for the Honors Thesis. Admission to Psychology Honors and consent of instructor.

PSY3940 Externship In Psychology **Credit Hours: 1-4**

Supervised work experience in Psychology-related employment settings.

PSY4100 Research Practicum **Credit Hours: 1-4**

Directed by experience in empirical psychological research by students participating in faculty laboratories. Section number denotes field of research. :030Developmental psychology :040-Social psychology :060-Cognitive and biological psychology :070-Clinical psychology

PSY4110 Qualitative Research Methods **Credit Hours: 4**

Study and training in systematic, open-ended, nonquantitative methods for studying human beings, with an emphasis on grounded theory and phenomenological research methods.

Prerequisites: PSY 3110 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSY 3210 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY4200 Research In Clinical Psychology **Credit Hours: 4**

Experience in designing and analyzing research in clinical psychology.

Prerequisites: PSY 3110 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSY 3210 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY4500 Research In Developmental Psychology **Credit Hours: 4**

Study and analysis of research methods, as applied to the development of perception, learning, socialization, cognition and language. Experience in designing and carrying out research in some of these areas.

Prerequisites: (PSY 2500 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSY 3110 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (PSY 2510 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSY 3110 FOR LEVEL UG WITH MIN. GRADE OF D-)

PSY4600 Research In Psychobiology And Learning **Credit Hours: 4**

Experience in designing and carrying out research in learning and motivation with animals.

PSY4700 Research In Social Psychology **Credit Hours: 4**

Experience in designing research in social psychology, including a research project.

PSY4800 Psychology Honors Conference **Credit Hours: 4**

Intensive reading and discussion of some aspect of psychology. Content varies.

PSY4820 Honors Meeting For Seniors **Credit Hours: 1**

Topics include scientific graphics and visualizing data, professional publishing, scientific oral and poster presentations.

PSY4910 Independent Research **Credit Hours: 1-4**

This course will be offered every semester and will fill the requirement for an advanced research course. A student will carry out an empirical research project of his or her own design under the guidance of a member of the faculty.

Prerequisites: PSY 3110 FOR LEVEL UG WITH MIN. GRADE OF D-

PSY4950 Senior Thesis **Credit Hours: 4**

In-depth reading and evaluation of a topic in psychology by a student near the end of the undergraduate career, under the guidance of an individual faculty member. Topic must be approved in advance.

PSY4960 Honors Thesis **Credit Hours: 2-3**

Analysis, interpretation and reporting of research aimed at understanding some aspect of behavior or its underlying mechanisms. The reports include a formal written thesis, a scientific poster and an oral presentation.

Prerequisites: (PSY 3110 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSY 3800 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSY 3820 FOR LEVEL UG WITH MIN. GRADE OF D-)

PSY4980 Special Topics In Psychology **Credit Hours: 3**

Seminar discussion of selected topics in psychology to allow for a more comprehensive treatment than possible in other available courses; or technical laboratory course in neuroanatomical techniques. Topics will vary depending on student demand and availability of instructors.

PSY4990 Independent Study **Credit Hours: 1-4**

This course is a tutorial consisting of directed independent reading, conferences with the instructor to discuss the readings and assess the student's understanding of their significance, and a paper in which the student summarizes the read material, integrates the material and discusses its significance for understanding some aspect of behavior.

PSY6000 History Of Psychology **Credit Hours: 3**

Intensive historical treatment of the development of modern psychology from the 19th century. Theoretical psychological and related philosophical positions are emphasized.

PSY6030 Research Practicum **Credit Hours: 1-3**

Developing, conducting, analyzing and preparing reports of research projects under faculty supervision. May be repeated.

PSY6040 Teaching Practicum **Credit Hours: 3**

Supervised experience in the teaching of psychology. May be repeated for credit.

PSY6060 Ethical Issues In Scientific Research **Credit Hours: 3**

Seminar examining the responsibilities of scientists including: protecting human and animal subjects, data collection and publication, authorship, reviewing, conflict of interest, mentoring, and misconduct.

PSY6100 Quantitative Methods In Psychology I **Credit Hours: 3**

Probability theory, descriptive and inferential statistics, hypothesis testing, correlation.

PSY6110 Quantitative Methods In Psychology II **Credit Hours: 3**

Analysis of variance, regression analyses, non-parametric analyses.

PSY6130 Design And Evaluation Of Psychological Research **Credit Hours: 3**

Readings and discussion of problems of research design and analysis.

PSY6140 Advanced Research Methods **Credit Hours: 3**

Overview of inquiry methods for applied research, including relevant philosophy of science; qualitative and quantitative data collection and analysis; common research designs; and specialized analysis methods (e.g., meta-analysis).

PSY6150 Psychometrics and Scale Development **Credit Hours: 3**

Procedures for developing and examining the reliability and validilty of test scales, including theories of measurement, item analysis, factor analysis, and diagnostic efficiency statistics.

Prerequisites: PSY 6100 FOR LEVEL GR WITH MIN. GRADE OF D- AND PSY 6110 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY6200 Systems Of Personality **Credit Hours: 3**

Advanced historical overview of the main systems for understanding human beings: sources of motivation, coping, dysfunction, strengths/virtues. Emphasizes philosophical understandings of personality systems, analysis of major contributions and multi-perspective critiques.

PSY6210 Psychopathology **Credit Hours: 3**

Critical analysis of diagnostic classification models, etiological conceptualizations and therapeutic interventions form mental disorders.

PSY6220 Cognitive Assessment **Credit Hours: 4**

Assessment of cognitive functioning, utilizing tests of cognitive abilities and achievement.

PSY6230 Personality Assessment **Credit Hours: 4**

Assessment of personality functioning utilizing objective tests.

Prerequisites: PSY 6220 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY6250 Seminar In Clinical Psychology **Credit Hours: 3**

Advanced seminar focusing on selected topics from the general area of clinical psychology. -001 Clinical neuropsychology -002 Child psychopathology -003 Child Clinical Intervention -004 Marital & Family Therapy -005 Psychotherapy research & program evaluation.

PSY6260 Professional And Ethical Issues **Credit Hours: 3**

Exploration of ethical and professional issues faced by clinical psychologists. Detailed analysis of the American Psychological Association's Ethical Principles of Psychologists and Code of Conduct.

PSY6310 Psychotherapy With Children And Adolescents **Credit Hours: 3**

Presentation and explanation of techniques of psychotherapy with children and adolescents.

Prerequisites: PSY 6390 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY6320 Experiential Psychotherapy **Credit Hours: 3**

Presentation of theory and practice of experiential psychotherapy, including practice with clients and optional experiential training workshop.

Prerequisites: PSY 6390 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY6330 Psychodynamic Psychotherapy **Credit Hours: 3**

Didactic course covering psychoanalytic/psychodynamic theories, case conceptualization, theorapy techniques, and relevant empirical research.

PSY6340 Cognitive-Behavioral Psychotherapy **Credit Hours: 3**

Presentation and exploration of the theory and techniques of cognitive-behavioral assessment and therapy. Emphasis on understanding the theoretical and empirical base for cognitive-behavioral interventions and implications for application in clinical and clinical-research settings.

PSY6350 Family And Couple Therapy **Credit Hours: 3**

Presentation and exploration of family and couple therapy as a discipline, theoretical perspectives and empirical research on couple/family interaction and theapeutic techniques used with families and couples.

Prerequisites: PSY 6390 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY6390 Clinical Laboratory **Credit Hours: 3**

Clinical interviewing, diagnostic assessment, case conceptualization and oral presentation of clinical cases. Diagnostic, therapeutic and professional issues are addressed via didactic coursework and practicum work with clients in the Psychology Clinic.

PSY6400 Cognitive Psychology **Credit Hours: 3**

An intensive examination of human information processing. Topics include neural bases of cognition, perceptual and attentional processing, mental imagery, memory, problem solving and reasoning.

PSY6410 Seminar In Cognitive Psychology **Credit Hours: 3**

An advanced seminar focusing on selected topics from the general area of Cognitive Psychology.

PSY6500 Developmental Psychology **Credit Hours: 3**

Advanced treatment of the theoretical and empirical literature in developmental psychology, and of the major issues of the field.

PSY6510 Seminar In Developmental Psychology **Credit Hours: 3**

Readings and evaluative discussions of the primary research literature in developmental psychology.

Prerequisites: PSY 6500 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY6600 Behavioral Neuroscience **Credit Hours: 3**

Structure and function of neurons and the neural mediation of behavior, both normal and abnormal.

PSY6610 Seminar In Psychobiology And Learning **Credit Hours: 3**

Readings and evaluative discussions of the primary research literature in psychobiology, behavioral neuroscience, neuroanatomy, learning, motivation and perception.

PSY6630 Sensory Processes **Credit Hours: 3**

In-depth treatment of the neural organization of the sensory and motor systems. A comparative and evolutionary approach to the study of perception is emphasized.

PSY6700 Social Psychology **Credit Hours: 3**

Social cognition and behavior, interpersonal influence and social relations will be addressed.

PSY6710 Seminar In Social Psychology **Credit Hours: 3**

In-depth treatment of selected topics in Social Psychology.

PSY6810 Child And Adolescent Therapy Practicum **Credit Hours: 3**

Supervision of psychotherapy with children and adolescentss seen through the University of Toledo Psychology Clinic.

Prerequisites: PSY 6390 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY6820 Experiential Therapy Practicum **Credit Hours: 3**

Group and Individual supervision of experiential psychotherapy with adults seen through the University of Toledo Clinic and elsewhere.

Prerequisites: PSY 6390 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY6830 Psychodynamic Psychotherapy Practicum **Credit Hours: 3**

Supervision of students' psychodynamic psychotherapy cases seen through The Psychology Clinic.

Prerequisites: PSY 6390 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY6840 Cognitive-Behavior Therapy Practicum **Credit Hours: 3**

Supervision of cognitive-behavior therapy with children, adolescents, and adults seen through The University of Toledo Psychology Clinic.

Prerequisites: PSY 6390 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY6850 Family And Couple Practicum **Credit Hours: 3**

Supervision of psychotherapy with families and couples seen through The University of Toledo Psychology Clinic.

PSY6860 Advanced Assessment Practicum **Credit Hours: 3**

Clinical supervision of psychological assessments using multiple methods of assessment with clients seen through Tlhe University of Toledo Psychology Clinic.

Prerequisites: PSY 6210 FOR LEVEL GR WITH MIN. GRADE OF D- AND PSY 6220 FOR LEVEL GR WITH MIN. GRADE OF D- AND PSY 6230 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY6930 Seminar In Psychology **Credit Hours: 3**

Readings and evaluative discussions of the primary research literature in psychology.

PSY6940 Supervised Clinical Practicum **Credit Hours: 1-3**

Supervised applied assessment, therapeutic and consultative experience in community settings.

PSY6960 M.a. Thesis **Credit Hours: 1-6**

Developing, conducting and analyzing the thesis research project, writing the thesis.

PSY6980 Special Topics **Credit Hours: 1-3**

Professional issues in academic and scientific psychology.

PSY6990 Independent Study **Credit Hours: 1-15**

Directed reading and/or experimentation on a topic selected by the study in conjunction with a faculty mentor.

PSY7000 History Of Psychology **Credit Hours: 3**

Intensive historical treatment of the development of modern psychology from the 19th century. Theoretical psychological and related philosophical positions are emphasized.

PSY7030 Research Practicum **Credit Hours: 1-3**

Developing, conducting, analyzing and preparing reports of research projects under faculty supervision. May be repeated.

PSY7040 Teaching Practicum **Credit Hours: 3**

Supervised experience in the teaching of psychology. May be repeated for credit.

PSY7100 Quantitative Methods In Psychology I **Credit Hours: 3**

Probability theory, descriptive and inferential statistics, hypothesis testing, correlation.

PSY7110 Quantitative Methods In Psychology II **Credit Hours: 3**

Analysis of variance, regression analyses, non-parametric analyses.

PSY7130 Design And Evaluation Of Psychological Research **Credit Hours: 3**

Readings and discussion of problems of research design and analysis.

PSY7200 Systems Of Personality **Credit Hours: 3**

Advanced historical overview of the main systems for understanding human beings: sources of motivation, coping, dysfunction, strengths/virtues. Emphasizes philosophical understandings of personality systems, analysis of major contributions and multi-perspective critiques.

PSY7210 Psychopathology **Credit Hours: 3**

Critical analysis of diagnostic classification models, etiological conceptualizations and therapeutic interventions form mental disorders.

PSY7220 Cognitive Assessment **Credit Hours: 4**

Assessment of cognitive functioning, utilizing tests of cognitive abilities and achievement.

PSY7230 Personality Assessment **Credit Hours: 4**

Assessment of personality functioning utilizing objective tests.

Prerequisites: PSY 6220 FOR LEVEL GR WITH MIN. GRADE OF D- OR PSY 7220 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY7250 Seminar In Clinical Psychology **Credit Hours: 3**

Advanced seminar focusing on selected topics from the general area of clinical psychology. -001 Clinical neuropsychology -002 Child psychopathology -003 Child Clinical Intervention -004 Marital & Family Therapy -005 Psychotherapy research & program evaluation.

PSY7260 Professional And Ethical Issues **Credit Hours: 3**

Exploration of ethical and professional issues faced by clinical psychologists. Detailed analysis of the American Psychological Association's Ethical Principles of Psychologists and Code of Conduct.

PSY7310 Psychotherapy With Children And Adolescents **Credit Hours: 3**

Presentation and explanation of techniques of psychotherapy with children and adolescents.

Prerequisites: PSY 6390 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY7320 Experiential Psychotherapy **Credit Hours: 3**

Presentation of theory and practice of experiential psychotherapy, including practice with clients and optional experiential training workshop.

Prerequisites: PSY 7280 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY7330 Psychodynamic Psychotherapy **Credit Hours: 3**

Didactic course covering psychoanalytic/psychodynamic theories, case conceptualization, therapy techniques, and relevant empirical research.

Prerequisites: PSY 7390 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY7340 Cognitive-Behavioral Psychotherapy **Credit Hours: 3**

Presentation and exploration of the theory and techniques of cognitive-behavioral assessment and therapy. Emphasis on understanding the theoretical and empirical base for cognitive-behavioral interventions and implications for application in clinical and clinical-research settings.

PSY7350 Family And Couple Therapy **Credit Hours: 3**

Presentation and exploration of family and couple therapy as a discipline, theoretical perspectives and empirical research on couple/family interaction and therapeutic techniques used with families and couples.

Prerequisites: PSY 6390 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY7390 Clinical Laboratory **Credit Hours: 3**

Clinical interviewing, diagnostic assessment, case conceptualization and oral presentation of clinical cases. Diagnostic, therapeutic and professional issues are addressed via didactic coursework and practicum work with clients in the Psychology Clinic.

PSY7400 Cognitive Psychology **Credit Hours: 3**

An intensive examination of human information processing. Topics include neural bases of cognition, perceptual and attentional processing, mental imagery, memory, problem solving and reasoning.

PSY7410 Seminar In Cognitive Psychology **Credit Hours: 3**

An advanced seminar focusing on selected topics from the general area of Cognitive Psychology.

PSY7500 Developmental Psychology **Credit Hours: 3**

Advanced treatment of the theoretical and empirical literature in developmental psychology, and of the major issues of the field.

PSY7510 Seminar In Developmental Psychology **Credit Hours: 3**

Readings and evaluative discussions of the primary research literature in developmental psychology.

Prerequisites: PSY 6500 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY7600 Behavioral Neuroscience **Credit Hours: 3**

Structure and function of neurons and the neural mediation of behavior, both normal and abnormal.

PSY7610 Seminar In Psychobiology And Learning **Credit Hours: 3**

Readings and evaluative discussions of the primary research literature in psychobiology, behavioral neuroscience, neuroanatomy, learning, motivation and perception.

PSY7700 Social Psychology **Credit Hours: 3**

Social cognition and behavior, interpersonal influence and social relations will be addressed.

PSY7710 Seminar In Social Psychology **Credit Hours: 3**

In depth treatment of selected topics in Social Psychology.

PSY7810 Child And Adolescent Therapy Practicum **Credit Hours: 3**

Supervision of psychotherapy with children and adolescents seen through the The University of Toledo Psychology Clinic.

Prerequisites: PSY 6390 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY7820 Experiential Therapy Practicum **Credit Hours: 3**

Group and Individual supervision of experiential psychotherapy with adults seen through the University of Toledo Psychology Clinic and elsewhere.

Prerequisites: PSY 6390 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY7830 Psychodynamic Psychotherapy Practicum **Credit Hours: 3**

Supervision of students' psychodynamic psychotherapy cases seen through The University of Psychology Clinic.

Prerequisites: PSY 6390 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY7840 Cognitive-Behavior Therapy Practicum **Credit Hours: 3**

Supervision of cognitive-behavior therapy with children, adolescents, and adults seen through The University of Toledo Psychology Clinic.

Prerequisites: PSY 6390 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY7850 Family And Couple Practicum **Credit Hours: 3**

Supervision of psychotherapy with families and couples seen through The University of Toledo Psychology Clinic.

PSY7860 Advanced Assessment Practicum **Credit Hours: 3**

Clinical supervision of psychological assessments using multiple methods of assessment with clients seen through Tlhe University of Toledo Psychology Clinic.

Prerequisites: PSY 7210 FOR LEVEL GR WITH MIN. GRADE OF D- AND PSY 7220 FOR LEVEL GR WITH MIN. GRADE OF D- AND PSY 7230 FOR LEVEL GR WITH MIN. GRADE OF D-

PSY7930 Seminar In Psychology **Credit Hours: 3**

Readings and evaluative discussions of the primary research literature in psychology.

PSY7940 Supervised Clinical Practicum **Credit Hours: 1-3**

Supervised applied assessment, therapeutic and consultative experience in community settings.

PSY7960 M.a. Thesis **Credit Hours: 1-6**

Developing, conducting and analyzing the thesis research project, writing the thesis.

PSY7980 Special Topics **Credit Hours: 1-3**

Professional issues in academic and scientific psychology.

PSY7990 Independent Study **Credit Hours: 1-15**

Directed reading and/or experimentation on a topic selected by the study in conjunction with a faculty mentor.

PSY8060 Ethical Issues In Scientific Research **Credit Hours: 3**

Seminar examining the responsibilities of scientists including: protecting human and animal subjects, data collection and publication, authorship, reviewing, conflict of interest, mentoring, and misconduct.

PSY8960 Phd Dissertation **Credit Hours: 1-15**

Developing, conducting and analyzing the dissertation research project; writing the dissertation.

RCA1010 Sports And Physical Activity **Credit Hours: 1**

Basic instruction in rules, knowledge and skill development and strategy in designated sport or activity. Physical Education majors must take six different classes.

RCA1020 Aquatic Activity **Credit Hours: 2**

Different sections of the course will offer a variety of aquatic activities: beginning-intermediate-advanced swimming techniques, emergency water safety, lifeguard training and water safety instructor.

RCA1030 Popular Outdoor Pursuits **Credit Hours: 1**

Study of and participation in the skills and knowledge of various outdoor recreational activities in natural settings. Two weekend trips usually required. Courses are graded P/NC. Lab fee may be required.

RCBS3010 Respiratory Care Fundamentals **Credit Hours: 4**

A study of the anatomy and physiology of the respiratory and cardiovascular systems, including the physics of gas exchange, ventilation, and blood flow.

Corequisites: RCBS3020

RCBS3020 Respiratory Care Practice I **Credit Hours: 4**

An introductory experience in the basic assessment and care of the patient with cardiopulmonary disease. Ethical issues, interpersonal communication, and infection control in the healthcare setting will also be covered.

Corequisites: RCBS3010

RCBS3110 Respiratory Care Therapeutics I **Credit Hours: 4**

Etiology, pathophysiology, clinical manifestations, and treatment of selected diseases of pulmonary and cardiovascular systems with emphasis on pharmacologic principles and agents used in the treatment of those diseases.

Prerequisites: (RCBS 3010 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCBS 3020 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCBS3120 Respiratory Care Practice II **Credit Hours: 7**

Didactic, laboratory, and introductory chinical experiences with a variety of equipment and procedures that are used to establish and maintain a patent airway, and to monitor and treat patients with cardiopulmonary diseases.

Prerequisites: (RCBS 3010 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCBS 3020 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCBS3130 Cardiopulmonary Diagnostics I **Credit Hours: 4**

Discussion of the theory and selected techniques used in cardiopulmonary diagnostics, including analysis of blood gases, cardiac rhythms, hemodynamic monitoring values, spirometry results, and chest x-rays.

Prerequisites: (RCBS 3010 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCBS 3020 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCBS3210 Respiratory Care Therapeutics II **Credit Hours: 4**

Continuation of RCBS 3110 with consideration of disease states of the pulmonary and cardiovascular systems not previously considered. Emphasis on analysis of assessment, diagnosis and treatment of individual patients by students.

Prerequisites: (RCBS 3110 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCBS 3120 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCBS 3130 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCBS3220 Respiratory Care Practice III **Credit Hours: 7**

Theoretical principles involved in the initiation, maintenance, and discontinuance of mechanical ventilation. Laboratory experiences with a variety of adult mechanical ventilators. Clinical experiences providing respiratory care for patients requiring mechanical ventilation.

Prerequisites: (RCBS 3110 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCBS 3120 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCBS 3130 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCBS3230 Cardiopulmonary Diagnostics II **Credit Hours: 3**

Classroom and laboratory experiences in the theory and practice of selected cardiopulmonary diagnostic procedures including measures of pulmonary volumes, flows, gas distribution, and gas diffusion. Capnography, exercise tasting, and specialized test regimens will also be covered.

Prerequisites: (RCBS 3110 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCBS 3120 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCBS 3130 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCBS3300 Advanced Cardiac Life Support **Credit Hours: 1**

American Heart Association Advanced Cardiac Life Support course designed to aid in the management of cardiopulmonary emergencies. Students must have previous knowledge of cardiac pharmacology and rhythms, and current CPR certification.

RCBS4140 Integrated Clinical Practice I **Credit Hours: 4**

Clinical experiences in the acute care setting that requires the application of theory related to the diagnosis, treatment and management of adult, neonatal and pediatric patients with cardiopulmonary disease.

Prerequisites: (RCBS 3210 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCBS 3220 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCBS 3230 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCBS4150 Neonatal/Pediatric Respiratory Care **Credit Hours: 4**

A discussion of the etiology, pathophysiology and treatment of neonatal and pediatric disorders. Laboratory exercises designed to familiarize student with neonatal and pediatric resuscitation and ventilation.

Prerequisites: (RCBS 3210 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCBS 3220 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCBS 3230 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCBS4160 Clinical Assessment **Credit Hours: 3**

This course will provide the students with knowledge and enhance their critical thinking skills related to patient assessment and the development and modification of patient respiratory care plans.

Prerequisites: (RCBS 3210 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCBS 3220 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCBS 3230 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCBS4240 Integrated Clinical Practice II **Credit Hours: 3**

Clinical experiences with a primary focus on advanced skills used in the management of cardiopulmonary patients of all ages in the acute and subacute care settings.

Prerequisites: (RCBS 4150 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCBS 4140 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCBS4510 Respiratory Care in Alternate Sites **Credit Hours: 3**

The delivery of care to cardiopulmonary patients outside of the acute care facility will be discussed. Standards of care in addition to the funding of this care will be investigated. Special procedures in respiratory care will be presented.

RCBS4700 Research Analysis In Respiratory Care **Credit Hours: 3**

Review of appropriate statistical knowledge required to analyze applied/clinical and basic published research. Includes a review of the elements of basic research design, reliability and validity, and critical review of cardiopulmonary research literature.

RCBS4740 Polysomnography I **Credit Hours: 3**

Examination of the physical and physiologic/neuromuscular basis for sleep disorders, including sleep apnea syndrome and obstructive sleep apnea syndrome. Practical application of overnight diagnostic screening, emergency procedures, patient safety, equipment setup, calibration and safety.

RCBS4760 Polysomnography II **Credit Hours: 3**

Examination of the pathology and morbidity associated with sleep dysfunction and sleep disorders. Continued practical application of overnight testing procedures and specialized treatment procedures, i.e., continuous positive airway pressure, supplemental oxygen administration, multiple sleep latency testing, nocturnal penile tumescence, infant/pediatric studies.

Prerequisites: RCBS 4740 FOR LEVEL UG WITH MIN. GRADE OF D-

RCBS4800 Issues In Professional Practice **Credit Hours: 3**

A capstone course designed to prepare the senior student for professional practice. Decision-making skills in complex clinical situations are developed through the use of clinical simulations and student case presentations.

Prerequisites: (RCBS 4140 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCBS 4150 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCBS 4160 FOR LEVEL UG WITH MIN. GRADE OF D-) AND RCBS 4700 FOR LEVEL UG WITH MIN. GRADE OF D-

RCBS4810 Preparation For Professional Practice **Credit Hours: 1**

This laboratory course is designed to complement the corequistite RCBS 4800 lecture course. Emphasis on enhancing the students' ability to integrate complex cognitive and psychomotor skills in preparation for professional practice.

RCBS4990 Independent Study **Credit Hours: 1-4**

Independent study of specific topics and issues under the supervision of a faculty member of the department of health promotion and human performance. The student will participate in independent reading, clinical/laboratory research, field experience and other similar activities. Independent study course must have a specialty; seminar sheet required.

RCRT1300 Introduction To Recreation And Leisure Studies **Credit Hours: 3**

A general introductory course which gives an overview of recreation and leisure in educational, governmental, institutional and professional settings. Explores historical, social and economic implications from personal and professional perspectives.

RCRT1310 Recreation Programming **Credit Hours: 3**

Theories and principles of programming, preparation of materials and resources, and practical experiences in organization and development of exemplary programs and scheduling.

Prerequisites: RCRT 1300 FOR LEVEL UG WITH MIN. GRADE OF D-

RCRT1400 Camping And Outdoor Recreation **Credit Hours: 3**

Major areas covered include: equipment, nutrition, first aid, planning, ethics and conservation. Overnight trip and lab fee required. Includes discussions on economics, land planning, understanding conservation problems, trends and projections.

RCRT2300 Recreation Leadership And Group Dynamics **Credit Hours: 3**

The concepts of recreation leadership will be introduced. These concepts will emphasize group dynamics, group behavior and development creativity in recreational leadership, and problem solving as related to recreation.

RCRT2310 Volunteerism **Credit Hours: 1**

Volunteerism addresses the history, value, recruitment, training, evaluation, and recognition of volunteers. It also requires volunteer participation and reporting.

RCRT3310 Recreation And Adaptation For Special Populations **Credit Hours: 3**

An introductory course into mainstreaming as applied to the delivery of recreation services to individuals with disabilities. Thirty hour volunteer component required.

RCRT3710 Adventure Programming In Recreation And Recreational Therapy **Credit Hours: 3**

An introduction to theory and techniques of adventure programming as a treatment protocol and/or leisure education tool.

Prerequisites: (RCRT 1310 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 2300 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCRT3940 Recreation Application Experience **Credit Hours: 3**

The student will gain personal experience in the field of parks and recreation at an appropriate agency. The student will participate in a wide range of agency activities.

Prerequisites: RCRT 1300 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 1310 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 2300 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 3310 FOR LEVEL UG WITH MIN. GRADE OF D-

RCRT4330 Administration In Recreation And Recreational Therapy **Credit Hours: 3**

The political and economic policy and decision making in recreation and recreational therapy are investigated. Content includes the investigation of financial resources, management and marketing of recreation and recreational therapy from an administrative perspective.

RCRT4340 Leisure Recreation And Aging **Credit Hours: 3**

This course provides a study of leisure and recreation activities for the older adult by investigating the aging process and the impact of leisure and recreation programming in the process.

Prerequisites: (RCRT 1310 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 2300 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCRT4430 Interpretive Services **Credit Hours: 3**

Lectures and laboratory exercises to analyze the role and the skills of the park naturalist, including outdoor education techniques. In addition, students will identify appropriate means of interpreting park features and facilities to the public.

RCRT4440 Park And Recreation Planning **Credit Hours: 3**

An integration of landscape architecture, facility design and location, as well as the functional aesthetic considerations of park and recreational facility planning. Emphasis will be on plan-formulation procedures.

RCRT4450 Research Applications In Recreation And Recreational Therapy **Credit Hours: 3**

A critical study of the problems relating to the evaluation of park and recreation programs. Students will conduct assigned field studies to become familiar with current recreation program research practices.

RCRT4520 Urban Park And Open Space Administration **Credit Hours: 3**

Social inquiry of United States wildlife, their habitat and implications for management on the federal, state and local level, including urban parks set aside as natural preserves.

RCRT4530 Recreation Policy And Leadership **Credit Hours: 3**

An extended field trip to major wilderness areas and national parks and forests of the United States and Canada. Includes a comprehensive analysis of major resource areas and small group dynamics, as well as practical exercises in survival, rescue techniques and orienteering. Lab fee is required.

RCRT4600 Therapeutic Arts **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using crafts.

RCRT4610 Rt Intervention: Horticulture Therapy **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using plants.

RCRT4620 Animal Assisted Therapy **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using animals.

RCRT4630 Therapeutic Activities **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using games, humor and play activities.

RCRT4640 Rt Intervention: Therapeutic Groups **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using groups.

RCRT4660 Relaxation And Stress Management **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using relaxation and stress management techniques.

RCRT4670 Rt Intervention: Leisure Education **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using leisure education activities, including social skills, values clarification and leisure: awareness, resources and knowledge.

RCRT4680 Rt Intervention: Assistive Technology And Techniques **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using assistive technology and techniques.

RCRT4690 Rt Intervention: Aquatic Therapy **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using swimming and aquatic programming.

RCRT4720 Introduction To Therapeutic Recreation **Credit Hours: 3**

Theories, principles and the history of therapeutic recreation will be discussed. Using lectures, discussions and self-directed learning activities, the course will examine the structure and function of therapeutic recreation for individuals with limitations.

RCRT4730 Medical And Clinical Aspects Of Therapeutic Recreation **Credit Hours: 3**

This course was designed to give students an in-depth knowledge of the medical aspects relating to impairments and their implications for therapeutic recreation practice.

RCRT4740 Assessment And Documentation In Therapeutic Recreation **Credit Hours: 3**

This course was designed to introduce the student to documentation and assessment skills needed for therapeutic recreation practice including: initial evaluation, treatment plan, progress note and discharge summary.

RCRT4750 Group Dynamics In Recreational Therapy **Credit Hours: 3**

The concepts and theories of therapeutic group process applied to Recreational Therapy group dynamics. These concepts will emphasize group goals, communications, decision making and leadership.

Prerequisites: RCRT 1310 FOR LEVEL UG WITH MIN. GRADE OF D-

RCRT4760 Research Administrative Programming In Therapeutic Recreation **Credit Hours: 3**

Course will focus on current issues and techniques relating to comprehensive research program design, implementation and evaluation relating to the practice of therapeutic recreation.

Prerequisites: (RCRT 4720 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 4730 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 4740 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCRT4770 Project Design **Credit Hours: 1-3**

This course is designed to give the student an opportunity to design a research project in affiliation with his/her full-time internship in recreation or recreational therapy.

RCRT4780 Project Evaluation **Credit Hours: 1-3**

This course is designed to give the student an opportunity to implement and evaluate a research project in affiliation with his/her full-time internship in recreation or recreational therapy.

RCRT4790 Medical & Clinical Aspects In Therapeutic Recreation II **Credit Hours: 3**

This course is designed to introduce students to those conditions or disabilities that would typically be related to mental retardation/developmental disability, pediatrics and psychiatry. Students will gain an in-depth knowledge of the medical aspects relating to impairments and their implications for therapeutic recreation.

Prerequisites: RCRT 4730 FOR LEVEL UG WITH MIN. GRADE OF D-

RCRT4800 Clinical: Physical Rehabilitation **Credit Hours: 1**

Provides the students with a structured environment to practice assessment, documentation and treatment interventions in a physical rehabilitation or subacute rehabilitation facility.

Prerequisites: (RCRT 4720 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 4730 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 4740 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCRT4810 Clinical: Psychiatric Rehabilitation **Credit Hours: 1**

Provides the student with a structured environment to practice assessment, documentation and treatment interventions in a psychiatric rehabilitation facility.

Prerequisites: (RCRT 4720 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 4730 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 4740 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCRT4820 Clinical: Mental Retardation/Developmental Disability **Credit Hours: 1**

Provides the student with a structured environment to practice assessment, documentation and habilitation interventions in a mental retardation/developmental disability facility.

Prerequisites: (RCRT 4720 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 4730 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 4740 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCRT4830 Clinical: Geriatric **Credit Hours: 1**

Provides the student with a structured environment to practice assessment, documentation, and habilitation and maintenance interventions in a geriatric facility.

Prerequisites: (RCRT 4720 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 4730 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 4740 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCRT4840 Clinical: Pediatric **Credit Hours: 1**

Provides the student with a structured environment to practice assessment, documentation, and treatment and education interventions in a pediatric facility.

Prerequisites: (RCRT 4720 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 4730 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 4740 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCRT4850 Internship Preparation **Credit Hours: 1**

This course is designed to introduce and explain the project design, project evaluation, internship requirements and the National Council on Therapeutic Recreation certification and/or Certified Park and Recreation Professional requirements.

RCRT4860 Therapeutic Fitness **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using exercise, weightlifting fitness techniques.

Prerequisites: (RCRT 1310 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 4720 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCRT4870 Program Planning In Recreational Therapy **Credit Hours: 3**

Application of the Recreation Therapy process (assessment, planning, implementation, evaluation) to design comprehensive treatment programs, protocols and discharge plans.

Prerequisites: RCRT 4720 FOR LEVEL UG WITH MIN. GRADE OF D-

RCRT4900 Seminar In Recreation And Leisure **Credit Hours: 1-3**

This course was designed to provide a consideration of problems and provide advanced study in recreation and leisure education not offered as part of the current curriculum.

RCRT4930 Senior Internship **Credit Hours: 4**

An opportunity for the student to become totally involved as an intern in functionally related tasks which will help prepare for an appropriate role as a professional in the field. Not available for therapeutic recreation students. This course may be taken twice in the same semester.

RCRT4940 Internship In Recreational Therapy **Credit Hours: 4**

This course is designed to give the student a comprehensive full-time experience in recreational therapy. The student will complete 40 hours per week per credit hour. This course may be taken twice in the same semester.

RCRT4990 Independent Study In Recreation And Leisure Studies **Credit Hours: 1-3**

Designed to provide students with the opportunity to work individually on professional problems under the direction of faculty of the department of health promotion and human performance. All individual studies must have a specialty title. Seminar sheet required.

RCRT5300 Recreation And Adaptation For Special Education **Credit Hours: 3**

An introductory course into mainstreaming as applied to the delivery of recreation services to individuals with disabilities. Thirty hour volunteer component required.

RCRT5310 Leisure And Popular Culture **Credit Hours: 3**

This course provides a comprehensive study of leisure and culture. The course consists of three areas: history of leisure, leisure and its association with culture, and leisure philosophy.

RCRT5320 Administration In Recreation And Recreational Therapy **Credit Hours: 3**

The political and economic policy and decision making in recreation and recreational therapy are investigated. Content includes the investigation of financial resources, management and marketing of recreation and recreational therapy from an administration prospective.

RCRT5340 Leisure, Recreation And Aging **Credit Hours: 3**

This course provides a study of leisure and recreation activities for the older adult by investigating the aging process and the impact of leisure and recreation programming in the process.

RCRT5400 Naturalist And Interpretive Services **Credit Hours: 3**

Lectures and laboratory exercises to analyze the role and the skills of the park naturalist including outdoor education techniques. Additionally, students will identify appropriate means of interpreting park features and facilities to the public.

RCRT5410 Park And Recreation Planning **Credit Hours: 3**

An integration of landscape architecture, facility design and location, as well as the functional aesthetic consideration of park and recreational facility planning. Emphasis will be on plan-formulation procedures.

RCRT5420 Leisure Program Research Techniques **Credit Hours: 3**

A critical study of the research problems relating to the evaluation of park and recreation programs. Students will conduct assigned field studies to become familiar with current recreation program research practices.

RCRT5500 Wildlife Management **Credit Hours: 3**

Social inquiry of United States wildlife, their habitat and implications for management. State and national wildlife areas, endangered species, recreational safari areas and the behavior aspects of the hunter, fisherman and naturalist will be investigated.

RCRT5510 Wilderness Policy And Management **Credit Hours: 3**

An extended field trip to major wilderness areas and national parks and forests of the United States and Canada. Includes a comprehensive analysis of major resource areas and small group dynamics, as well as practical exercises in survival, rescue techniques and orienteering.

RCRT5610 Adventure Therapy Programming **Credit Hours: 3**

An introduction to the philosophy, theory and historical foundations of adventure therapy as a treatment protocol. Therapeutic uses of outdoor/challenge activities for various special population groups will be explored.

Prerequisites: RCRT 4940 FOR LEVEL UG WITH MIN. GRADE OF D-

RCRT5620 Animal Assisted Therapy **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using animals.

Prerequisites: (RCRT 1310 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 4720 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCRT5630 Therapeutic Activities **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using games, humor and play activities.

RCRT5640 Rt Intervention: Therapeutic Groups **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using groups.

RCRT5660 Relaxation And Stress Management **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using relaxation and stress management techniques.

Prerequisites: (RCRT 1310 FOR LEVEL UG WITH MIN. GRADE OF D- AND RCRT 4720 FOR LEVEL UG WITH MIN. GRADE OF D-)

RCRT5670 Rt Intervention: Leisure Education **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using leisure education activities, including social skills, values clarification and leisure: awareness, resources and knowledge.

RCRT5680 Rt Intervention: Assistive Technology & Techniques **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using assistive technology and techniques.

RCRT5690 Rt Intervention: Aquatic Therapy **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using swimming and aquatic programming.

RCRT5720 Introduction To Therapeutic Recreation **Credit Hours: 3**

Theories, principles and the history of therapeutic recreation will be discussed. Using lectures, discussions and self-directed learning activities, the course will examine the structure and function of therapeutic recreation for individuals with limitations.

RCRT5730 Medical & Clinical Aspects Of Therapeutic Recreation **Credit Hours: 3**

This course is designed to give students an in-depth knowledge of the medical aspects relating to physical rehabilitation and geriatric impairments and their implications for therapeutic recreation practice.

RCRT5750 Group Dynamics In Recreational Therapy **Credit Hours: 3**

The concepts and theories of therapeutic group process applied to recreational therapy dynamics. The concepts will emphasize group goals, communications, decision making and leadership.

RCRT5790 Medical & Clinical Aspects Of Therapeutic Recreation II **Credit Hours: 3**

This course is designed to introduce student to those conditions or disabilities that would typically be related to Mental Retardation/Developmental Disability, pediatrics and psychiatry. Students will gain an in-depth knowledge of the medical aspects relating to impairments and their implications for therapeutic recreation.

RCRT5800 Clinical: Physical Rehabilitation **Credit Hours: 1**

Provides the student with a structured environment to practice assessment, documentation and treatment interventions in a physical rehabilitation or subacute rehabilitation facility.

RCRT5810 Clinical: Psychiatric Rehabilitation **Credit Hours: 1**

Provides the student with a structured environment to practice assessment, documentation and treatment interventions in a psychiatric rehabilitation facility.

RCRT5820 Clinical: Mental Retardation/Developmental Disability **Credit Hours: 1**

Provides the student with a structured environment to practice assessment, documentation and habilitation interventions in a mental retardation/developmental disability facility.

RCRT5830 Clinical: Geriatric **Credit Hours: 1**

Provides the student with a structured environment to practice assessment, documentation and habilitation and maintenance interventions in a geriatric facility.

RCRT5860 Therapeutic Fitness **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using exercise, weightlifting fitness techniques.

RCRT5870 Program Planning In Recreational Therapy **Credit Hours: 3**

Application of the Recreational Therapy process (assessment, planning, implementation, evaluation) to design comprehensive treatment programs, protocols and discharge plans.

Prerequisites: RCRT 5720 FOR LEVEL GR WITH MIN. GRADE OF D-

RCRT5900 Rt Intervention: Craft Therapy **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using crafts.

RCRT5910 Rt Intervention: Horticulture Therapy **Credit Hours: 1**

Provides the student with fundamental skills needed to implement therapeutic outcomes using plants.

RCRT5940 Internship In Recreation And Leisure **Credit Hours: 1-6**

An opportunity for the student specializing in Outdoor Recreation, National Parks and Community Recreation Programs to work in an internship experience under the supervision of a recreation specialist.

RCRT6000 Issues And Trends In Recreation/Recreational Therapy **Credit Hours: 3**

Provides the advanced student with an in-depth analysis of the trends and issues related to the practice of recreation and recreational therapy.

RCRT6020 Financial Resources Of Recreation And Recreational Therapy **Credit Hours: 3**

Provides the advanced student with an in-depth analysis of the financial management concepts related to the practice of recreation and recreational therapy.

RCRT6920 Master's Project In Recreation And Leisure **Credit Hours: 1-4**

Master's Research Project in Recreation. Open to graduate students who elect the completion of a research project to fulfill the research requirements of the master's degree program.

RCRT6930 Seminar In Recreation And Leisure **Credit Hours: 1-3**

This course is designed to provide a consideration of problems and provide advanced study in recreation and leisure education not offered as part of the current curriculum.

RCRT6940 Internship **Credit Hours: 1-4**

Course will incorporate advanced recreational therapy programming skills within an internship environment using expressive techniques.

RCRT6960 Master's Thesis In Recreation And Leisure **Credit Hours: 1-4**

Master's Research Thesis in Recreation. Open to graduate students who elect the completion of a master's thesis to fulfill the research requirements of the master's degree program.

RCRT6990 Independent Study In Recreation And Leisure **Credit Hours: 1-3**

Independent study of specific problems under the supervision of a Recreation and Leisure Studies faculty member. The student should obtain the consent of the faculty member who will supervise the study.

REL1220 World Religions **Credit Hours: 3**

A study of the major religions of the world, with an emphasis on non-Western religions.

REL2000 Introduction To Religion **Credit Hours: 3**

Critical and thematic study of the concepts, values, practices and world-views intrinsic to the religious life.

REL2070 Early Judaism **Credit Hours: 3**

Institutions, culture and religion from the earliest times through the Biblical period to the Medieval period.

REL2090 Modern Jewish History **Credit Hours: 3**

Institutions, culture and religion from the Medieval period to the present, including ghetto, emancipation, Zionism, Holocaust and third Jewish commonwealth Israel.

REL2300 Understanding The Monotheistic Religions **Credit Hours: 3**

A study of the similarities as well as the differences between Judaism, Christianity and Islam.

REL2310 Old Testament/Tanakh **Credit Hours: 3**

An examination of the history and ideas of Jewish scriptures, emphasizing the Jewish interpretations, with some reference to Christian appropriations of those scriptures.

REL2330 New Testament History And Ideas **Credit Hours: 3**

Examination of the history and ideas of the New Testament.

REL2350 Bible And Church Authority **Credit Hours: 3**

This course will explore issues related to the sources and exercise of religious authority within Christianity, with an extended consideration given to a particular Christian tradition determined by the instructor.

REL2380 Topics In Catholic Thought **Credit Hours: 3**

Critical examination of selected topics in contemporary Catholic thought and life, offered by the visiting professor of Catholic thought.

REL2410 Introduction To Christian Thought **Credit Hours: 3**

This course will introduce students to the fundamental creedal commitments of Christianity, with an extended consideration given to a particular Christian tradition determined by the instructor.

REL2610 Religious Studies Topics In The Humanities **Credit Hours: 3**

Cross-listings with 2000-level courses offered in the humanities departments. Specific topics vary, and course may be repeated for credit as topics vary. Check course schedules for specific subject and prerequisites.

REL2980 Special Topics In Religious Studies **Credit Hours: 3**

Special topics courses. Course may be repeated for credit as topics vary.

REL3080 Jewish Biblical Studies **Credit Hours: 3**

An examination of the texts and methods of historical and contemporary Jewish scriptural studies.

REL3100 Islam **Credit Hours: 3**

REL3130 European Middle Ages I **Credit Hours: 3**

The history of Western Europe from its beginnings to the eve of the First Crusade.

REL3140 European Middle Ages II **Credit Hours: 3**

Europe from the First Crusade to the late 13th century.

REL3210 Ancient And Medieval Philosophy **Credit Hours: 3**

A study of ancient and medieval philosophy from the pre-Socratics to Aquinas.

REL3420 Christian Ethical Perspectives **Credit Hours: 3**

This course will study fundamental ethical concerns in Christian thought, with an extended consideration given to a particular Christian tradition determined by the instructor.

REL3500 Eastern Thought **Credit Hours: 3**

An examination of major philosophies of Asia and the Far East, their specific concerns and their relevance to contemporary problems.

REL3510 Comparative Religion: Living Non-Western Religions **Credit Hours: 3**

Study of the major attitudes toward life, human existence and the world embodied in such major religions of the world as Buddhism, Confucianism, Hinduism, Islam and Taoism.

REL3520 Zen Philosophy **Credit Hours: 3**

A study of the thought and practice of historical and contemporary Zen philosophy.

REL3570 Philosophy Of Religion **Credit Hours: 3**

A critical and philosophical analysis of topics in religion including the problem of evil, faith and reason the existence of God and the nature of religious experience.

REL3600 Religious Studies Topics In The Arts **Credit Hours: 3**

Cross listings with 3000-level courses offered in the visual and performing arts departments. Specific topics vary, and course may be repeated for credit as topics vary. Check course schedules for specific subject and prerequisites.

REL3610 Religious Studies Topics In The Humanities **Credit Hours: 3**

Cross listings with 3000-level courses offered in the humanities departments. Specific topics vary, and course may be repeated for credit as topics vary. Check course schedules for specific subject and prerequisites.

REL3670 Christian Worship And Ritual **Credit Hours: 3**

This course will explore the history of both Christian ritual practice and the diverse theological understandings of that practice, with a focus on a particular Christian tradition determined by the instructor.

REL3710 Literature Of The Old Testament **Credit Hours: 3**

A study of the Old Testament from the literary point of view, including ancient poetry, history, romance, short story, hymn, prophecy and wisdom writing. Recommended: ENGL 2700 or 2800.

REL3720 Literature And Mythology **Credit Hours: 3**

Study of classical and biblical mythologies in modern Western literature, private mythologies and literary adaptations of patterns from legend and folklore. Recommended: ENGL 2700 or 2800.

REL3760 European Literature To The Renaissance **Credit Hours: 3**

The literary European heritage from its biblical and classical origins to the 16th century. Includes (in English translation) such writers as Homer, Virgil and Dante. Recommended: ENGL 2700, 2800 or 3790.

REL3900 Seminar-Contemporary Religious Thought **Credit Hours: 3**

A critical examination of selected topics in the area of religion.

REL3980 Special Topics In Religious Studies **Credit Hours: 3**

Special topics courses. Course may be repeated for credit as topics vary.

REL4520 History Of The Middle East From 600 - 1500 **Credit Hours: 3**

A survey of Middle East history from the emergence of Islam and the formation of Islamic states until the establishment of the Ottoman and Persian empires in the 15th-16th centuries.

REL4600 Religious Studies Topics In The Arts **Credit Hours: 3**

Cross listings with 4000-level courses offered in the visual and performing arts departments. Specific topics vary, and course may be repeated for credit as topics vary. Check course schedules for specific subject and prerequisites.

REL4610 Religious Studies Topics In The Humanities **Credit Hours: 3**

Cross listings with 4000-level courses offered in the humanities departments. Specific topics vary, and course may be repeated for credit as topics vary. Check course schedules for specific subject and prerequisites.

REL4620 Religious Studies Topics In The Social Sciences **Credit Hours: 3**

Cross listings with 4000-level courses offered in the social sciences departments. Specific topics vary, and course may be repeated for credit as topics vary. Check course schedules for specific subject and prerequisites.

REL4820 Anthropology Of Religion **Credit Hours: 3**

A cross-cultural approach to the description and analyses of magical and religious beliefs and practices in Asia, Africa, Latin America and Indigenous North America.

Prerequisites: ANTH 2800 FOR LEVEL UG WITH MIN. GRADE OF D-

REL4900 Seminar In Religious Studies **Credit Hours: 3**

Topics vary. Course may be repeated for credit as topics vary. See adviser for Seminar Request Form.

REL4920 Directed Readings In Religious Studies **Credit Hours: 1-4**

Critical inquiry of selected works under the guidance of an instructor on a topic not offered as a regular course.

REL4960 Senior Thesis for Honors **Credit Hours: 3**

REL4980 Special Topics In Religious Studies **Credit Hours: 3**

Topics vary. Course may be repeated for credit as topics vary.

REL4990 Independent Study In Religious Studies **Credit Hours: 1-4**

Directed study in religious studies under the supervision of a religious studies instructor.

REL5930 Seminar In Religion **Credit Hours: 3**

Advanced academic study of a thinker or topic in religion.

RESM4100 Educational Statistics **Credit Hours: 3**

Introduction to major concepts of statistical description; central tendency, dispersion, and relative position and relationship. Inferential methods such as t-tests, one-way analysis of variance and multiple comparisons are also presented.

RESM4200 Classroom Assessment **Credit Hours: 3**

Familiarizes preservice teachers with concepts and principles of classroom assessment. Examines formal and informal strategies for assessing student achievement and explores conceptual and practical issues in assessment and grading.

RESM4990 Independent Study In Educational Research **Credit Hours: 1-4**

The study of a current topic in educational research, measurement, statistics, or program evaluation. The student meets with the instructor at arranged intervals without formal classes.

RESM5110 Quantitative Methods I **Credit Hours: 3**

Introduction to major concepts of statistical description; central tendency, dispersion, and relative position and relationship. Inferential methods such as t-tests, one-way analysis of variance, and multiple comparisons are also presented.

RESM5210 Educational Testing And Grading **Credit Hours: 3**

Development, administration and interpretation of teacher-made tests and other pupil assessments; basic principles underlying norm- and criterion-referenced tests; problems and issues in grading systems and assigning grades.

RESM5310 Educational Research **Credit Hours: 3**

This course offers an introduction to the history and foundations of research processes. It incorporates the purposes and strengths of both qualitative and quantitative approaches for understanding research problems.

RESM5330 Qualitative Research I: Introduction And Basic Methods **Credit Hours: 3**

Introduction to history and theoretical underpinnings of qualitative research. Students then learn and practice fundamental methods of participant-observation, fieldnotes, interviewing, and transcription, and explore common models of qualitative research.

RESM5950 Workshop In Research And Measurement **Credit Hours: 3**

Each workshop is developed around a topic of interest and concern to inservice teachers and other educational personnel. Practical application of workshop topics will be emphasized.

RESM6120 Quantitative Methods II **Credit Hours: 3**

Course covers the major inferential statistical techniques common to the behavioral sciences. Correlation, analysis of variance, linear regression and analysis of covariance are major topics. Computer applications are included.

Prerequisites: RESM 5110 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 5970 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM6130 Multivariate Statistics **Credit Hours: 3**

Study of multivariate analysis of variance, canonical correlation, discriminant analysis, repeated measures and factor analysis. Computer applications are included.

Prerequisites: RESM 6120 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 8120 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM6140 Advanced Quantitative Methods **Credit Hours: 3**

The study of various experimental designs such as complete and fractional factorial designs, repeated measures designs, and nested designs. Both the conceptual rationale and the computational procedures are covered.

Prerequisites: RESM 6120 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 8120 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM6150 Structural Equation Modeling **Credit Hours: 3**

Structural equation modeling serves as a statistical method to assess the strengths of a priori relations among variables. Topics include path analysis and confirmatory factor analysis. Computer applications with LISREL.

Prerequisites: RESM 6120 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 8120 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM6160 Nonparametric Statistics **Credit Hours: 3**

Study of classical nonparametric statistical techniques and recent developments in this field. Coverage includes contingency tables, binomial distribution tests, several rank tests and other distribution-free statistics.

Prerequisites: RESM 5110 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 7110 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM6220 Measurement I **Credit Hours: 3**

Introduction to psychometric theories, with emphasis on classical test theory; reliability theory, including generalizability theory; approaches to validation; practical applications such as standard setting.

Prerequisites: RESM 5110 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 5210 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 7110 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 7210 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM6230 Measurement II **Credit Hours: 3**

Primary focus on Item Response Theory, with emphasis on 1- 2- and 3-parameter logistic models. Also covers applied issues such as test equating, scaling, item/test bias detection methods and current issues.

Prerequisites: RESM 6220 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 8220 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM6320 Research Design **Credit Hours: 3**

The study of research approaches that are used in theses and dissertations. Competing designs for addressing research questions are compared. The purpose is to prepare students for their dissertation experience.

Prerequisites: RESM 5110 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 7110 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM6340 Qualitative Research II: Design And Analysis **Credit Hours: 3**

Students design, conduct and write up a qualitative study. Topics include theoretical frameworks and research design; managing, analyzing and interpreting data; collaboration between researcher and researched; using computers in analysis.

Prerequisites: RESM 5330 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 7330 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM6350 Methods Of Survey Research **Credit Hours: 3**

The design of large scale surveys with emphasis on sampling. Methods for telephone surveys, face-to-face interviews and mail surveys are included.

Prerequisites: RESM 6120 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM6360 Program Evaluation **Credit Hours: 3**

An overview of prominent human services program evaluation methods including objectives-based, experimental, statistical and economic approaches. Evaluation criteria, issues, ethics and politics are considered.

Prerequisites: RESM 5110 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM6370 Fundamentals Of Grant Writing **Credit Hours: 3**

This seminar will teach participants about fundamentals of grant writing. Topics covered will include: locating sources of funding, writing grants, designing evaluation instruments and administering grants.

RESM6940 Internships In Measurement, Evaluation, Research & Statistics **Credit Hours: 3**

Supervised field experiences in measurement, evaluation, research design, or statistics in a variety of settings.

RESM6960 Master's Thesis In Educational Research **Credit Hours: 1-3**

Open to a graduate student who elects the completion of a research thesis in fulfilling the research requirement of the master's degree.

RESM6980 Master's Project In Educational Research **Credit Hours: 1-3**

A formal independent project applying principles of research and/or measurement to solve a particular problem and culminating in a written discourse.

RESM6990 Master'sindependent Study In Educational Research **Credit Hours: 1-3**

The study of a current topic in educational research, measurement, statistics, or program evaluation. The student meets with the instructor at arranged intervals without formal classes.

RESM7110 Quantitative Methods I **Credit Hours: 3**

Introduction to major concepts of statistical description; central tendency, dispersion, and relative position and relationship. Inferential methods such as t-tests, one-way analysis of variance, and multiple comparisons are also presented.

RESM7210 Educational Testing And Grading **Credit Hours: 3**

Development, administration and interpretation of teacher-made tests and other pupil assessments; basic principles underlying norm- and criterion-referenced tests; problems and issues in grading systems and assigning grades.

RESM7310 Educational Research **Credit Hours: 3**

This course offers an introduction to the history and foundations of research processes. It incorporates the purposes and strengths of both qualitative and quantitative approaches for understanding research problems.

RESM7330 Qualitative Research I: Introduction And Basic Methods **Credit Hours: 3**

Introduction to history and theoretical underpinnings of qualitative research. Students then learn and practice fundamental methods of participant-observation, fieldnotes, interviewing, and transcription, and explore common models of qualitative research.

RESM7950 Workshop In Research And Measurement **Credit Hours: 3**

Each workshop is developed around a topic of interest and concern to inservice teachers and other educational personnel. Practical application of workshop topics will be emphasized.

RESM7980 Special Topics In Research, Measurement, Statistics And Evaluation **Credit Hours: 3**

The study of a current topic or set of related topics in educational research, measurement, statistics, or program evaluation. The course is typically taught as a seminar.

Prerequisites: RESM 7110 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM8120 Quantitative Methods II **Credit Hours: 3**

Course covers the major inferential statistical techniques common to the behavioral sciences. Correlation, analysis of variance, linear regression and analysis of covariance are major topics. Computer applications are included.

Prerequisites: RESM 5110 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 5970 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM8130 Multivariate Statistics **Credit Hours: 3**

Study of multivariate analysis of variance, canonical correlation, discriminant analysis, repeated measures and factor analysis. Computer applications are included.

Prerequisites: RESM 6120 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 8120 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM8140 Advanced Quantitative Methods **Credit Hours: 3**

The study of various experimental designs such as complete and fractional factorial designs, repeated measures designs and nested designs. Both the conceptual rationale and the computational procedures are covered.

Prerequisites: RESM 6120 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 8120 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM8150 Structural Equation Modeling **Credit Hours: 3**

Structural equation modeling serves as a statistical method to assess the strengths of a priori relations among variables. Topics include path analysis and confirmatory factor analysis. Computer applications with LISREL.

Prerequisites: RESM 6120 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 8120 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM8160 Nonparametric Statistics **Credit Hours: 3**

Study of classical nonparametric statistical techniques and recent developments in this field. Coverage includes contingency tables, binomial distribution tests, several rank tests and other distribution-free statistics.

Prerequisites: RESM 5110 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 7110 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM8180 Interdisciplinary Seminar In Educational Psychology, Research, And Social Foundations **Credit Hours: 1**

The proseminar will enable doctoral students to improve their understanding of the research process. Students will learn to ask research questions, choose alternative methodologies and interpret the validity of conclusions.

RESM8220 Measurement I **Credit Hours: 3**

Introduction to psychometric theories, with emphasis on classical test theory; reliability theory, including generalizability theory; approaches to validation; practical applications such as standard setting.

Prerequisites: RESM 5110 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 5210 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 7110 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 7210 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM8230 Measurement II **Credit Hours: 3**

Primary focus on Item Response Theory, with emphasis on 1- 2- and 3-parameter logistic models. Also covers applied issues such as test equating, scaling, item/test bias detection methods and current issues.

Prerequisites: RESM 6220 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 8220 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM8320 Research Design **Credit Hours: 3**

The study of research approaches that are used in theses and dissertations. Competing designs for addressing research questions are compared. The purpose is to prepare students for their dissertation experience.

Prerequisites: RESM 5110 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 7110 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM8340 Qualitative Research II: Design And Analysis **Credit Hours: 3**

Students design, conduct and write up a qualitative study. Topics include theoretical frameworks and research design; managing, analyzing and interpreting data; collaboration between researcher and researched; using computers in analysis.

Prerequisites: RESM 5330 FOR LEVEL GR WITH MIN. GRADE OF D- OR RESM 7330 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM8350 Methods Of Survey Research **Credit Hours: 3**

The design of large scale surveys with emphasis on sampling. Methods for telephone surveys, face-to-face interviews and mail surveys are included.

Prerequisites: RESM 8120 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM8360 Program Evaluation **Credit Hours: 3**

An overview of prominent human services program evaluation methods including objectives-based, experimental, statistical and economic approaches. Evaluation criteria, issues, ethics and politics are included.

Prerequisites: RESM 7110 FOR LEVEL GR WITH MIN. GRADE OF D-

RESM8370 Fundamentals Of Grant Writing **Credit Hours: 3**

This seminar will teach participants about fundamentals of grant writing. Topics covered will include: locating sources of funding, writing grants, designing evaluation instruments and administering grants.

RESM8940 Internships In Measurement, Evaluation, Research & Statistics **Credit Hours: 3**

Supervised field experiences in measurement, evaluation, research design, or statistics in a variety of settings.

RESM8960 Dissertation Research In Foundations Of Education **Credit Hours: 1-12**

A formal independent study culminating in a written discourse central to the advancement of knowledge in educational research design, statistics, measurement, or evaluation.

RESM8990 Doctoral-Independent Study **Credit Hours: 1-6**

The study of a current topic in educational research, measurement, statistics, or program evaluation. The student meets with the instructor at arranged intervals without formal classes.

RPCP601 Research in Primary Care I **Credit Hours: 3**

RPCP602 Research in Primary Care II **Credit Hours: 3**

RPCP603 Research in Primary Care III **Credit Hours: 2**

SBS6410 Theory And Research: Emotional Behavioral Disorders **Credit Hours: 3**

This course provides in-depth readings on problems of emotionally and behaviorally disturbed/disordered children and youth. Intense study on two levels: (1) theoretical considerations and (2) treatments pertinent to diverse educational settings.

SBS6420 Public School Emotional Behavior Disorders **Credit Hours: 1**

This course provides supervised practice in classroom participation with students identified as Emotionally Behaviorally Disturbed/Disordered. Public school settings include: self-contained, resource, transition, mainstreamed and consultative-collaborative teaching roles.

SBS6430 Alternative School Setting: Ebd **Credit Hours: 1**

This course provides supervised practice in classroom participation with students identified as Emotionally Behaviorally Disturbed/Disordered. The alternative school setting includes: self-contained, transition-mainstreamed and consultative-collaborative teaching roles.

SBS6440 Teaching Children And Youth With Emotional Behavior Disorders **Credit Hours: 3**

This course provides evaluation and application techniques of research based methodologies for teaching students with emotional behavioral disorders/disturbances. Psychosocial educational best practices within the least restrictive environment are presented.

Prerequisites: SPED 6410 FOR LEVEL GR WITH MIN. GRADE OF D-

SBS6450 Adjudicated-Locked Setting: Ebd **Credit Hours: 1**

This course provides supervised practice in classroom with children and youth identified as Emotionally Behaviorally Disturbed/Disordered. The adjudicated-locked setting includes: self-contained, remedial plus consultative-collaborative teaching roles.

Prerequisites: (SPED 6420 FOR LEVEL GR WITH MIN. GRADE OF D- AND SPED 6430 FOR LEVEL GR WITH MIN. GRADE OF D-)

SBS6460 Hospital Setting: Ebd **Credit Hours: 1**

This course provides supervised practice teaching children and youth identified as Emotionally Behaviorally Disturbed/Disordered. Hospital setting include: self-contained, individualized and group tutoring, and consultative-collaborative teaching roles.

SBS6470 Theory And Research: Autism **Credit Hours: 3**

This course provides in-depth readings in the field of autism. The course includes intense study on two levels: (1) theoretical considerations and (2) treatment approaches pertinent to populations with autism.

Prerequisites: SBS 6460 FOR LEVEL GR WITH MIN. GRADE OF D-

SBS6480 Teaching Children And Youth With Autism **Credit Hours: 3**

This course provides research based methodologies for understanding and teaching children and youth with autism. Psychosocial educational best practices within the least restrictive environment are presented.

Prerequisites: SBS 6470 FOR LEVEL GR WITH MIN. GRADE OF D-

SBS6510 Management Of Severe Behaviors Of Incarcerated Children And Youth **Credit Hours: 3**

Managing severe behaviors of incarcerated children and youth, including learning knowledge, skills and a solid dispositional commitment to empower cognitive-behavioral change through emotional, neurological, biophysical, sociological and cultural barriers.

SBS6520 Practicum: Child Study Institute **Credit Hours: 1**

The Child Study Institute, Lucas County Juvenile Detention Center, offers frontline knowledge-to-skill practicing in the management of incarcerated children and youth with severe, chronic and potentially violent behaviors.

SBS6990 Independent Study: Severe Behavior **Credit Hours: 1-5**

Provides advanced graduate students with opportunities to study severe behavior related issues. Individual meetings with sponsoring faculty are scheduled.

SBS8410 Theory And Research: Emotional Behavioral Disorders **Credit Hours: 3**

This course provides in-depth readings on problems of emotionally and behaviorally disturbed/disordered children and youth. Intense study on two levels: (1) theoretical considerations and (2) treatments pertinent to diverse educational settings.

SBS8420 Public School: Emotional Behavior Disorders **Credit Hours: 1**

This course provides supervised practice in classroom participation with students identified as Emotionally Behaviorally Disturbed/Disordered. Public school settings include: self-contained, resource, transition, transition, mainstreamed and consultative-collaborative teaching roles.

SBS8430 Alternative School Setting: Ebd **Credit Hours: 1**

This course provides supervised practice in classroom participation with students identified as Emotionally Behaviorally Disturbed/Disordered. The alternative school setting includes: self-contained, transition-mainstreamed and consultative-collaborative teaching roles.

SBS8440 Teaching Children And Youth With Emotional Behavior Disorders **Credit Hours: 3**

This course provides evaluation and application techniques of research based methodologies for teaching students with emotional behavioral disorders/disturbances. Psychosocial educational best practices within the least restrictive environment are presented.

Prerequisites: SPED 6410 FOR LEVEL GR WITH MIN. GRADE OF D-

SBS8450 Adjudicated-Locked Setting: Ebd **Credit Hours: 1**

This course provides supervised practice in classroom with children and youth identified as Emotionally Behaviorally Disturbed/Disordered. The adjudicated-locked setting includes: self-contained, remedial plus consultative-collaborative teaching roles.

Prerequisites: (SPED 6420 FOR LEVEL GR WITH MIN. GRADE OF D- AND SPED 6430 FOR LEVEL GR WITH MIN. GRADE OF D-)

SBS8460 Hospital Setting: Ebd **Credit Hours: 1**

This course provides supervised practice teaching children and youth identified as Emotionally Behaviorally Disturbed/Disordered. Hospital setting include: self-contained, individualized and group tutoring, and consultative-collaborative teaching roles.

Prerequisites: (SBS 8420 FOR LEVEL GR WITH MIN. GRADE OF D- AND SBS 8430 FOR LEVEL GR WITH MIN. GRADE OF D-)

SBS8470 Theory And Research: Autism **Credit Hours: 3**

This course provides in-depth readings in the field of autism. The course includes intense study on two levels: (1) theoretical considerations and (2) treatment approaches pertinent to populations with autism.

Prerequisites: SBS 8460 FOR LEVEL GR WITH MIN. GRADE OF D-

SBS8480 Teaching Children And Youth With Autism **Credit Hours: 3**

This course provides research based methodologies for understanding and teaching children and youth with autism. Psychosocial educational best practices within the least restrictive environment are presented.

Prerequisites: SBS 8470 FOR LEVEL GR WITH MIN. GRADE OF D-

SBS8510 Management Of Severe Behaviors Of Incarcerated Children And Youth **Credit Hours: 3**

Managing severe behaviors of incarcerated children and youth, including learning knowledge, skills and a solid dispositional commitment to empower cognitive-behavioral change through emotional, neurological, biophysical, sociological and cultural barriers.

SBS8520 Practicum: Child Study Institute **Credit Hours: 1**

The Child Study Institute, Lucas County Juvenile Detention Center, offers frontline knowledge-to-skill practicing in the management of incarcerated children and youth with severe, chronic and potentially violent behaviors.

SBS8990 Independent Study: Severe Behavior **Credit Hours: 1-5**

Provides advanced graduate students with opportunities to study severe behavior related issues. Individual meetings with sponsoring faculty are scheduled.

SISS7010 Spatial Statistics **Credit Hours: 3**

The course deals with statistical theory and applied statistical techniques for spatial data analysis. Topics include descriptive statistics, statistical modeling and hypothesis testing for spatial dependence and spatial heterogeneity.

SISS7020 GEOGRAPHICAL INFORMATION SCIENCE IN SISS **Credit Hours: 3**

The course emphasizes the fundamental elements of cartography, geodesy, statistics, mathematics and geo-computational methods that form the foundation for the development of GIS and spatial analysis tools.

SISS8010 FOUNDATIONS OF SPATIALLY INTEGRATED SOCIAL SCIENCE **Credit Hours: 3**

This course will examine the historical development of the social sciences, their philosophical and methodological approaches to research, and the emergence of the spatial perspective in social science research.

SISS8020 SISS THEORY **Credit Hours: 3**

Advanced study of SISS requiring preparedness in theoretical and methodological aspects of spatial analysis in social sciences focusing on the spatial organization of society and spatial human and social dynamics.

Prerequisites: SISS 8010 FOR LEVEL GR WITH MIN. GRADE OF D-

SISS8030 ADVANCED SPATIAL DATA ANALYSIS **Credit Hours: 3**

Examination of spatial processes: spatial autoregressive models, gaussian Markov random ¿eld models, auto-logistic models, spatial discrete choice models. The topics include spatial panel data models, their applications and estimation methods.

Prerequisites: SISS 7010 FOR LEVEL GR WITH MIN. GRADE OF D-

SISS8940 Seminar in Special Topics **Credit Hours: 3**

Discussion of the major advances in Spatially Integrated Social Science as presented in the primary research in a selected topic or set of topics.

Prerequisites: SISS 7010 FOR LEVEL GR WITH MIN. GRADE OF D- AND SISS 7020 FOR LEVEL GR WITH MIN. GRADE OF D- AND SISS 8010 FOR LEVEL GR WITH MIN. GRADE OF D-

SKLS0500 Preparing for Success - College **Credit Hours: 2**

SKLS0750 Review Punctuation and Grammar **Credit Hours: 1**

SKLS0960 Getting Ready For College And The Act **Credit Hours: 4**

The course is offered to Toledo Public High School juniors. It is intended to prepare students to achieve higher scores on the ACT exam and for successful transition to college. The course will focus on three main areas: building and strengthening study strategies relevant to college and the ACT, preparing to take the ACT exam itself and preparing students for successful college entry.

SKLS0980 College Reading **Credit Hours: 3**

Prepares students for success in academic course of study by upgrading textbook comprehension strategies, developing critical reading strategies and expanding academic reading vocabulary through the textbook and other academic reading materials. Grades do not apply to the student's GPA.

SKLS0990 Academic Writing **Credit Hours: 4**

Coursework introduces students to college-level writing strategies, as well as self-evaluative assessment tools essential for introductory intellectual work. Students who pass SKLS 0990 progress to ENGL 1100 (or ENGL 1110 as determined by placement). Grades do not apply to the student's GPA.

SKLS1100 Introduction to Speech **Credit Hours: 2**

SKLS1130 Expression through Paint and Design **Credit Hours: 2**

SKLS1140 Technical Oral Presentations **Credit Hours: 1**

Essentials of delivering oral technical presentations. Awareness of audience, purpose and presentation techniques are emphasized through required weekly presentations.

SKLS1150 College Study Strategies And Orientation **Credit Hours: 3**

Acquaints students with the services, policies, procedures and layout of the University, along with relevant study skills and student learning services available campus-wide. Required of all pre-major students; optional for others.

SKLS1160 Writing In The Social Sciences And Humanities **Credit Hours: 1**

This course will assist students in planning, organizing, researching and revising papers assigned in social science and humanities courses. Students may work on papers assigned for a class in which they are currently enrolled. Course is offered as a 7-1/2 week module.

SKLS1940 Learning through Service **Credit Hours: 2**

Students will be involved four hours a week in various community service projects and analyze and reflect on their experiences through journals, discussion and a final paper in a weekly seminar.

SLP2400 Communication Disorders **Credit Hours: 3**

A study of causative factors and characteristics of communicative disorders in comparison to normal speech/language/hearing processes.

SLP3010 Clinical Phonetics **Credit Hours: 4**

Understanding of articulatory and acoustic phonetics with emphasis on the development of transcription skills using the International Phonetic Alphabet in recording normal and disordered speech production. Laboratory required for transcription skill development.

SLP3020 Anatomy And Physiology Of Communication Mechanisms **Credit Hours: 4**

The study of the anatomy and physiology of the mechanisms used for communication including oral-pharynageal-esophageal, respiratory, and neurological systems.

SLP3030 Normal Language Acquisition **Credit Hours: 3**

This course will include procedures to describe language and the developmental sequence in which it is acquired by children. Basic theories of language acquisition will be discussed. Laboratory experience required.

SLP3140 Analyzing Language **Credit Hours: 4**

Identification of linguistic structures in standard English. Course focuses on analysis of semantic and syntactic components of language with pragmatic analysis included. Laboratory experience required.

SLP3150 Speech Science **Credit Hours: 3**

Detailed exploration of the functions of the speech and language production system including neurological components. Aerodynamic and acoustical functions are explored through the phonatory, respiratory and articulatory parameters of speech.

Prerequisites: (SLP 3010 FOR LEVEL UG WITH MIN. GRADE OF D- AND SLP 3020 FOR LEVEL UG WITH MIN. GRADE OF D-)

SLP3170 Hearing Science **Credit Hours: 2**

The study of the hearing mechanism with relation to the auditory environment and perception of speech.

Prerequisites: (SLP 2400 FOR LEVEL UG WITH MIN. GRADE OF D- AND SLP 3010 FOR LEVEL UG WITH MIN. GRADE OF D-)

SLP3200 Articulation/Phonological Disorders **Credit Hours: 4**

Assessment techniques and intervention strategies for persons with disorders of the sound system of the language. Theories of phonological acquisition and etiological factors will be discussed during this course. Laboratory experience required.

SLP3300 Language Disorders **Credit Hours: 4**

Course includes the identification of etiologic bases and characteristics of language disorders. Assessment strategies leading to choice of intervention techniques will be discussed. Laboratory experience required.

Prerequisites: SLP 3030 FOR LEVEL UG WITH MIN. GRADE OF D-

SLP3400 Clinical Audiology **Credit Hours: 3**

The student learns to administer and interpret the comprehensive auditory battery consisting of pure-tone air conduction and bone conduction thresholds, speech reception thresholds, speech discrimination tests and acoustic emittance test battery.

Prerequisites: SLP 3170 FOR LEVEL UG WITH MIN. GRADE OF D-

SLP3800 Methods For Clinical Intervention **Credit Hours: 3**

Teaches methods of intervention of speech, language and hearing services in various settings. Emphasis on developing skills in observation, report writing, and structuring intervention services and their implementation. Requires 25 hours of observation. Mandatory clinic meeting, and one hour lab duty. Laboratory experience required.

Prerequisites: (SLP 3200 FOR LEVEL UG WITH MIN. GRADE OF D- AND SLP 3300 FOR LEVEL UG WITH MIN. GRADE OF D-)

SLP4000 Beginning Clinical Practicum **Credit Hours: 2**

Supervised participation in structured individual or group intervention leading to the accumulation of 25 clinical hours of practicum.

Prerequisites: SLP 3800 FOR LEVEL UG WITH MIN. GRADE OF D-

SLP4300 Advanced Clinical Practicum I **Credit Hours: 2**

Students are assigned individual clients for whom they will plan an intervention program, implement the program and evaluate the results of the intervention under faculty supervision. Mandatory clinic meeting and 1 hour lab duty.

Prerequisites: SLP 4000 FOR LEVEL UG WITH MIN. GRADE OF D-

SLP4350 Concomitant Disorders **Credit Hours: 3**

This capstone course explores literature in advanced speech and language disorders as well as intervention communication disorders.

Prerequisites: (SLP 3200 FOR LEVEL UG WITH MIN. GRADE OF D- AND SLP 3300 FOR LEVEL UG WITH MIN. GRADE OF D-)

SLP4440 Augmentative Communication Systems **Credit Hours: 3**

Technological systems available for persons with the absence of functional speech will be described. Etiological factors, assessment and intervention procedures and hands-on experience with devices will be provided.

SLP4900 Seminar In Speech-Language Pathology **Credit Hours: 1-5**

Seminar provides students with the opportunity to explore, as a group, specific topics with a faculty member. Current issues in the area of speech-language pathology will be the focus.

SLP4910 Directed Research In Speech-Language Pathology **Credit Hours: 1-5**

Directed research provides students the opportunity to explore specific topics and develop individual research with a faculty member. Current questions in the area of speech-language pathology will be the focus.

SLP4920 Readings In Speech-Language Pathology **Credit Hours: 1-5**

Individual Readings is designed to provide students with opportunities to examine literature related to specific issues. The student works under the direction of faculty in the speech-language pathology program.

SLP4980 Special Topics In Speech-Language Pathology **Credit Hours: 1-5**

An advanced course for undergraduate majors in speech-language pathology or majors in related fields covering an important area of communication disorders. Student may repeat this course under different section numbers.

SLP4990 Independent Study Speech-Language Pathology **Credit Hours: 1-5**

Independent study provides students with opportunities to work individually on issues under the direction of the speech-language pathology program faculty. The student meets with instructor without formal classes.

SLP5440 Augmentative Communication Systems **Credit Hours: 3**

SLP6000 Advanced Practicum In Communication Disorders **Credit Hours: 2**

Provides students with supervised therapeutic experiences with specific speech and language disorders. Students should have completed or be currently enrolled in graduate level communication disorders course addressing the specific practicum disorder selected.

SLP6010 Diagnostic Practicum In Communication Disorders **Credit Hours: 2**

Provides a minimum of 30 hours supervised diagnostic practicum with a variety of communicatively disordered cases.

Corequisites: SLP6100

SLP6020 Audiological Practicum In Communication Disorders **Credit Hours: 2**

Provides the advanced student with supervised practicum hours in the screening, impedance and pure tone threshold testing for audiological diagnosis.

SLP6030 Research in Speech-Language Pathology **Credit Hours: 3**

Early graduate course in research methods with emphasis on analysis of current research, application of single-subject research in clinic practicum, and development of research project.

Prerequisites: SLP 6010 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY) OR SLP 6020 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

SLP6100 Diagnosis Of Speech And Language Disorders **Credit Hours: 3**

Detailed analysis of formal and informal instruments and procedures designed to evaluate speech and language disorders.

SLP6210 Preschool Language Disorders **Credit Hours: 3**

The conceptual framework for understanding language disorders in young children. Application and theory of assessment and intervention strategies will be described and discussed.

SLP6220 Language Disorders In School-Age Children **Credit Hours: 2**

The conceptual framework for understanding language disorders in school-age children with special emphasis on language assessment and language interventions in school settings.

SLP6300 Phonological And Articulatory Disorders **Credit Hours: 3**

Advanced study of phonological and articulatory disorders including developmental apraxia. Focus on phonological differences in multi-cultural society with emphasis on assessment of disorders and current advances in remediation.

SLP6400 Neurological Disorders: Aphasia **Credit Hours: 3**

Advanced course in deficits due to neurological alterations resulting in aphasia. Formal and informal assessment procedures for the diagnosis of aphasia as well as techniques and functional strategies for communicative compensation provide the focus of the course.

SLP6450 Neurological Disorders: Brain Injury And Dementia **Credit Hours: 2**

Course in cognitive and linguistics deficits due to trauma and disease to central nervous system. Course focuses on identification and intervention in communication disorders as the result of acquired brain injury/disease. Traumatic brain injury, right hemisphere damage and dementia are addressed.

SLP6500 Motor Speech Disorders **Credit Hours: 3**

Adult apraxia and dysarthrias are discussed in relation to neurological organization, disorders and speech characteristics.

SLP6550 Augmentative And Alternative Communication **Credit Hours: 2**

The study and application of assistive communication technology for persons who are nonspeaking. The course includes characteristics of ACC consumers, design features of augmentative communication devices, assessment strategies to choose a system and intervention strategies to facilitate use of the ACC system.

SLP6600 Voice Disorders: Diagnosis And Treatment **Credit Hours: 3**

Advanced course in the evaluation and treatment of voice disorders. Major voice disorders in children and adults are emphasized.

SLP6650 Dysphagia And Orpharyngeal Disorders **Credit Hours: 2**

Evaluation and intervention procedures for individuals with communication problems related to structural impairments of the oral cavity and pharynx.

SLP6670 Voice Disorders **Credit Hours: 3**

SLP6700 Assessment And Remediation Of Fluency Disorders **Credit Hours: 3**

An advanced course to develop skills in the assessment and remediation of fluency disorders with special emphasis on current trends in stuttering therapy.

SLP6800 Aural Rehabilitation **Credit Hours: 3**

Advanced care and training in the use of individual and group assistive listening devices, auditory trainers and other aids to augment hearing. Methods for using residual hearing and contextual factors to augment technology are addressed.

SLP6900 Independent Research In Speech-Language Pathology **Credit Hours: 1-5**

Independent research provides opportunities to work on individual research under the direction of faculty. The student meets with the instructor at intervals and conducts research without formal class meeting.

SLP6920 Master's Research Project In Speech-Language Pathology **Credit Hours: 1-5**

The Master's project is an individually designed product.

Prerequisites: SLP 6930 FOR LEVEL GR WITH MIN. GRADE OF D-

SLP6930 Seminars In Speech-Language Pathology **Credit Hours: 1-5**

Seminars will consider problems and provide advanced study in the field of Speech-Language Pathology. A student may register for more than one seminar during a graduate program.

SLP6940 Internship In Speech-Language Pathology **Credit Hours: 1-8**

Provides the advanced graduate student with supervised practicum experiences at an off-campus site; including schools, hospitals, agencies, rehabilitation clinics, work training sites and other community sites where persons with disabilities are served.

SLP6960 Master Research Thesis In Speech-Language Pathology **Credit Hours: 1-5**

The master's thesis is an individually designed investigation approved by the thesis committee and designed to contribute to the knowledge base of the speech-language pathology. Meets the final activity requirement for completion of the master's degree.

Prerequisites: SLP 6930 FOR LEVEL GR WITH MIN. GRADE OF D-

SLP6990 Independent Study In Speech-Language Pathology **Credit Hours: 1-5**

Individual study provides advanced graduate students opportunities to work individually on professional problems with faculty of the Speech-Language Pathology program. Individual meetings with sponsoring faculty are held.

SLP8000 Advanced Practicum In Communication Disorders **Credit Hours: 2**

Provides students with supervised therapeutic experiences with specific speech and language disorders. Students should have completed or be currently enrolled in graduate level communication disorders course addressing the specific practicum disorder selected.

SLP8010 Diagnostic Practicum In Communication Disorders **Credit Hours: 2**

Provides a minimum of 30 hours supervised diagnostic practicum with a variety of communicatively disordered cases.

Corequisites: SLP8100

SLP8020 Audiological Practicum In Communication Disorders **Credit Hours: 2**

Provides the advanced student with supervised practicum hours in the screening, impedance and pure tone threshold testing for audiological diagnosis.

SLP8100 Diagnosis Of Speech And Language Disorders **Credit Hours: 3**

Detailed analysis of formal and informal instruments and procedures designed to evaluate speech and language disorders.

SLP8210 Preschool Language Disorders **Credit Hours: 3**

The conceptual framework for understanding language disorders in young children. Application and theory of assessment and intervention strategies will be described and discussed.

SLP8220 Language Disorders In School-Age Children **Credit Hours: 2**

The conceptual framework for understanding language disorders in school-age children with special emphasis on language assessment and language interventions in school settings.

SLP8300 Phonological And Articulatory Disorders **Credit Hours: 3**

Advanced study of phonological and articulatory disorders including developmental apraxia. Focus on phonological differences in multi-cultural society with emphasis on assessment of disorders and current advances in remediation.

SLP8400 Neurological Disorders: Aphasia **Credit Hours: 3**

Advanced course in deficits due to neurological alterations resulting in aphasia. Formal and informal assessment procedures for the diagnosis of aphasia as well as techniques and functional strategies for communicative compensation provide the focus of the course.

SLP8450 Neurological Disorders: Brain Injury And Dementia **Credit Hours: 2**

Course in cognitive and linguistics deficits due to trauma and disease to central nervous system. Course focuses on identification and intervention in communication disorders as the result of acquired brain injury/disease. Traumatic brain injury, right hemisphere damage and dementia are addressed.

SLP8500 Motor Speech Disorders **Credit Hours: 3**

Adult apraxia and dysarthrias are discussed in relation to neurological organization, disorders and speech characteristics.

SLP8550 Augmentative And Alternative Communication **Credit Hours: 2**

The study and application of assistive communication technology for persons who are nonspeaking. The course includes characteristics of ACC consumers, design features of augmentative communication devices, assessment strategies to choose a system and intervention strategies to facilitate use of the ACC system.

SLP8600 Voice Disorders: Diagnosis And Treatment **Credit Hours: 3**

Advanced course in the evaluation and treatment of voice disorders. Major voice disorders in children and adults are emphasized.

SLP8650 Dysphagia And Orpharyngeal Disorders **Credit Hours: 2**

Evaluation and intervention procedures for individuals with communication problems related to structural impairments of the oral cavity and pharynx.

SLP8670 Voice Disorders **Credit Hours: 3**

SLP8700 Assessment And Remediation Of Fluency Disorders **Credit Hours: 3**

An advanced course to develop skills in the assessment and remediation of fluency disorders with special emphasis on current trends in stuttering therapy.

SLP8800 Aural Rehabilitation **Credit Hours: 3**

Advanced care and training in the use of individual and group assistive listening devices, auditory trainers and other aids to augment hearing. Methods for using residual hearing and contextual factors to augment technology is addressed.

Prerequisites: SLP 3400 FOR LEVEL UG WITH MIN. GRADE OF D-

SLP8900 Independent Research In Speech-Language Pathology **Credit Hours: 1-5**

Independent Research provides opportunities to work on individual research under the direction of faculty. The student meets with the instructor at intervals and conducts research without formal class meeting.

SLP8930 Seminars In Speech-Language Pathology **Credit Hours: 1-5**

Seminars will consider problems and provide advanced study in the field of Speech-Language Pathology. A student may register for more than one seminar during a graduate program.

SLP8940 Internship In Speech-Language Pathology **Credit Hours: 1-8**

Provides the advanced graduate student with supervised practicum experiences at an off-campus site; including schools, hospitals, agencies, rehabilitation clinics, work training sites and other community sites where persons with disabilities are served.

SLP8960 Master Research Thesis In Speech-Language Pathology **Credit Hours: 1-5**

The master's thesis is an individually designed investigation approved by the thesis committee and designed to contribute to the knowledge base of the speech-language pathology.

Prerequisites: SLP 6930 FOR LEVEL GR WITH MIN. GRADE OF D-

SLP8990 Independent Study In Speech-Language Pathology **Credit Hours: 1-5**

Individual study provides advanced graduate students opportunities to work individually on professional problems with faculty of the Speech-Language Pathology program. Individual meetings with sponsoring faculty are held.

SOC1010 Introduction To Sociology **Credit Hours: 3**

(not for major credit) Freshmen and sophomores only. Sociological topics regarding social behavior, institutional dynamics and social change are examined, and the principles and basic concepts used by sociologists are taught.

SOC1750 Social Problems **Credit Hours: 3**

(not for major credit) Introduces students to the sociological perspective through the analysis of various social problems including inequality, population, environment, workplace and deviant behavior.

SOC2000 Proseminar In Sociology I **Credit Hours: 1**

Students are introduced to the academic and professional nature of Sociology. Topics covered include professional socialization, honor theses, portfolio construction, preparation for graduate studies, and career development.

SOC2010 Sociology Of The Internet **Credit Hours: 3**

This course focuses on the rapidly expanding use of the Internet and its impact on society. The course will also be experiential, with Internet based interaction (through on-line, e-mail, list-servs, etc.) an essential component of the course.

SOC2100 American Society **Credit Hours: 3**

Examination of American society. Emphasis upon the interplay between cultural ideas and actual behavior as these relate to change in American institutions.

SOC2150 The Changing Family **Credit Hours: 3**

Examines changes in the family through history, focusing especially on current changes in the nature of the family and on theoretical explanations for why these changes are occurring and what they may mean for family members.

SOC2500 Women's Roles: A Global Perspective **Credit Hours: 3**

The course focuses on the current and evolving social, economic and political status of women in the United States and selected non-Western societies. For both men and women students.

SOC2640 Race, Class, And Gender **Credit Hours: 3**

Introduction to the study of race, class and gender as factors in American stratification.

SOC2750 Sociology Of Sport **Credit Hours: 3**

This course examines sport as a microcosm of our society, exploring many sociological issues (socialization, social institutions, and inequality) within the framework of sport that exist in society as whole.

SOC2900 African American Culture **Credit Hours: 3**

A survey of the sociohistorical and cultural factors related to the African American experience in the United States.

SOC2980 Special Topics **Credit Hours: 3**

Examination of a special topical area in sociology. May be repeated on different topics.

SOC3270 Social Research Methods **Credit Hours: 3**

Introduction to procedures used in the various phases of sociological research.

SOC3290 Social Statistics **Credit Hours: 3**

Study of major statistical procedures and techniques in sociology.

SOC3640 Social Inequality **Credit Hours: 3**

This course examines the bases, varieties and consequences of systems of stratification, including the development of and changes in stratification patterns in the US and other societies.

SOC3800 Social Psychology **Credit Hours: 3**

An introduction to theory and research concerning social influences on the experience and behavior of individuals. Includes interaction patterns, interpersonal and intergroup relations.

SOC4000 Proseminar In Sociology II **Credit Hours: 2**

Discussion among faculty and students devoted to the study of Sociology with a special focus on the development of a professional portfolio for graduate work or career.

Prerequisites: SOC 2000 FOR LEVEL UG WITH MIN. GRADE OF D-

SOC4040 Classical Theory **Credit Hours: 3**

19th century theory in sociology with emphasis on A. Comte, K. Marx, E. Durkheim, T. Veblen, M. Weber and H. Spencer.

SOC4100 Community Organizing And Development **Credit Hours: 3**

This course focuses on attempt of communities to regain power and wealth lost through urban disinvestment occurring since World War II. The course will involve numerous practical workshops to learn how to do community organizing and community development and will include information on Toledo case studies.

SOC4110 Political Sociology **Credit Hours: 3**

Examination of political institutions, organizations and behavior with special attention to participation, power, ideology, decision making and conflict.

SOC4160 Health And Gender **Credit Hours: 3**

An examination of gender as a predisposing factor of health status, health behavior, health care delivery, and the structure and posture of health care professionals.

SOC4170 Law And Society **Credit Hours: 3**

Dynamics of law and legal institutions; the relationship of sociocultural changes in substantive and procedural aspects of law to the concept of justice, and to the social control of deviance.

SOC4180 Medical Sociology **Credit Hours: 3**

An analysis of the sociocultural factors in health and illness, and in medical and paramedical services, and in the field of health practice as a social institution.

SOC4190 Social Gerontology **Credit Hours: 3**

A study of the changing proportions of older people in the population, their changing roles and statuses, and the problems and processes of adjustment.

SOC4340 Population And Society **Credit Hours: 3**

Examination of the interaction among variables of population (fertility, mortality and migration) and other aspects of societal organization.

SOC4450 Exploring the City **Credit Hours: 3**

This course takes an interdisciplinary approach to life in cities around the world, with emphasis on the ethnographic exploration of how power, cultural difference, and social inequality in cities are produced and experienced.

SOC4580 Science, Technology, And Social Change **Credit Hours: 3**

The impact of rapidly changing science and technology on North American society: social change in a technological age; the emergence of post industrial society.

SOC4620 Gender And Work **Credit Hours: 3**

Analysis of the contemporary position in the U.S. work force focusing on the expansion of the number of women joining the labor force in recent decades, and the persistence of relatively low pay, status and authority in female-dominated occupations.

SOC4650 SOCIOLOGY OF LATIN AMERICA AND CARIBBEAN **Credit Hours: 3**

An overview of sociological literature on Latin American and the Caribbean. Topics include economic development, political change, gender and ethnicity, disability, culture and international migration.

Prerequisites: SOC 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

SOC4660 Racial And Ethnic Minorities In The Us **Credit Hours: 3**

Basic principles of majority/minority relations including the minority groups nature and consequences of prejudice, discrimination, segregation, entitlement and differing cultural practices between such groups.

SOC4670 African Americans In The United States **Credit Hours: 3**

Sociological study of African Americans in the United States, focusing on issues of ethnic identity, educational and economic achievement, continuing sources of discrimination, and current movements for change.

SOC4710 Criminology **Credit Hours: 3**

Crime and criminal behavior: nature, types and extent of crime, societal reactions; problems in research and theory, prevention, control and treatment.

SOC4720 Deviant Behavior **Credit Hours: 3**

Study and analysis of the nature, meaning and process of deviant behavior in terms of social norms, control and societal reaction.

SOC4740 Issues In Crime **Credit Hours: 3**

Topics may include legalizing drugs, police violence, plea bargaining, death sentence and mandatory sentencing. Emphasizes liberal/conservative ideology.

SOC4750 Legal Issues **Credit Hours: 3**

Topics may include abortion, three strike sentencing, homosexual rights, hate speech and decriminalizing narcotics. Emphasizes liberal/conservative ideology.

SOC4760 Juvenile Delinquency **Credit Hours: 3**

Delinquency and delinquent behavior, including definitions, extent, process, types and causes; methods of prevention, protective control and treatment; institutional and non-institutional facilities and services.

SOC4770 Criminal Corrections: Theories And Practices **Credit Hours: 3**

Historical and theoretical analysis of ideas concerning punishment. Treatment of offenders as reflected in the type of administration of correctional programs, including probation and parole.

SOC4800 Development In Third World Nations **Credit Hours: 3**

The new emerging ideological, political, social and economic patterns which repeat themselves in and determine the Third World transition from a traditional to a new society.

SOC4810 Gender In Cross-Cultural Perspective **Credit Hours: 3**

Analysis of gender stratification and its impact on culture in various nations and across ethnic groups in the United States.

SOC4830 Social Movements **Credit Hours: 3**

This course analyzes how and why social protest movements form, and how and why they succeed or fail. Attention will be given to post-World War II social movements, including current examples.

SOC4910 Directed Research In Sociology **Credit Hours: 1-3**

Student-selected research topic under the supervision of a sociology faculty member. Permission to enroll is contingent on the instructor's acceptance of the student's research proposal.

Prerequisites: SOC 3270 FOR LEVEL UG WITH MIN. GRADE OF D-

SOC4920 Directed Readings In Sociology **Credit Hours: 1-3**

Written proposal required. May be repeated for additional credit. For majors wishing to continue course work in greater depth or seeking contact with unlisted subject areas.

SOC4940 Internship in Sociology **Credit Hours: 3**

SOC4960 Honors Thesis **Credit Hours: 3-6**

SOC4980 Special Topics In Sociology **Credit Hours: 3**

Sociological examination of a developing and/or important social issue or sociological topic. May be repeated for different specialized topics.

SOC4990 Independent Study - Sociology **Credit Hours: 1-3**

SOC5040 Classical Theory **Credit Hours: 3**

19th Century theory in sociology with emphasis on A. Comte, K. Marx, E. Durkheim, T. Veblen, M. Weber and H. Spencer.

SOC5100 Community Organizing And Development **Credit Hours: 3**

This course will review the major forms of community and organizing since World War II. Practical issues and theoretical issues will be stressed. Students will engage in intensive case study research applying the course concepts in addition to reading and writing on the various topics.

SOC5110 Political Sociology **Credit Hours: 3**

Examination of political institutions, organizations and behavior with special attention to participation, power, ideology, decision making and conflict.

SOC5160 Health And Gender **Credit Hours: 3**

An examination of gender as a predisposing factor of health status, health behavior, health care delivery, and the structure and posture of health care professionals.

SOC5170 Law And Society **Credit Hours: 3**

Dynamics of law and legal institutions; the relationship of sociocultural changes in substantive and procedural aspects of law to the concept of justice, and to the social control of deviance.

SOC5180 Medical Sociology **Credit Hours: 3**

An analysis of the sociocultural factors in health and illness, and in medical and paramedical services, and in the field of health practice as a social institution.

SOC5190 Social Gerontology **Credit Hours: 3**

A study of the changing proportions of older people in the population, their changing roles and statuses, and the problems and processes of adjustment.

SOC5270 Social Research Methods **Credit Hours: 3**

Introduction to procedures used in the various phases of sociological research.

SOC5290 Social Research Statistics **Credit Hours: 3**

Study of major statistical procedures and techniques in sociology.

SOC5340 Population And Society **Credit Hours: 3**

Examination of the interaction among variables of population (fertility, mortality and migration) and other aspects of societal organization.

SOC5450 Exploring the City **Credit Hours: 3**

This course takes an interdisciplinary approach to life in cities around the world, with emphasis on the ethnographic exploration of how power, cultural difference, and social inequality in cities are produced and experienced.

SOC5580 Science, Technology, And Social Change **Credit Hours: 3**

The impact of rapidly changing science and technology on North American society: social change in a technological age; the emergence of post industrial society.

SOC5620 Gender And Work **Credit Hours: 3**

Analysis of the contemporary position in the U.S. work force focusing on the expansion of the number of women joining the labor force in recent decades, and the persistence of relatively low pay, status and authority in female-dominated occupations.

SOC5650 ADVANCED TOPICS IN LATIN AMERICAN AND CARIBBEAN **Credit Hours: 3**

An examination of social life in Latin America and the Caribbean, focusing on changing political economy, gender and ethnicity, globalization, culture and migration and in and out of the region.

Prerequisites: SOC 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

SOC5660 Racial And Ethnic Minorities In The Us **Credit Hours: 3**

Review of current theoretical and empirical work in American sociology on racism, discrimination and other dimensions of racial inequality.

SOC5670 African Americans In The United States **Credit Hours: 3**

Sociological study of African Americans in the United States, focusing on issues of ethnic identity, educational and economic achievement, continuing sources of discrimination, and current movements for change.

SOC5710 Criminology **Credit Hours: 3**

Crime and criminal behavior: nature, types and extent of crime, societal reactions; problems in research and theory, prevention, control and treatment.

SOC5720 Deviant Behavior **Credit Hours: 3**

Study of the analysis of the nature, meaning and process of deviant behavior in terms of social norms, control and societal reaction.

SOC5740 Issues In Crime **Credit Hours: 3**

Topics may include legalizing drugs, police violence, plea bargaining, death sentence and mandatory sentencing. Emphasizes liberal/conservative ideology.

SOC5750 Legal Issues **Credit Hours: 3**

Topics may include abortion, three strike sentencing, homosexual rights, hate speech and decriminalizing narcotics. Emphasizes liberal/conservative ideology.

SOC5760 Juvenile Delinquency **Credit Hours: 3**

Delinquency and delinquent behavior, including definitions, extent, process, types and causes; methods of prevention, protective control and treatment; institutional and non-institutional facilities and services.

SOC5800 Development Of Subordinate Nations **Credit Hours: 3**

The new emerging ideological, political, social and economic patterns which repeat themselves in and determine the Third World transition from a traditional to a new society.

SOC5810 Gender In Cross-Cultural Perspective **Credit Hours: 3**

Analysis of gender stratification and its impact on culture in various nations and across ethnic groups in the United States.

SOC5830 Social Movements **Credit Hours: 3**

This course will focus on social movements and their political context to understand the causes of social movement success and failure. Special attention will be given to the 1960s wave of protest, as well as to contemporary movement forms. Students will engage in intensive case study research applying the course concepts in addition to reading and writing on relevant topics.

SOC5980 Special Topics In Sociology **Credit Hours: 3**

Sociological examination of a developing social issue. May be repeated in different specialized topics.

SOC5990 Directed Readings In Sociology **Credit Hours: 1-3**

Written proposal required. May be repeated for additional credit. For majors wishing to continue course work in greater depth or seeking contact with unlisted subject areas.

SOC6000 Introduction To Graduate Studies In Sociology **Credit Hours: 1**

Graduate students are exposed to and get acquainted with the academic and professional nature of the field of sociology from the experience of several faculty members. Some of the topics that will be covered include writing theses, doing internships and seeking graduate work and careers.

SOC6040 Advanced Sociological Theory **Credit Hours: 3**

Building on classical traditions, the course includes readings and lectures on functionalist, neo-Marxist, symbolic interactionist and other significant twentieth century sociological theories.

Prerequisites: SOC 4040 FOR LEVEL UG WITH MIN. GRADE OF D- OR SOC 5040 FOR LEVEL GR WITH MIN. GRADE OF D-

SOC6050 Advanced Social Theory And Political Economy **Credit Hours: 3**

This course will analyze and evaluate major social theories drawn from various 19th and 20th century intellectual and ideological traditions. The common subject focus of course readings is state, power and class relations.

Prerequisites: SOC 4040 FOR LEVEL UG WITH MIN. GRADE OF D- OR SOC 5040 FOR LEVEL GR WITH MIN. GRADE OF D-

SOC6270 Advanced Social Research Methods **Credit Hours: 3**

Examination of advanced methods of data collection in sociological research.

Prerequisites: SOC 5270 FOR LEVEL GR WITH MIN. GRADE OF D-

SOC6290 Advanced Social Research Statistics **Credit Hours: 3**

Examination of advanced methods of data analysis in sociological research.

Prerequisites: SOC 5290 FOR LEVEL GR WITH MIN. GRADE OF D-

SOC6610 Seminar In Social Movements **Credit Hours: 3**

This course will explore current topics in social movements and protest, with significant student input into design of topics. Students must have previous experience in social movement studies.

SOC6620 Seminar In Work And Occupation **Credit Hours: 3**

A social scientific analysis of work, including differences between occupations and workplace issues.

SOC6800 Seminar In Theories In Social Psychology **Credit Hours: 3**

Intensive sociological study of theory building in social psychology including, among others, paradigms of social cognition and belief, social influence, and social relations.

SOC6810 Seminar In Medical Sociology **Credit Hours: 3**

Intensive sociological study of selected topics from among those including the illness experience, patient-health provider relations, the organization of medicine and problems inherent in the delivery of health care services.

SOC6900 Independent Research In Sociology **Credit Hours: 1-3**

Student-selected research topic under the supervision of a sociology faculty member. Permission to enroll is contingent on the instructor's acceptance of the student's research proposal.

SOC6930 Seminars In Sociology **Credit Hours: 3**

Seminar on selected topics in the field of Sociology.

SOC6940 Graduate Internship **Credit Hours: 3**

In applied setting in areas of student interest: community organizing - health-probation - gerontology.

Prerequisites: (SOC 6000 FOR LEVEL GR WITH MIN. GRADE OF D- AND SOC 6040 FOR LEVEL GR WITH MIN. GRADE OF D- AND SOC 6270 FOR LEVEL GR WITH MIN. GRADE OF D- AND SOC 6290 FOR LEVEL GR WITH MIN. GRADE OF D-)

SOC6960 Thesis **Credit Hours: 1-6**

Topic (proposal) is selected by the student and approved by a thesis committee.

Prerequisites: (SOC 6270 FOR LEVEL GR WITH MIN. GRADE OF D- AND SOC 6290 FOR LEVEL GR WITH MIN. GRADE OF D- AND SOC 6040 FOR LEVEL GR WITH MIN. GRADE OF D- AND SOC 6000 FOR LEVEL GR WITH MIN. GRADE OF D-)

SOC6990 Independent Study In Sociology **Credit Hours: 1-3**

Written proposal required. May be repeated for additional credit. For majors wishing to continue course work in greater depth or seeking contact with unlisted subject areas.

SOCW1030 Introduction To Social Welfare **Credit Hours: 3**

An introduction to the social welfare institution, its history, relation to social values, major social laws and programs, and the systems characteristic of service delivery. (not for major credit)

SOCW2010 Survey Of The Social Work Profession **Credit Hours: 3**

A beginning study of the profession of social work, values and ethics, and diversity. The generalist framework, strengths perspective and systems theory are introduced.

Prerequisites: SOCW 1030 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW2210 Field Experience And Lab I **Credit Hours: 3**

Supervised field experience. Ninety hours evenly distributed with weekly directed classroom discussion of reflecting the relationship of field experience to social work practice. This course meets the WAC requirements, and journaling and written classroom exercises will be required.

Prerequisites: SOCW 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW3020 Social Work Issues In Social & Economic Justice **Credit Hours: 3**

Provides an in depth study of the concepts of social and economic justice relative to the practice of social work including power and economic distribution, oppression, discrimination and confronting injustice.

Prerequisites: SOCW 2210 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW3030 Survey Of Social Work Assessment Tools **Credit Hours: 3**

Provides an overview of various tools used by social workers in practice including use of DSM IV, individual, family, group, organization and community assessments.

Prerequisites: SOCW 2210 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW3040 Social Work With Older Adults **Credit Hours: 3**

History and development of practice with older adults. Trends in aging, services for older adults, health care, social security, retirement, elder abuse, substitute care decision, hospice, loss, death and dying.

Prerequisites: SOCW 2210 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW3050 Crisis Intervention **Credit Hours: 3**

Provides an examination of crisis intervention theories and strategies to deal with stress. Emphasis is on observing, formulating, defining and measuring the threats, tasks and opportunities associated with crisis behavior.

Prerequisites: SOCW 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW3060 Social Work Ethics **Credit Hours: 3**

Examination of social work values and their professional implications. Provision of working knowledge of Social Work Code of Ethics and licensing and subsequent professional responsibilities. Integration of theoretical models with practice situations.

Prerequisites: SOCW 2210 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW3070 Child Welfare I **Credit Hours: 3**

Child welfare history. Knowledge, concepts and skill development concerning child maltreatment and protection, risk assessment and family-centered services.

Prerequisites: SOCW 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW3080 Women In Poverty **Credit Hours: 3**

Provides an understanding of women's poverty and its perpetuation through marriage and divorce, women's work and wages, welfare, children, child support and the economics of the unpaid women's labor.

Prerequisites: SOCW 2210 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW3090 Social Work Perspectives On Culture And Oppression **Credit Hours: 3**

Focus is on racial/ethnic groups who are among social welfare consumers. Cultural characteristics and group strengths, needs, priorities and experiences within the context of social work are also explored.

Prerequisites: SOCW 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW3110 Social Work Practice I **Credit Hours: 3**

An overview of generalist social work practice with various system sizes. Emphasizes strengths, empowerment, social and economic justice, ethical practice and examination of self in relation to professional social work.

Prerequisites: SOCW 2210 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW3120 Social Work Interviewing And Recording **Credit Hours: 4**

Develops skills needed for the generalist social work interview and appropriate recording techniques. Integrates computer simulation, role-play and video recording for a participatory learning experience.

Prerequisites: SOCW 3110 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW3170 Child Welfare II **Credit Hours: 3**

Addresses the developmental and permanence needs of children, effects of maltreatment on children, placement issues, separation, reunification and adoption. Includes child welfare services for children with developmental disabilities.

Prerequisites: (SOCW 3070 FOR LEVEL UG WITH MIN. GRADE OF D- AND SOCW 2010 FOR LEVEL UG WITH MIN. GRADE OF D-)

SOCW3240 Human Behavior In The Social Environment I **Credit Hours: 3**

Theoretical approaches to understanding human behavior and the interrelatedness of biological, psychological, social, cultural and environmental factors affecting individual, family and group behavior within the context of diversity.

Prerequisites: (BIOL 1120 FOR LEVEL UG WITH MIN. GRADE OF D- AND ANTH 2100 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSY 2510 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (BIOL 1120 FOR LEVEL UG WITH MIN. GRADE OF D- AND ANTH 2800 FOR LEVEL UG WITH MIN. GRADE OF D- AND PSY 2510 FOR LEVEL UG WITH MIN. GRADE OF D-)

SOCW3250 Human Behavior In The Social Environment II **Credit Hours: 3**

Provides an understanding of theories addressing behavior of larger systems including groups, organizations, and communities with a focus on socio-cultural factors and social and economic justice.

Prerequisites: SOCW 3240 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW3300 Social Policy And Legislation **Credit Hours: 3**

An examination of current social welfare issues and theories and the significance to the social, economic and political factors which influence policymaking and implementation.

Prerequisites: PSC 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW4010 Social Work Research Methods **Credit Hours: 3**

Presentation of basic concepts used in social work research. Practice based methods are emphasized. Course content will focus on scientific methods of building knowledge within the social sciences.

Prerequisites: SOC 3290 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSC 3110 FOR LEVEL UG WITH MIN. GRADE OF D- OR PSY 2100 FOR LEVEL UG WITH MIN. GRADE OF D- OR RESM 4100 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW4120 Social Work Practice II **Credit Hours: 3**

Provides advanced theory and skill development as a generalist social worker with individuals, families and groups. Emphasis is on a strengths and empowerment perspective focused on social and economic justice.

Prerequisites: SOCW 3120 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW4130 Social Work Practice III **Credit Hours: 3**

Provides advanced theory and skill development as a generalist social worker with organizations and communities. Emphasis is on a strengths and empowerment perspective focused on social and economic justice.

Prerequisites: SOCW 4120 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW4200 Field Laboratory II **Credit Hours: 1**

Integration of field experience and proactive principles.

SOCW4210 Field Laboratory III **Credit Hours: 1**

Integration of field experience and proactive principles.

SOCW4220 Social Work Field Experience II **Credit Hours: 5**

A professional experience in generalist social work practice with an integration of classroom learning with practice in a social agency. Must be taken in successive semesters during a single academic year. Application for entry to field placement must be submitted to social work office during spring semester prior to fall placement.

SOCW4230 Field Experience III **Credit Hours: 5**

A professional experience in generalist social work practice with an integration of classroom learning with practice in a social agency. Must be taken in successive semesters during a single academic year. Application for entry to field placement must be submitted to social work office during spring semester prior to fall placement.

Prerequisites: SOCW 4220 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW4500 Appreciating Diversity In Social Work Practice **Credit Hours: 3**

This course focuses upon the cultural gropu strengths, needs, priorities and experiences of ethnic/racial groups in the U.S. through a social welfare perspective. Individual and institutional racism are examined.

Prerequisites: SOCW 2210 FOR LEVEL UG WITH MIN. GRADE OF D-

SOCW4960 Honors Thesis **Credit Hours: 1-6**

Senior standing and approval of the department honor adviser.

SOCW4980 Special Issues In Social Work **Credit Hours: 1-3**

Courses on various social work specialties. May be repeated in different topics.

SOCW4990 Independent Study In Social Work **Credit Hours: 1-3**

Designed for advanced students in social work to pursue supervised independent study in unlisted subject areas or to continue course work in greater depth. Written proposal required.

SOCW5010 Social Work Research Methods And Analysis **Credit Hours: 3**

Course introduces students to qualitative and quantitative research methodologies, supporting statistical methods as utilized within the social work profession, data analysis technology and evidenced based social work practice concepts.

SOCW5110 Social Work Practice I **Credit Hours: 3**

Provides an overview of social work practice theory and paradigms to base practice with individuals, families and groups emphasizing strengths and empowerment, values and ethics, and understanding self.

SOCW5120 Social Work Practice II **Credit Hours: 3**

Provides an overview of social work theories guiding social work practice with groups and organizations, including group development, leadership, and models of organizations within a social and economic justice framework.

Prerequisites: SOCW 5110 FOR LEVEL GR WITH MIN. GRADE OF B AND SOCW 5210 FOR LEVEL GR WITH MIN. GRADE OF B

SOCW5130 Social Work Practice III **Credit Hours: 3**

Provides historical and contemporary look at the social work profession, its roots in community organizing, theories underpinning group work and community organizing. Strengths and empowerment models and social justice emphasized.

Prerequisites: SOCW 5110 FOR LEVEL GR WITH MIN. GRADE OF B

SOCW5210 Micro Social Work Perspectives In Human Behavior And The Social Environment **Credit Hours: 3**

Course is organized on a developmental model including social work perpectives and theory on: biopsychosocial aspects of human growth and development. Critical analysis encouraged through social justice conceptualizations.

SOCW5220 Macro Social Work Perspectives In Human Behavior And The Social Environment **Credit Hours: 3**

Course views the behavior of groups, organizations, and communities and their environmental contexts through a social work perspective. Attention focuses on issues of diversity, oppression, and social and economic justice.

Prerequisites: SOCW 5210 FOR LEVEL GR WITH MIN. GRADE OF B

SOCW5330 Policy Issues And Analysis In Social Work **Credit Hours: 3**

Course covers the history of social work profession and major institutions. Through current policy issues, methods of policy analysis are provided. Students are introduced to various methods of policy practice.

SOCW5900 FOUNDATION FIELD EXPERIENCE AND INTEGRATIVE SEMINAR I **Credit Hours: 3**

The student participates in a weekly seminar to be oriented to field requirements, expectations and safety; and to integrate classroom learning to the field experience. During the 6th week the student adds a field experience in an assigned field agency and completes 16 field hours per week for a total of 160 field hours. This course must be taken in consecutive semesters with SOCW 5910.

Corequisites: SOCW5330

SOCW5910 FOUNDATION FIELD EXPERIENCE AND INTEGRATIVE SEMINAR II **Credit Hours: 3**

The student continues in the field placement which was assigned in SOCW 5900 and attends a weekly integrative field seminar. The student completes 240 field hours at 16 hours per week. SOCW 5900 and 5910 must be taken in consecutive semesters during which students complete a cumulative total of 400 field hours. Prerequisite: Permission of Field Director, SOCW 5900 with B or better; Co-requisites: SOCW 5130 Permission of Field Driector, SOCW 5900 Minimum Grade of B. Corequisite SOCW 5130

Prerequisites: SOCW 5900 FOR LEVEL GR WITH MIN. GRADE OF B

Corequisites: SOCW5130

SOCW6030 Research Methods For Macro Social Work Practice **Credit Hours: 3**

Covers research methods specific to macro social work practice especially needs assessment and program evaluation. Content on research ethics, data management, and evidence based practice are addressed. Prerequisites: All 5000 level courses, advanced standing status or permission of instructor.

Prerequisites: SOCW 5010 FOR LEVEL GR WITH MIN. GRADE OF B

SOCW6040 Research Methods For Micro Social Work Practice **Credit Hours: 3**

Course covers evaluation of client accomplishments through subject design methods. Content on research Ethics, data management, and evidence based practice are addressed. Prerequisites: all 5000-level courses, advanced standing status or by permission of instructor.

Prerequisites: SOCW 5010 FOR LEVEL GR WITH MIN. GRADE OF B

SOCW6110 Advanced Generalist Practice I **Credit Hours: 3**

Advanced study of generalist social work practice and theory when working with individuals, families, and groups with an intergenerational focus on social and economic justice. All SOCW 5000-level courses, Advanced Standing Status, or Permission.

SOCW6120 Advanced Generalist Practice II **Credit Hours: 3**

Course provides advanced content on social work practice in organizations including financial management, supervision and planning. Incorporates current theoretical perspectives and research on effective practice. Prerequisite: SOCW 6110 with a B or better, or permission of instructor.

Prerequisites: SOCW 6110 FOR LEVEL GR WITH MIN. GRADE OF B

SOCW6130 Advanced Generalist Practice III **Credit Hours: 3**

Course provides advanced content on social work practice within the community and with groups. Particular attention is paid to community change processes and social and economic justice. Prerequisite: SOCW 6110 and 6140 with a B or better.

Prerequisites: SOCW 6110 FOR LEVEL GR WITH MIN. GRADE OF B

SOCW6140 Advanced Social Work Assessment **Credit Hours: 3**

Course provides an overview of theories and methods of social work assessment with an emphasis on psychosocial assessment, macro assessments and various tools used by social workers for asssessment purposes. Prerequisites all 5000 level corses, advaced standing status. or by permission.

SOCW6410 Child And Family Social Work Practice **Credit Hours: 3**

Course covers the social worker's role in child and family practice settings including the major theoretical perspectives accepted in the field with an emphasis on strengths and empowerment. Prerequisites: all 5000-level classes, Advanced Standing status, or permission of instructor. Must be taken concurrently with SOCW 6460. Corequisite: SOCW 6110.

SOCW6430 Social Work Policy Issues: Child And Family **Credit Hours: 3**

Course provides knowledge about current social work policy issues concerning child and family services. Major emphasis is placed on social and economic justice in the resolution of policy conflicts.

Prerequisites: SOCW 6410 FOR LEVEL GR WITH MIN. GRADE OF B

SOCW6460 Social Work Journal Review Seminar I: Child And Family Services **Credit Hours: 1**

This course enables students to gain a critical understanding and appreciation of the social work literature and research underpinning social work practice in child and family services. Prerequisite: All 5000-level classes and SOCW 6140. Corequisites: SOCW 6110, 6410, or permission of instructor

SOCW6470 Social Work Journal Review Seminar II - Child And Family Services **Credit Hours: 1**

Course provides a more in depth examination and appreciation of social work literature and research underpinning social work practice with children and family services. Prerequisite: SOCW 6110, 6140, 6410 with a B or better. Corequisite: 6430.

Prerequisites: SOCW 6460 FOR LEVEL GR WITH MIN. GRADE OF B

SOCW6510 Social Work Practice In Mental Health **Credit Hours: 3**

Course provides an understanding of the social worker's role in mental health practices. Included are major theoretical perspectives currently accepted in the field with an emphasis on strength and empowerment. Prerequisite: All 5000-level courses, advanced standing status, and SOCW 6140. Corequisite: SOCW 6110, or permission of instructor. Must take SOCW 6560 concurrently

SOCW6530 Social Work Policy Issues In Mental Health **Credit Hours: 3**

Course provides knowledge about the current social work policy issues concerning mental health services. Major emphasis is placed on social and economic justice in the resolution of policy conflicts. Prerequisite: SOCW 6110, 6410, 6510 with a B or better.

Prerequisites: SOCW 6510 FOR LEVEL GR WITH MIN. GRADE OF B

SOCW6560 Social Work Journal Review Seminar I - Mental Health Practice **Credit Hours: 1**

Course enables students to gain a critical understanding and appreciation of the social work literature and research underpinning social work practice in mental health settings. Prerequisites: All 5000-level classes, advanced standing status, and SOCW 6140. Corequisites: SOCW 6110, 6510, or permission of instructor.

SOCW6570 Social Work Journal Review Seminar II - Mental Health Practice **Credit Hours: 1**

Course provides a more in depth examination and appreciation of social work literature and research underpinning social work practice in mental health settings. Prerequisites: SOCW 6110, 6140, 6510 with a B or better.

Prerequisites: SOCW 6560 FOR LEVEL GR WITH MIN. GRADE OF B

SOCW6610 Social Work Practice In The Aging Community **Credit Hours: 3**

Course provides an understanding of social worker's role in aging practice settings. Included are major theoretical perspectives currently accepted in the field with emphasis on strengths and empowerment.

SOCW6630 Social Work Policy Issues In Aging **Credit Hours: 3**

Course provides knowledge about the current policy issues concerning social work services for the elderly. Major emphasis is placed on social and economic justice in the resolution of policy conflicts.

SOCW6660 Social Work Journal Review Seminar I - Aging Services **Credit Hours: 1**

Course provides an understanding and appreciation of the social work literature and research underpinning social work practice with older adults.

SOCW6670 Social Work Journal Review Summer II - Aging Services **Credit Hours: 1**

Course provides a more in depth examination and appreciation of the social work literature and research underpinning social work practice with older adults.

Prerequisites: SOCW 6660 FOR LEVEL GR WITH MIN. GRADE OF D-

SOCW6900 ADVANCED FIELD EXPERIENCE AND INTEGRATIVE SEMINAR I **Credit Hours: 4-5**

Students are placed in a social work field agency and participate in a weekly integrative seminar. Students registered for 5 hours must complete 360 field hours at 24 hours per week. Students who have been approved to participate in the extended field experience plan must register for 4 hours and complete 288 field hours. SOCW 6900 and 6910 must be taken in consecutive semesters during which students complete a cumulative total of 720 field hours. Prerequisites: Permission of Field Director; Advanced Standing or SOCW 5900 with B or better and overall GPA of B or better for 5900 level courses; pre or co-requisite SOCW 6410 or SOCW 6510 Prerequisites: Permission of Field Director; Advanced Standing or SOCW 5900 with B or better and overall GPA of B or better for 5900 level courses; Pre or co-requisite SOCW 6410 or SOCW 6510 Credit hours 4-5

Prerequisites: SOCW 5900 FOR LEVEL GR WITH MIN. GRADE OF B AND SOCW 6410 FOR LEVEL GR WITH MIN. GRADE OF B (MAY BE TAKEN CONCURRENTLY) OR SOCW 6510 FOR LEVEL GR WITH MIN. GRADE OF B (MAY BE TAKEN CONCURRENTLY)

SOCW6910 ADVANCED FIELD EXPERIENCE AND INTEGRATIVE SEMINAR II **Credit Hours: 5-6**

Students continue placement in the field agency assigned in SOCW 6900 and participate in a weekly integrative seminar. The student registered for 5 hours must complete 360 field hours at 24 hours per week. Students who have been approved to participate in the extended field experience plan must register for 6 hours and complete 432 field hours. SOCW 6900 and 6910 must be taken in consecutive semesters during which students complete a cumulative total of 720 field hours. Prerequisites: Permission of Field Director; SOCW 6900 with B or better and overall GPA of B or better; pre or co-requisite SOCW 6430 or SOCW 6530 Credit Hours = 5-6

Prerequisites: SOCW 6900 FOR LEVEL GR WITH MIN. GRADE OF B AND SOCW 6430 FOR LEVEL GR WITH MIN. GRADE OF B (MAY BE TAKEN CONCURRENTLY) OR SOCW 6530 FOR LEVEL GR WITH MIN. GRADE OF B (MAY BE TAKEN CONCURRENTLY)

SOCW6960 Thesis **Credit Hours: 1-6**

This course involves research leading to a written thesis. Thesis topic, defense, and final thesis must be approved by the student's thesis committee.

SOCW6980 Special Topics In Social Work **Credit Hours: 1-3**

Content will vary as instructors present a single concentration on developments, problems, and controversies in social work.

SOCW6990 Independent Study In Social Work **Credit Hours: 1-3**

Directed study in social work under the supervision of a social work faculty member.

SOST1010 Introduction To Social Services **Credit Hours: 3**

The historical development of social services as it relates to the present system of delivery of services. Significant writing involved.

SOST1020 Helping Skills In Social Service **Credit Hours: 3**

All social services agencies use a modified form of the Scientific Method. This course will assist the student in executing gathering data, defining problems, generating solutions, implementing solutions and follow-up. Significant writing involved.

Corequisites: SOST1500

SOST1040 Introduction To Gerontology **Credit Hours: 3**

This course gives an overview of the role of the older adult in contemporary society, including the demography of aging, physical and social environments, specialized services available and stereotypical myths related to the aged. Significant writing involved.

SOST1070 Techniques Of Interviewing **Credit Hours: 3**

The knowledge and practice of effective approaches to interviewing. Significant writing involved.

SOST1080 Team Approach In Social Services **Credit Hours: 3**

Experiential exploration of the variety of professional teams, the division of responsibility within the professional team and the differences in function of its members. Significant writing involved.

SOST1130 Community Resources **Credit Hours: 3**

An explanation of community resources (human services agencies) with focus on their effective use for connecting clientele to services. Significant writing involved.

SOST1150 Applied Creative Expressions **Credit Hours: 3**

Exploration of materials and applications of techniques covering a variety of two and three dimensional arts and crafts projects as applied to various age groups.

SOST1500 Self-Management And Interpersonal Relationships **Credit Hours: 3**

A course designed to assist the student in learning about human behavior in relation to awareness of oneself and relationships to others. Significant writing involved.

Corequisites: SOST1020

SOST1510 **Client-Caseworker Interface** **Credit Hours: 3**

SOST1520 **Info Mgmt Skls-Human Service** **Credit Hours: 3**

SOST1530 **Eligibility Determ-Fed Assist** **Credit Hours: 3**

SOST1540 **Sup Writing Skills-Human Serv** **Credit Hours: 1**

SOST1550 **Overview-Child Support Enforce** **Credit Hours: 3**

SOST1560 **Caseworker and Recipient Proc** **Credit Hours: 3**

SOST1570 **Conducting CSEA Investigations** **Credit Hours: 3**

SOST1580 **Court Orders-Child Support Enf** **Credit Hours: 1**

SOST1590 **Motivating and Improving Perfm** **Credit Hours: 3**

SOST1600 **Managng Priorities, Time, Info** **Credit Hours: 3**

SOST1610 **Comm Skills for Supervisors** **Credit Hours: 3**

SOST1620 **Program Support, Policy Interp** **Credit Hours: 1**

SOST1630 Essentials-Fraud and Ovrpaymnt — Credit Hours: 3

SOST1640 Intro-Jobs, Leap, Interviewing — Credit Hours: 3

SOST1650 Resolving Case Problems Income — Credit Hours: 1

SOST1660 Admin Process in Child Support — Credit Hours: 1

SOST1670 **Supervising-Collaboration IV** **Credit Hours: 1**

SOST1680 **Strategies-Achieving Excellnce** **Credit Hours: 2**

SOST1690 **Maintaining Professnal Safety** **Credit Hours: 1**

SOST1700 **Collab Among IV-A, IV-D, IV-F** **Credit Hours: 3**

SOST1710 Resolving Case Prob-Child Supt **Credit Hours: 1**

SOST1720 Case Management-Jobs and Leap **Credit Hours: 3**

SOST2020 Methods In Social Services **Credit Hours: 3**

Experientially learning the processes involved in the various methods of giving service casework, (one-to-one approach), group work and community organization. Significant writing involved.

Prerequisites: SOST 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

SOST2030 Financing Health And Social Services **Credit Hours: 3**

An in-depth examination of current funding systems in human services, with particular emphasis on Medicare, Medicaid, social security benefits and private health care coverage. Significant writing involved.

SOST2100 Record Keeping **Credit Hours: 3**

Assists the student in acquiring recording skills for use in providing service with emphasis on relationship between practice and record keeping. Significant writing involved.

SOST2110 Ethnic Studies In Social Services **Credit Hours: 3**

This course explores the effects of living in a multi-cultural society, examines stereotyping, discrimination and racism. Significant writing involved.

SOST2160 Dealing With Death And Dying **Credit Hours: 3**

This course explores the meaning of death, as well as adjustment to the deaths of others and the social-emotional consequences. Dealing with those who are terminally ill and who must deal with dying is of concern in this course. Significant writing involved.

SOST2210 Adult-Child Relationships **Credit Hours: 3**

Understanding the child as an interacting member of family and community. Management techniques and methods to promote mental and emotional health will be studied. Significant writing involved.

SOST2220 Developmental Patterns Of Children **Credit Hours: 3**

A study of normal patterns of development from conception through middle childhood. Recognition of abnormal patterns which indicate special physical, mental or emotional problems or needs. Significant writing involved.

SOST2230 Adolescent Psychology **Credit Hours: 3**

Investigates the changes and stress in adolescence and the special dynamics of parent-adolescent interaction through use of journal research and class discussions. Significant writing involved.

SOST2350 Social Services Internship **Credit Hours: 4**

Supervised practice obtained in the equivalent of up to 18 hours a week at an agency. Significant writing involved.

Prerequisites: SOST 2100 FOR LEVEL UG WITH MIN. GRADE OF D-

SOST2990 Independent Study **Credit Hours: 1-4**

A course designed to provide educational opportunities in a specialized academic area under the direct supervision of a faculty member.

SPAN1080 Culture & Commerce In The Spanish-Speaking World **Credit Hours: 3**

A study of the Hispanic world with emphasis on the relationship between its culture and business and economic institutions and practices. Taught in English. (Not for major credit)

SPAN1090 Culture Of Latin America **Credit Hours: 3**

A study of selected artistic, literary, philosophical, political and social aspects of present day Latin American culture. Taught in English. (Not for major credit)

SPAN1100 Culture Of Spain **Credit Hours: 3**

A study of the events, people and movements that have formed Spain. Taught in English. (Not for major credit)

SPAN1110 Elementary Spanish I **Credit Hours: 4**

Practice in using and understanding Spanish to develop listening, speaking, reading and writing skills. Pronunciation, grammar, vocabulary and cultural topics. Lab practice required. (Not for major credit)

SPAN1120 Elementary Spanish II **Credit Hours: 4**

A comprehensive introductory course in Spanish language and culture through the four basic skills: aural comprehension, reading, speaking and writing. Laboratory practice required. (Not for major credit)

Prerequisites: SPAN 1110 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNSP FOR MIN. SCORE OF 1120

SPAN1500 Review Of Elementary Spanish **Credit Hours: 4**

Review of first-year college Spanish for students who studied the language in high school and who need to strengthen communication skills, vocabulary, grammar and pronunciation before study at the 2000 level. (Not for major credit)

SPAN2140 Intermediate Spanish I **Credit Hours: 3**

Intermediate-level review and development of aural comprehension, speaking, reading and writing skills. Topics in the cultures of the Spanish-speaking world. Lab practice required. (Not for major credit)

Prerequisites: SPAN 1120 FOR LEVEL UG WITH MIN. GRADE OF D- OR SPAN 1500 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNSP FOR MIN. SCORE OF 2140

SPAN2150 Intermediate Spanish II **Credit Hours: 3**

Further review and development of aural comprehension, speaking, reading and writing skills. Topics in the cultures of the Spanish-speaking world. Lab practice required. (Not for major credit)

Prerequisites: SPAN 2140 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNSP FOR MIN. SCORE OF 2150

SPAN2190 Study Abroad **Credit Hours: 1-3**

Designed to permit and encourage non-majors to spend time in a country where Spanish is spoken. Credit will be given in accordance with established departmental procedures. (Not for major credit.)

SPAN3000 Spanish Grammar **Credit Hours: 3**

A study of all Spanish grammatical aspects with special emphasis on those which present greater difficulty for the English speaker.

Prerequisites: SPAN 2150 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNSP FOR MIN. SCORE OF 3000

SPAN3010 Conversation And Composition I **Credit Hours: 3**

Practice in speaking, listening, reading and writing. Vocabulary and fluency building in Spanish with special emphasis on oral practice.

Prerequisites: SPAN 2150 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNSP FOR MIN. SCORE OF 3000

SPAN3020 Conversation And Composition II **Credit Hours: 3**

Practice in speaking, listening, reading and writing. Vocabulary and fluency building in Spanish with special emphasis on writing practice. A writing-intensive course.

Prerequisites: SPAN 2150 FOR LEVEL UG WITH MIN. GRADE OF D- OR LNSP FOR MIN. SCORE OF 3000

SPAN3170 Business Spanish **Credit Hours: 3**

An introduction to the language of the Hispanic world peculiar to the areas of business and commerce.

Prerequisites: SPAN 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

SPAN3210 Survey Of Spanish Literature I **Credit Hours: 3**

A survey of Spanish literature from its origins through the seventeenth century.

Prerequisites: SPAN 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

SPAN3220 Survey Of Spanish Literature II **Credit Hours: 3**

A survey of Spanish literature from the eighteenth century to the present.

Prerequisites: SPAN 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

SPAN3270 Survey Of Latin American Literature I **Credit Hours: 3**

The literature of Latin America from the Colonial period to the end of the nineteenth century.

Prerequisites: SPAN 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

SPAN3280 Survey Of Latin American Literature II **Credit Hours: 3**

The literature of Latin America from the beginning of the twentieth century to the present.

Prerequisites: SPAN 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

SPAN3410 Spanish Culture And Civilization **Credit Hours: 3**

A study of the events, people and movements that have formed Spain. Attention is also given to the nation's contemporary life-style and culture.

Prerequisites: SPAN 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

SPAN3420 Latin American Civilization **Credit Hours: 3**

A study of Latin America's contributions to world culture in such fields as architecture, painting, sculpture, music, literature, folklore, sciences, philosophy and education.

Prerequisites: SPAN 2150 FOR LEVEL UG WITH MIN. GRADE OF D-

SPAN4000 Advanced Spanish Grammar **Credit Hours: 3**

An advanced study of Spanish grammar in preparation for higher levels of study in the language and for its use in professional pursuits.

SPAN4010 Syntax And Stylistics **Credit Hours: 4**

A thorough study of the grammatical structure of Spanish with special attention to stylistic problems.

Prerequisites: (SPAN 3000 FOR LEVEL UG WITH MIN. GRADE OF D- AND SPAN 3010 FOR LEVEL UG WITH MIN. GRADE OF D- AND SPAN 3020 FOR LEVEL UG WITH MIN. GRADE OF D-)

SPAN4110 Introduction To Spanish Linguistics **Credit Hours: 4**

Basic concepts of linguistics as applied to the study of the Spanish language and its dialectal systems. Emphasis on phonetics, phonology, morphology, syntax and semantics.

SPAN4120 Teaching Colloquium **Credit Hours: 3**

A course in the theory and practice of teaching Spanish and of second language acquisition in general.

SPAN4170 Latin American Novel II **Credit Hours: 3**

A study of the major developments in Latin American novel from the Boom to the present.

Prerequisites: SPAN 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

SPAN4190 Study Abroad **Credit Hours: 1-12**

The course permits the Spanish major or minor to spend time in a country where Spanish is spoken. Credit awarded in accordance with established departmental procedures.

Prerequisites: SPAN 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

SPAN4250 Latin American Short Story **Credit Hours: 3**

Development of the Latin American short story from its origins with special emphasis on the contemporary authors such as Allende, Borges, Cortazar, Garcia Marquez and Rulfo among others.

Prerequisites: SPAN 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

SPAN4260 Latin American Poetry I **Credit Hours: 3**

The poetry of Latin America from Sor Juana Ines de la Cruz to Ruben Dario.

Prerequisites: SPAN 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

SPAN4270 Latin American Poetry II **Credit Hours: 3**

Latin American poetry from Surrealism to the present, with emphasis on authors such as Borges, Huidobro, Neruda, Paz and Vallejo.

Prerequisites: SPAN 3020 FOR LEVEL UG WITH MIN. GRADE OF D-

SPAN4410 Golden Age Literature **Credit Hours: 3**

Readings in the literature of the fifteenth and sixteenth centuries. Among the authors covered are Lope de Vega, Calderon de la Barca, Gongora and Quevedo.

SPAN4720 20th Century Spanish Novel **Credit Hours: 3**

Critical readings of Spanish novels from the Generation of 1898 to the most recent trends.

SPAN4810 Modern Spanish Poetry **Credit Hours: 3**

Critical readings of Spanish poetry from Romanticism to the present.

SPAN4830 Hispanic Cinema **Credit Hours: 3**

Critical viewings of Spanish-language films from Spain and the Americas. Emphasis on cultural criticism.

SPAN4910 Honors Research In Spanish **Credit Hours: 3**

Independent research in special topics. May be repeated once for credit.

SPAN4980 Special Topics **Credit Hours: 3**

Study and research in specific areas or authors with considerable reading of Spanish texts plus written reports in Spanish.

SPAN5000 Advanced Spanish Grammar **Credit Hours: 3**

An advanced study of Spanish grammar in preparation for higher levels of study in the language and for its use in professional pursuits.

SPAN5010 Syntax And Stylistics **Credit Hours: 4**

A thorough study of the grammatical structure of Spanish with special attention to stylistic problems.

SPAN5110 Introduction To Spanish Linguistics **Credit Hours: 4**

Basic concepts of linguistics as applied to the study of the Spanish language and its dialectal systems. Emphasis phonetics, phonology, morphology, syntax and semantics.

SPAN5120 Teaching Colloquia **Credit Hours: 3**

A practical course in the theories, methods and specific techniques of teaching Spanish.

SPAN5160 Latin American Novel I **Credit Hours: 3**

A study of the Latin American novel from the nineteenth century to the authors of the literary Boom of 1963.

SPAN5170 Latin American Novel II **Credit Hours: 3**

A study of the major developments in Latin American novel from the Boom to the present.

SPAN5210 Spanish For Reading Knowledge I **Credit Hours: 3**

Study of those elements of structure and vocabulary most appropriate for preparing graduate students to read effectively in Spanish. (Not for majors)

SPAN5220 Spanish For Reading Knowledge II **Credit Hours: 3**

Study of those elements of structure and vocabulary most appropriate for preparing graduate students to read effectively in Spanish. (Not for majors)

SPAN5250 Latin American Short Story **Credit Hours: 3**

Development of the Latin American short story from its origins with special emphasis on the contemporary authors such as Allende, Borges, Cortazar, Garcia Marquez and Rulfo among others.

SPAN5310 Medieval & Renaissance Spanish Literature **Credit Hours: 3**

Study of major works from the Poema de Mio Cid to the early writers of the Siglo de Oro.

SPAN5720 20th Century Spanish Novel **Credit Hours: 3**

Critical readings of Spanish novels from the Generation of 1898 to the most recent trends.

SPAN5830 Hispanic Cinema **Credit Hours: 3**

Critical viewings of Spanish-language films from Spain and the Americas. Emphasis on cultural criticism.

SPAN5980 Special Topics **Credit Hours: 3**

Study and research in specific areas or authors with considerable reading of Spanish texts plus written reports in Spanish.

SPAN6900 Research In Spanish **Credit Hours: 1-3**

May be repeated for additional credit when topic varies.

SPAN6930 Seminar: Selected Topics **Credit Hours: 1-3**

Selected topics from Spanish culture, linguistics, or literature.

SPED2010 Practicum In Special Education **Credit Hours: 3**

Lecture and fieldwork, consisting of a minimum of 15 clock hours as assistant in each of two placements for persons with disabilities (total of 30 hours)

SPED2040 Perspectives In The Field Of Exceptionalities **Credit Hours: 3**

Synthesis of the cross-categorical components required of special education. Issues addressed: causes and characteristics for disabling conditions and issues related to persons with disabilities, i.e., identification, intervention strategies, educational settings. Role of professionals in the field of special education.

SPED2900 Early Seminar Special Education **Credit Hours: 1-5**

Seminar provides students with the opportunity to explore, as a group, specific topics with a faculty member. Current issues in the area of Special Education will be the focus.

SPED2910 Cultural Diversity And Disabilities **Credit Hours: 1**

This is a linking seminar with the urban studies or public administration dual majors. The purpose is to integrate the two majors. Students will learn the relation of cultural diversity and special education. Theoretical as well as pragmatic positions will be discussed.

SPED2990 Independent Study In Special Education **Credit Hours: 1-5**

Designed to provide the student with the opportunity to explore special interests through individual study.

SPED3130 Linguistic Analysis **Credit Hours: 3**

Identification and evaluation of language usage. Course focuses upon development of competence for the analysis of semantic and syntactic components of language. Some pragmatic analysis is included. Lab required.

SPED3350 Child, Family, Public Policy **Credit Hours: 3**

SPED3380 Field Experience: Specialized Childhood Dimensions of Education **Credit Hours: 2**

SPED3670 American Sign Language I **Credit Hours: 3**

Principles of manual communication. Course builds an expressive and receptive vocabulary of at least 1,000 signs in American Sign Language (ASL) and Pidgin Signed English. Ten hours of lab required.

SPED3680 American Sign Language II And Basics Of Interpreting **Credit Hours: 3**

Emphasis on fluency development in manual communication. Study of various models of interpreting and transliterating processes.

Prerequisites: SPED 3670 FOR LEVEL UG WITH MIN. GRADE OF D-

SPED3690 American Sign Language III **Credit Hours: 4**

American Sign Language III is designed to continue the development of proficiency in using the language and understanding the culture of the Deaf. Student will gain knowledge and skill in applying approximately 900 additional vocabulary words. Students will advance in the complexity of sentence structure and grammatical structures including classifiers, specifier, verb modulations and aspects, special referencing, pluralizations and the importance of facial expressions.

Prerequisites: SPED 3680 FOR LEVEL UG WITH MIN. GRADE OF D-

SPED3700 American Sign Language IV **Credit Hours: 4**

American Sign Language IV is designed to continue the development of proficiency in using the language and understanding the culture of the Deaf. Student will gain knowledge and skill in applying approximately 900 additional vocabulary words.

Prerequisites: (SPED 3670 FOR LEVEL UG WITH MIN. GRADE OF C AND SPED 3680 FOR LEVEL UG WITH MIN. GRADE OF C AND SPED 3690 FOR LEVEL UG WITH MIN. GRADE OF C)

SPED3850 Braille I **Credit Hours: 3**

Basic course in both reading and writing literary Braille; practical application of this medium to teaching.

SPED3860 Braille II And Other Media For The Blind And Visually Impaired **Credit Hours: 3**

Covered in this course will be reading and writing and advanced literary Braille, nemeth code and other nee

SPED4010 Atypical Development In Early Childhood: Implications For Development **Credit Hours: 3**

Factors that contribute to atypical development in early childhood, appropriate intervention models and implications of delay on young children's development.

SPED4020 Educating Students With Disabilities Within The Regular Education Environment **Credit Hours: 2**

Focus on the classroom teacher's role in the development and modification of environment, curriculum and instruction to enable students with disabilities to be educated within the typical educational environment.

Prerequisites: UPDV FOR MIN. SCORE OF 1

SPED4030 Educating Students With Disabilities In The Middle Grades **Credit Hours: 3**

Focus on the teacher's role in middle age grade classrooms in the development and modification of environment curriculum and instruction to enable students with disabilities to be educated within an inclusive educational environment. Course must be taken concurrently with CI 4200.

Prerequisites: UPDV FOR MIN. SCORE OF 1

SPED4060 Specialized Intervention In Infancy And Early Childhood **Credit Hours: 4**

Atypical infant, toddler and early childhood development examined. Intervention strategies in home, school and specialized environments, which are family-centered and developmentally appropriate, will be addressed. Forty (40) clock hour practicum required.

Prerequisites: UPDV FOR MIN. SCORE OF 1

SPED4070 Specialized Intervention In Infancy And Early Childhood **Credit Hours: 3**

Atypical infant, toddler and early childhood development examined. Intervention strategies in home, school and specialized environments, which are family-centered and developmentally appropriate, will be addressed. 20 clock hour practicum required.

SPED4080 Curriculum Adaptations & Strategies In Early Childhood Education **Credit Hours: 3**

Curriculum models and intervention strategies which facilitate the cognitive, academic, social, language, self-help and lay skills of children with disabilities in preschool and primary grades will be examined.

Prerequisites: UPDV FOR MIN. SCORE OF 1

SPED4100 Field Practicum With Students With Mild/Moderate Educational Needs **Credit Hours: 3-4**

This course must be taken with SPED 4110 or SPED 4370. The purpose is to implement strategies and techniques for teaching students with mild and moderate educational needs. Students will have the opportunity to work in educational settings with experienced teachers. One hundred sixty hours of required field.

Prerequisites: UPDV FOR MIN. SCORE OF 1

SPED4110 Curriculum And Methodology For Students With Moderate Educational Needs **Credit Hours: 3**

This course focuses on community-referenced functional curricula approaches to teaching students with moderate educational needs. Topics include inclusionary activities, community-based instruction, social skills.

Prerequisites: UPDV FOR MIN. SCORE OF 1

SPED4120 Curriculum And Methodology For Students With Intensive Educational Needs **Credit Hours: 3**

Examination of appropriate curriculum models, instructional strategies and adaptations, and related behavior problems for students with intensive education needs. A transdisciplinary team approach is explored.

Prerequisites: UPDV FOR MIN. SCORE OF 1

SPED4130 Field Practicum With Students With Moderate/Intensive Educational Needs **Credit Hours: 4**

This course must be taken concurrently with SPED 4110 and 4120 to implement strategies and techniques in applied settings for teaching students with moderate to intensive educational needs. Through this course students gain experience working with persons with moderate to intensive needs. One hundred sixty hours of required field.

Prerequisites: UPDV FOR MIN. SCORE OF 1

SPED4150 Practicum For Teaching Students Who Are Moderately To Severely Developmentally Delayed **Credit Hours: 1**

This course must be taken with SPED 4160 to implement strategies and techniques for teaching students with moderate to severe developmental delays the applied settings. Forty hours of required field.

SPED4170 Working With Adults With Disabilities In Community Setting **Credit Hours: 3**

Study of issues faced by adults with severe and multiple disabilities and their families. Emphasis on supported employment, residential options, self-determination, recreation and quality of life issues. Field experience required.

SPED4220 Diagnostic And Prescriptive Teaching Students With Disabilities **Credit Hours: 4**

Exploration of the development of visual, auditory and tactile-kinesthetic learning modalities and implications for social and academic learning with curricular consideration for math and language arts. Field experience required.

SPED4230 Field Practicum For Diagnostic And Prescriptive Teaching **Credit Hours: 2**

Provides opportunities for field experience to use and refine the teaching of basic skills presented in SPED 4220. Eighty hours of field required. Must be taken concurrently with SPED 4220.

SPED4240 Teaching Phonics, Contextual Reading And Writing To Learners With Special Needs **Credit Hours: 3**

Methods for teaching reading and writing to diverse learners. Emphasis on individualized and small-group approach using structured, explicit phonics in a balanced literacy program. Twenty-four hours of field required.

SPED4250 Teaching Career And Vocational Skills To Youths With Disabilities **Credit Hours: 3**

This course covers career and vocational education activities for youths with disabilities. Special emphasis is placed on developing and implementing an Individual Transition Plan (ITP) and coordination with adult service providers.

Prerequisites: UPDV FOR MIN. SCORE OF 1

SPED4260 Family And Professional Partnership In Special Education **Credit Hours: 3**

Effective parent and professional partnerships will be explored. Interpersonal communication skills, legal issues, effective models for home-school communication, and differences in culture, values and family expectations will be discussed.

Prerequisites: UPDV FOR MIN. SCORE OF 1

SPED4310 Learning And Behavior Problems Of Children **Credit Hours: 4**

The purpose of this course is to present causes and characteristics of learning and behavioral problems. Emphasis of course: (a)theoretical models and considerations, (b)techniques of instruction and (3) the IEP.

SPED4320 Field Practicum For Learning And Behavior Problems **Credit Hours: 1**

Provides opportunities to use, refine and implement strategies for working with persons with specific learning disabilities presented in SPED 4310. Forty hours of field required. Taken concurrently with SPED 4310.

SPED4330 Child Study Institute: Ebd **Credit Hours: 1**

Provides educational settings for preservice teachers to practice effective behavioral/academic managing of children and youth experiencing emotional stress/trauma. Thirty hours of field required.

SPED4340 Effective Management Of Students With Special Needs In Educational Settings **Credit Hours: 3**

Techniques for managing student behavior. Topics include analyzing environments and problems, implementing and evaluating interventions, data collection and analysis, and handling aggression and noncompliance. Case-backed approach. Integrated field component required.

Prerequisites: UPDV FOR MIN. SCORE OF 1

SPED4350 Advanced Methods In Learning Disabilities **Credit Hours: 3**

An in-depth study of instructional methods and strategies for persons with learning disabilities. The focus will be on organization, study skills and self-advocacy strategies.

SPED4360 Clinical Practice In Specific Learning Disabilities **Credit Hours: 1**

Provides students with supervised practice in developing and implementing learning strategies and study skills for persons with learning problems. Required 15 hours instructional practice with weekly meetings with supervisors/instructors.

SPED4370 Curriculum And Methods For Students With Mild Educational Needs **Credit Hours: 3**

Study of causes and characteristics of mild disorders. Discussion will be on theoretical considerations as well as intervention approaches pertinent to the school and clinic setting. Taken concurrently with SPED 4100 and SPED 4110.

Prerequisites: UPDV FOR MIN. SCORE OF 1

SPED4480 Integrated Field Experience: Best Practice **Credit Hours: 5**

SPED4510 Instruction Of Students With Physical And Other Health Impairments **Credit Hours: 3**

Appropriate curriculum models, learning objectives and teaching strategies for students with physical or health impairing conditions are examined. Modification of materials, assessment options and alternative response modes will be discussed.

SPED4600 Professional Reflective Seminar **Credit Hours: 3**

This seminar is taken concurrently with student teaching/internship. Students will evaluate their behavior in relation to the classroom environment. The students will develop alternative strategies in the educational setting.

Prerequisites: UPDV FOR MIN. SCORE OF 1

SPED4620 Linguistic Diversity Issues In Speech-Language Pathology **Credit Hours: 1**

Explores the relationship of disorders of communication with the concept of community language as it impacts language development in children.

SPED4630 Collaboration For The Speech-Language Pathologist **Credit Hours: 1**

Develops an understanding of the roles and expertise of the professionals; enhances skills which benefit the communicatively disordered client by contributing to diagnostic and intervention terms.

Prerequisites: UPDV FOR MIN. SCORE OF 1

SPED4800 Introduction to Vision Impairment and Blindness **Credit Hours: 3**

This course covers the anatomy and physiology of the eye, visual impairments and their implication for learning, working and independent living, as well as general issues and concepts related to blindness, the blind and the visually impaired.

Prerequisites: SPED 2040 FOR LEVEL UG WITH MIN. GRADE OF D- AND SPED 2910 FOR LEVEL UG WITH MIN. GRADE OF D- AND UPDV FOR MIN. SCORE OF 1

SPED4810 Implications Of Low Vision **Credit Hours: 3**

This course covers low vision conditions as well as instruction of persons with low vision. Advantages and disadvantages of specialized equipment are discussed alongside strategies for instruction. Rehearsal with the equipment is required.

Prerequisites: UPDV FOR MIN. SCORE OF 1

SPED4820 Introduction to Research in Vision **Credit Hours: 3-5**

Exposes undergraduate vision students to basic research skills and enables them to conduct research in areas of interests.

Prerequisites: SPED 2040 FOR LEVEL UG WITH MIN. GRADE OF D- AND SPED 2910 FOR LEVEL UG WITH MIN. GRADE OF D-

SPED4830 Assessment in Vision **Credit Hours: 3-5**

Covers general assessment in special education but emphasizes assessment vision. This emphasis allows students to critique and administer vision assessment tools.

Prerequisites: SPED 2040 FOR LEVEL UG WITH MIN. GRADE OF D- AND SPED 2910 FOR LEVEL UG WITH MIN. GRADE OF D-

SPED4870 Education Of The Blind And Visually Impaired **Credit Hours: 3**

The course focuses on methods of instruction of the blind and visually impaired in different settings; cultural diversity, instruction of the blind with additional disabilities, and various types of assessments and methodologies for curriculum adaptation are addressed.

SPED4880 Independence Skills and Technologies for the Blind and Visually Impaired **Credit Hours: 3**

This course focuses on the general independence of persons who are blind or visually impaired. Covered are skills and strategies for independent living, adaptive technology, and orientation and mobility skills for the blind and visually impaired.

Prerequisites: SPED 2040 FOR LEVEL UG WITH MIN. GRADE OF D- AND SPED 2910 FOR LEVEL UG WITH MIN. GRADE OF D- AND UPDV FOR MIN. SCORE OF 1

SPED4900 Seminar In Special Education **Credit Hours: 1-5**

Seminar provides students with the opportunity to explore, as a group, specific topics with a faculty member. Current issues in the area of Special Education will be the focus.

SPED4910 Directed Research In Special Education **Credit Hours: 1-5**

Directed research provides students the opportunity to explore specific topics and develop individual research with a faculty member. Current questions in the area of Special Education will be the focus.

SPED4920 Readings In Special Education **Credit Hours: 1-5**

Individual Readings is designed to provide students with opportunities to examine literature related to specific issues. The student works under the direction of staff in the Department of Special Education Services.

SPED4930 Student Teaching In Special Education **Credit Hours: 4-12**

Planned field experience in public school classrooms under the direction of University supervisors. Full responsibility for the classroom is expected by the end of the student teaching experience.

Prerequisites: UPDV FOR MIN. SCORE OF 1

SPED4940 Internship/Externship In Special Education **Credit Hours: 4-12**

Provides advanced undergraduate students with supervised practicum experiences at off-campus site, including schools, hospitals, rehabilitation clinics, work training sites and other community sites where persons with disabilities are served.

Prerequisites: UPDV FOR MIN. SCORE OF 1

SPED4980 Special Topics In Special Education **Credit Hours: 1-5**

An advanced course for undergraduate majors in special education or majors in related fields covering an important area of special education. Student may repeat this course under different section numbers.

SPED4990 Independent Study - Special Education **Credit Hours: 1-5**

Individual study provides students with opportunities to work individually on issues under the direction of department of Special Education Services faculty. The student meets with instructor without formal classes.

SPED5000 Issues In Special Education **Credit Hours: 3**

Examination of causes and characteristics, identification procedures, and potential of learners who significantly deviate from the norm mentally, physically and behaviorally. Issues related to services for persons with disabilities will be studied.

SPED5010 Atypical Development In Early Childhood: Implications For Development **Credit Hours: 3**

Factors that contribute to atypical development in early childhood, appropriate intervention models and implications of delay on young children's development.

SPED5080 Curriculum Adaptations and Strategies in Early Childhood Education **Credit Hours: 3**

[3 hours] Early childhood development, including learning and behavioral characteristics examined focusing on implications of developmental delay and risk. Implications for IEP-based intruction explored. Strategies that support inclusion descussed. Prerequisite: CIEC 5000, EDP 5210, SPED 5010.

SPED5120 Students With Special Needs: Developmental And Educational Implication **Credit Hours: 3**

In-depth study of personality, psychological and physical development, and educational needs of atypical children: including current research issues in areas of social, legal and environmental aspects of exceptional populations.

SPED5150 Advanced Practicum For Teaching Students With Moderate Educational Needs **Credit Hours: 1**

This course is taken with SPED 5160 to apply strategies and techniques for teaching students with moderate educational needs. Forty hours of required field.

SPED5160 Advanced Instructional Methods For Teaching Students With Moderate Educational Needs **Credit Hours: 3**

This course focuses on a community-referenced functional curricula approach to teaching children and youths with moderate to severe delays. An in-depth study of inclusionary activities, community-based instruction, social skills.

SPED5170 Supporting Youths And Adults With Disabilities Living And Working In The Community **Credit Hours: 3**

In-depth study of issues faced by adults with severe and multiple disabilities and their families. Emphasis on supported employment, residential options, self-determination, recreation and quality of life issues. Field experience required.

SPED5180 Advanced Instructional Methods For Teaching Students With Intensive Educational Needs Credit Hours: 3

An in-depth examination of appropriate curriculum models, instructional strategies and adaptations, and related behavior problems for students with severe and multiple disabilities. A transdiciplinary team approach is explored.

SPED5190 Advanced Practicum For Students With Intensive Needs Credit Hours: 1

This course is taken with SPED 5180 to apply strategies and techniques for teaching students with intensive needs. Forty field hours are required.

SPED5220 Research And Practice In Teaching Phonics, Reading And Writing To Students With Special Needs Credit Hours: 3

Current trends and issues in teaching reading and writing to students with disabilities. Examination of research supporting various methods. Application of research-based methods into practical strategies for classroom implementation. Twenty-four hours of field required.

SPED5230 Advanced Field Practicum In Diagnostic And Prescriptive Teaching Credit Hours: 1

Provides the laboratory to rehearse and refine the teaching skills presented in SPED 5/7220. Required of persons seeking initial special education certification. Forty field hours required. Taken concurrently with SPED 5220.

SPED5250 Career And Vocational Education For Students With Disabilities **Credit Hours: 3**

This course covers career and vocational education activities for youths with disabilities. Special emphasis placed on developing and implementing an Individual Transition Plan (ITP) and coordination with adult service providers.

SPED5260 Family And Professional Relations In Special Education **Credit Hours: 3**

Effective parent and professional partnerships will be explored. Interpersonal communication skills, legal issues, effective models for home-school communication, and differences in culture, values and family expectations will be discussed.

SPED5270 Team Models And Community Networking In Early Intervention **Credit Hours: 3**

Theoretical and conceptual bases of instruction for students with mild disabilities. Analysis of a range of intervention models.

SPED5280 Management Of The Learning Environment In Early Childhood Special Education **Credit Hours: 3**

Aspects of quality environments, in the home and in early childhood centers for young children with special needs. Of particular interest is identifying characteristics of natural environments that promote positive child outcomes.

SPED5300 Teaching Literacy Skills To Adolescents With Disabilities **Credit Hours: 3**

This course will review existing theories and research regarding teaching literacy to students with disabilities in 4th through 12th grades (those who did not learn to read by 3rd grade).

SPED5310 Advanced Instructional Methods For Teaching Students With Mild Educational Needs **Credit Hours: 3**

A study of the research on theoretical models and considerations about the causes and characteristics of learning and behavioral problems. Emphasis of course: (1) techniques of instruction and (2) the IEP process.

SPED5320 Advanced Field Practicum For Students With Mild Educational Needs **Credit Hours: 1**

Provides opportunities for field experience to use and refine the strategies for persons with mild disabilities presented in SPED 5310. Forty hours of field required.

SPED5330 Advanced Child Study Institute: Ebd **Credit Hours: 1**

Provides quality educational settings to inservice teachers to practice effective behavioral and academic managing of children and youth experiencing continuous emotional stress and trauma.

SPED5340 Advanced Behavior Management **Credit Hours: 3**

This course provides training inservice teachers to become managers of intra-communication and interpersonal relationships in diverse special education settings. Nonviolent Crisis Prevention/Intervention (CPI) training required.

SPED5510 Curriculum And Teaching Strategies: Physical And Other Health Impairments **Credit Hours: 3**

Appropriate curriculum models, learning objectives and teaching strategies for students with physical or health impairing conditions are examined. Modification of materials, assessment options and alternatives response modes will be discussed.

SPED5600 ADVANCED PROFESSIONAL REFLECTIVE SEMINAR **Credit Hours: 3**

The focus of this seminar is on teaching as a profession. Student will complete The Student Teaching Portfolio Project, a performance-based assessment approach to licensure and professional development. Additionally, this internship seminar provides a forum for group sharing, reflection, professional issues, ethical behaviors, interview processes, and career development.

Corequisites: SPED6940

SPED5800 Practical And Theoretical Implication Of Vision Impairment **Credit Hours: 3**

A study of the research on the anatomy and physiology of the eye, visual impairments and the practical implication for learning, working and independent living.

SPED5810 Low Vision: Theory & Research **Credit Hours: 3**

An in-depth study of the field of low vision. Conditions, equipment and instruction will be reviewed and analyzed for their implication to the field of vision.

SPED5870 Educational And Curriculum Issues Of Persons With Visual Impairment **Credit Hours: 3**

This course focuses on the practical and philosophical pedagogy of teaching persons who are blind or visually impaired. Research on spectrum of learning environments is explored.

SPED5880 Advanced Study Of Technology And Independent Daily Living For The Persons With Visual Impair **Credit Hours: 3**

This course includes the research regarding technology, strategies and an analytical evaluation of the independent living of the blind and visually impaired.

SPED5950 Workshop In Special Education **Credit Hours: 1-5**

A workshop developed around topics of interest and concern for in-service teachers and other education personnel. Practical application of workshop topics will be emphasized.

SPED5980 Special Topics In Special Education **Credit Hours: 1-5**

An advanced course for graduate students in special education or related fields. Topics are selected based on needs of the population. Student may repeat this course under different section numbers.

SPED5990 Independent Study In Special Education **Credit Hours: 1-5**

Individual study provides graduate students with opportunities to work individually on professional problems with faculty of the Depart of Special Education Services. Individual meetings with sponsoring faculty are held.

SPED6070 Curriculum Models And Intervention Strategies In Early Childhood Special Education **Credit Hours: 3**

Atypical infant, toddler and early childhood development will be examined. Specialized intervention techniques, their research and practice base and appropriate curriculum models will be explored. 20 clock hour practicum required.

SPED6080 Clinical And Educational Evaluation Of Students With Disabilities **Credit Hours: 3**

An in-depth study of instruments used by school psychologists and classroom teachers to access and evaluate students. The diagnostic uses and the understanding of the results will be the focus.

SPED6220 Collaboration For Inclusive Schools **Credit Hours: 3**

Provides information and competencies to develop, implement and evaluate collaborative programs. Educators will enhance their ability to collaborate so that they can better meet the needs of their students.

SPED6250 Issues And Research In Transitin And Post-Secondary Outcomes For Student With Disabilities **Credit Hours: 3**

In-depth study of transition issues and outcomes focusing on: a) best practices, b) the roles and responsibilities of a transition specialist, c) inter-agency collaboration, d) team building, and e) program development, implementation and evaluation.

SPED6350 Educational And Instructional Implications In Specific Learning Disabilities **Credit Hours: 3**

Students will examine current trends in research and program development in Specific Learning Disabilities. The focus will be on learning and study skills: their implication in the development of learning.

SPED6360 Clinical Practicum: Learning Strategies For Students With Specific Learning Disabilities **Credit Hours: 1**

Provides advanced graduate student with supervised practice in developing and implementing strategies and study skills for persons with learning problems. Required l5 hours instructional practice and weekly meetings with supervisors.

SPED6410 Theory And Research: Emotional Behavioral Disorders **Credit Hours: 3**

This course provides in-depth readings on problems of emotionally and behaviorally disturbed/disordered children and youth. Intense study on two levels: (1) theoretical considerations and (2) treatments pertinent to diverse educational settings.

SPED6420 Public School Emotional Behavior Disorders **Credit Hours: 1**

This course provides supervised practice in classroom participation with students identified as Emotionally Behaviorally Disturbed/Disordered. Public School settings include: self-contained, resource, transition, mainstreamed and consultative-collaborative teaching roles.

SPED6440 Teaching Children And Youth With Emotional Behavior Disorders **Credit Hours: 3**

This course provides evaluation and application techniques of research based methodologies for teaching students with emotional behavioral Disorders/disturbances. Psycho-social educational best practices within the least restrictive environment are presented.

SPED6470 Theory And Research: Autism **Credit Hours: 3**

This course provides in-depth readings in the field of autism. The course includes intense study on two levels: (1) theoretical considerations and (2) treatment approaches pertinent to populations with autism.

SPED6480 Teach Youth/Child With Autism **Credit Hours: 3**

This course provides research based methodologies for understanding and teaching children and youth with autism. Psycho-Social Educational best practices within the least restrictive environment are presented.

SPED6720 Advanced Language And Speech For Persons With Hearing Impairments **Credit Hours: 3**

Clinical evaluation model in descriptive linguistics and interaction in the use of a process approach to developing language with children with hearing impairments. Includes relation of hearing impairment to language development.

SPED6730 Synthesis Of Principles Of Educating Children With Hearing Impairments **Credit Hours: 3**

Historical, Philosophical, psychological and social aspects of educating the hearing impaired. Factors affecting successful public school instruction are covered.

SPED6740 Curriculum And Assessment Issues Of The Education Of Persons With Hearing Impairments **Credit Hours: 3**

Principles of educational assessment and curriculum development for students with hearing impairment. Assessment and curriculum issues will be discussed as they relate to current research trends in hearing impairment.

SPED6900 Independent Research In Special Education **Credit Hours: 1-5**

Independent Research provides opportunities to work on individual research under the direction of faculty. The student meets with the instructor at intervals and conducts research without formal class meeting.

SPED6920 Master's Research Project In Special Education **Credit Hours: 1-5**

The master's project is an individually designed product which meets the final activity requirement for completion of the masters degree.

SPED6930 Seminars In Special Education **Credit Hours: 1-5**

Seminars will consider problems and provide advanced study in the field of Special Education. A student may register for more than one seminar during a graduate program.

SPED6940 Internship/Externship In Special Education **Credit Hours: 1-8**

Provides the advanced graduate student with supervised practicum experiences at an off-campus site; including schools, hospitals, agencies, rehabilitation clinics, work training sites and other community sites where persons with disabilities are served.

SPED6960 Master Research Thesis In Special Education **Credit Hours: 1-5**

The master's thesis is an individually designed research study which meets the final activity requirement for completion of the master's degree.

SPED6990 Independent Study In Special Education **Credit Hours: 1-5**

Individual study provides advanced graduate students opportunities to work individually on professional problems with faculty of the Department of Special Education Services. Individual meetings with sponsoring faculty are held.

SPED7000 Issues In Special Education **Credit Hours: 3**

Examination of causes and characteristics, identification procedures, and potential of learners who significantly deviate from the norm mentally, physically and behaviorally. Issues related to services for persons with disabilities will be studied.

SPED7120 Students With Special Needs: Developmental And Educational Implication **Credit Hours: 3**

In-depth study of personality, psychological and physical development, and educational needs of atypical children: including current research issues in areas of social, legal and environmental aspects of exceptional populations.

SPED7150 Advanced Practicum For Teaching Students With Moderate Educational Needs **Credit Hours: 1**

This course is taken with SPED 5160 to apply strategies and techniques for teaching students with moderate educational needs. Forty hours of required field.

SPED7160 Advanced Instructional Methods For Teaching Students With Moderate Educational Needs **Credit Hours: 3**

This course focuses on a community-referenced functional curricula approach to teaching children and youths with moderate to severe delays. An in-depth study of inclusionary activities, community-based instruction, social skills.

SPED7170 Supporting Youths And Adults With Disabilities Living And Working In The Community **Credit Hours: 3**

In-depth study of issues faced by adults with severe and multiple disabilities and their families. Emphasis on supported employment, residential options, self-determination, recreation and quality of life issues. Field experience required.

SPED7180 Advanced Instructional Methods For Teaching Students With Intensive Educational Needs **Credit Hours: 3**

An in-depth examination of appropriate curriculum models, instructional strategies and adaptations, and related behavior problems for students with severe and multiple disabilities. A transdiciplinary team approach is explored.

SPED7190 Advanced Practicum For Students With Intensive Needs **Credit Hours: 1**

This course is taken with SPED 7180 to apply strategies and techniques for teaching students with intensive needs. Forty field hours are required.

SPED7220 Research And Practice In Teaching Phonics, Reading And Writing To Students With Special Needs **Credit Hours: 3**

Current trends and issues in teaching reading and writing to students with disabilities. Examination of research supporting various methods. Application of research-based methods into practical strategies for classroom implementation. Twenty-four hours of field required.

SPED7230 Advanced Field Practicum In Diagnostic And Prescriptive Teaching **Credit Hours: 1**

Provides the laboratory to rehearse and refine the teaching skills presented in SPED 5/7220. Required of persons seeking initial special education certification. Forty field hours required. Taken concurrently with SPED 7220.

SPED7250 Career And Vocational Education For Students With Disabilities **Credit Hours: 3**

This course covers career and vocational education activities for youths with disabilities. Special emphasis placed on developing and implementing an Individual Transition Plan (ITP) and coordination with adult service providers.

SPED7260 Family And Professional Relations In Special Education **Credit Hours: 3**

Effective parent and professional partnerships will be explored. Interpersonal communication skills, legal issues, effective models for home-school communication, and differences in culture, values and family expectations will be discussed.

SPED7270 Team Models And Community Networking In Early Intervention **Credit Hours: 3**

Focus of course is on effective service coordination strategies in early intervention and early childhood special education. Issues related to peer coaching and collaborative consultation also will be examined.

SPED7280 Management Of The Learning Environment In Early Childhood Special Education **Credit Hours: 3**

Aspects of quality environments, in the home and in early childhood centers for young children with special needs. Of particular interest is identifying characteristics of natural environments that promote positive child outcomes.

SPED7310 Advanced Instructional Methods For Teaching Students With Mild Educational Needs **Credit Hours: 3**

Theoretical and conceptual bases of instruction for students with mild disabilities. Analysis of a range of intervention models.

SPED7320 Advanced Field Practicum For Students With Mild Educational Needs **Credit Hours: 1**

Provides opportunities for field experience to use and refine the strategies for persons with mild disabilities presented in SPED 7310. Forty hours of field required.

SPED7330 Advanced Child Study Institute: Ebd **Credit Hours: 1**

Provides quality educational settings to inservice teachers to practice effective behavioral and academic managing of children and youth experiencing continuous emotional stress and trauma.

SPED7340 Advanced Behavior Management **Credit Hours: 3**

This course provides training inservice teachers to become managers of intra-communication and interpersonal relationships in diverse special education settings. Nonviolent Crisis Prevention/Intervention (CPI) training required.

SPED7510 Curriculum And Teaching Strategies: Physical And Other Health Impairments **Credit Hours: 3**

Appropriate curriculum models, learning objectives and teaching strategies for students with physical or health impairing conditions are examined. Modification of materials, assessment options and alternatives response modes will be discussed.

SPED7800 Practical And Theoretical Implication Of Vision Impairment **Credit Hours: 3**

A study of the research on the anatomy and physiology of the eye, visual impairments and the practical implication for learning, working and independent living.

SPED7810 Low Vision: Theory & Research **Credit Hours: 3**

An in-depth study of the field of low vision. Conditions, equipment and instruction will be reviewed and analyzed for their implication to the field of vision.

SPED7880 Advanced Study Of Technology And Independent Daily Living For The Persons With Visual Impair **Credit Hours: 3**

This course includes the research regarding technology, strategies and an analytical evaluation of the independent living of the blind and visually impaired.

SPED7950 Workshop In Special Education **Credit Hours: 1-5**

A workshop developed around topics of interest and concern for in-service teachers and other education personnel. Practical application of workshop topics will be emphasized.

SPED7980 Special Topics In Special Education **Credit Hours: 1-5**

An advanced course for graduate students in special education or related fields. Topics are selected based on needs of the population. Student may repeat this course under different section numbers.

SPED7990 Independent Study In Special Education **Credit Hours: 1-5**

Individual study provides graduate students with opportunities to work individually on professional problems with special education faculty. Individual meetings with sponsoring faculty are held.

SPED8070 Curriculum Models And Intervention Strategies In Early Childhood Special Education **Credit Hours: 3**

Atypical infant, toddler and early childhood development will be examined. Specialized intervention techniques, their research and practice base, and appropriate curriculum models will be explored. 20 clock hour practicum required.

SPED8080 Clinical And Educational Evaluation Of Students With Disabilities **Credit Hours: 3**

An in-depth study of instruments used by school psychologists and classroom teachers to access and evaluate students. The diagnostic uses and the understanding of the results will be the focus.

SPED8220 Collaboration For Inclusive Schools **Credit Hours: 3**

Provides information and competencies to develop, implement and evaluate collaborative programs. Educators will enhance their ability to collaborate so that they can better meet the needs of their students.

SPED8250 Issues And Research In Transition And Post-Secondary Outcomes For Students With Disabilities **Credit Hours: 3**

In-depth study of transition issues and outcomes focusing on: a) best practices, b) the roles and responsibilities of a transition specialist, c) inter-agency collaboration, d) team building, and e) program development, implementation and evaluation.

SPED8350 Educational And Instructional Implications In Specific Learning Disabilities **Credit Hours: 3**

Students will examine current trends in research and program development in Specific Learning Disabilities. The focus will be on learning and study skills: their implication in the development of learning.

SPED8360 Clinical Practicum: Learning Strategies For Students With Specific Learning Disabilities **Credit Hours: 1**

Provides advanced graduate student with supervised practice in developing and implementing strategies and study skills for persons with learning problems. Required l5 hours instructional practice and weekly meetings with supervisors.

SPED8410 Theory And Research: Emotional Behavioral Disorders **Credit Hours: 3**

This course provides in-depth readings on problems of emotionally and behaviorally disturbed/disordered children and youth. Intense study on two levels: (1) theoretical considerations and (2) treatments pertinent to diverse educational settings.

SPED8420 Public School Emotional Behavior Disorders **Credit Hours: 1**

This course provides supervised practice in classroom participation with students identified as Emotionally Behaviorally Disturbed/Disordered. Public School settings include: self-contained, resource, transition, mainstreamed and consultative-collaborative teaching roles.

SPED8440 Teaching Children And Youth With Emotional Behavior Disorders **Credit Hours: 3**

This course provides evaluation and application techniques of research based methodologies for teaching students with emotional behavioral Disorders/disturbances. Psycho-social educational best practices within the least restrictive environment are presented.

SPED8470 Theory And Research: Autism **Credit Hours: 3**

This course provides in-depth readings in the field of autism. The course includes intense study on two levels: (1) theoretical considerations and (2) treatment approaches pertinent to populations with autism.

SPED8480 Teach Youth/Child With Autism **Credit Hours: 3**

This course provides research based methodologies for understanding and teaching children and youth with autism. Psycho-Social Educational best practices within the least restrictive environment are presented.

SPED8720 Advanced Language And Speech For Persons With Hearing Impairments **Credit Hours: 3**

Clinical evaluation model in descriptive linguistics and interaction in the use of a process approach to developing language with children with hearing impairments. Includes relation of hearing impairment to language development.

SPED8730 Synthesis Of Principles Of Educating Children With Hearing Impairments **Credit Hours: 3**

Historical, Philosophical, psychological and social aspects of educating the hearing impaired. Factors affecting successful public school instruction is covered.

SPED8740 Curriculum And Assessment Issues Of The Education Of Persons With Hearing Impairments **Credit Hours: 3**

Principles of educational assessment and curriculum development for students with hearing impairment. Assessment and curriculum issues will be discussed as they relate to current research trends in hearing impairment.

SPED8900 Independent Research In Special Education **Credit Hours: 1-5**

Independent Research provides opportunities to work on individual research under the direction of faculty. The student meets with the instructor at intervals and conducts research without formal class meeting.

SPED8930 Seminars In Special Education **Credit Hours: 1-5**

Seminars will consider problems and provide advanced study in the field of Special Education. A student may register for more than one seminar during a graduate program.

SPED8940 Internship/Externship In Special Education **Credit Hours: 1-8**

Provides the advanced graduate student with supervised practicum experiences at an off-campus site; including schools, hospitals, agencies, rehabilitation clinics, work training sites and other community sites where persons with disabilities are served.

SPED8960 Doctoral Dissertation In Curriculum & Instruction **Credit Hours: 1-12**

The doctoral dissertation is an original scholarly product required of all students completing the doctoral degree in Special Education Services.

SPED8990 Independent Study In Special Education **Credit Hours: 1-5**

Individual study provides advanced graduate students opportunities to work individually on professional problems with faculty of the Department of Special Education Services. Individual meetings with sponsoring faculty are held.

SPSY5030 Role And Function Of The School Psychologist **Credit Hours: 3**

An introduction to issues in school psychology and the differing roles and responsibilities of the school psychologist as a member of the school staff. Includes onsite observations in regular and special classrooms. Legal and ethical issues as well as a history of the profession will be included.

SPSY5040 Legal And Ethical Issues For School Psychologists And Counselors **Credit Hours: 3**

Covers the ethical standards and legal regulation in school psychology and school counseling. Ethical standards, litigation and legal regulation are examined in regard to professional practice.

Prerequisites: SPSY 5030 FOR LEVEL GR WITH MIN. GRADE OF D-

SPSY5060 School Observation **Credit Hours: 2**

Orientation to the organization of schools for school psychology students without teaching experience. Students will serve a wide range of educational settings and integrate their observations through discussion and readings.

SPSY5170 Consultation I: Theories And Techniques **Credit Hours: 3**

Addresses the theories and techniques of collaborative problem solving; includes an examination of variables affecting the consultation process.

SPSY5300 Psychoeducational Assessment And Interventions I **Credit Hours: 4**

Training in direct and standardized academic assessment techniques and in designing appropriate interventions.

Prerequisites: SPSY 5030 FOR LEVEL GR WITH MIN. GRADE OF D-

SPSY5310 Psychoeducational Assessment And Interventions II **Credit Hours: 4**

Training indirect and standardized assessment techniques of preschool and low-incidence population, and designing appropriate interventions. Introduces functional behavior assessment.

Prerequisites: SPSY 5300 FOR LEVEL GR WITH MIN. GRADE OF B (MAY BE TAKEN CONCURRENTLY)

SPSY5980 Special Topics In Counseling, Mental Health, And School Psychology **Credit Hours: 1-3**

This course is open to a graduate student pursuing a master's, specialist or doctoral degree program and may be a requirement of that program.

SPSY6260 Developmental Child Psychopathology **Credit Hours: 3**

Examination of disorders of childhood adolescence from an ecological perspective, focusing on understanding characteristics and causes, diagnosis both medical and educational, and identification of interventions for school and home.

SPSY6990 Master's Independent Study **Credit Hours: 1-4**

Provides students the opportunity to work independently on professional problems under the direction of a faculty member in the Department of Counseling and Mental Health Services.

SPSY7170 Consultation I: Theories And Techniques **Credit Hours: 3**

Addresses the theories and techniques of collaborative problem solving; includes an examination of variables affecting the consultation process

SPSY7180 Consultation II: School and Home Collaboration **Credit Hours: 3**

Advanced theory and practice in consultation. Emphasis on system-level techniques for developing and sustaining home and school collaboration. Includes study of prevention programs for promoting student academic success.

Prerequisites: SPSY 5170 FOR LEVEL GR WITH MIN. GRADE OF B OR SPSY 7170 FOR LEVEL GR WITH MIN. GRADE OF D- (MAY BE TAKEN CONCURRENTLY)

SPSY7190 Consulting III:School-Community **Credit Hours: 3**

Advanced theory and practice in system-level consultation. Emphasis on techniques for developing and sustaining school and community collaboration. Includes study of prevention programs promoting student mental health and crisis intervention.

SPSY7260 Developmental Child Psychopathology **Credit Hours: 3**

Examination of disorders of childhood adolescence from an ecological perspective, focusing on understanding characteristics and causes, diagnosis both medical and educational, and identification of interventions for school and home.

SPSY7310 Psychoeducational Assessment And Interventions II **Credit Hours: 4**

Training indirect and standardized assessment techniques of preschool and low-incidence population, and designing appropriate interventions. Introduces functional behavior assessment.

Prerequisites: SPSY 5300 FOR LEVEL GR WITH MIN. GRADE OF B (MAY BE TAKEN CONCURRENTLY)

SPSY7320 Psychoeducational Assessment And Interventions III **Credit Hours: 4**

Assessment of cognitive and personality functioning of school-age children using standardized tests, and the interpretation of results.

Prerequisites: SPSY 7310 FOR LEVEL GR WITH MIN. GRADE OF B OR SPSY 5310 FOR LEVEL GR WITH MIN. GRADE OF B

SPSY7330 PRACTICA IN SCHOOL PSYCHOLOGY **Credit Hours: 1-4**

Practice in individual evaluation, assessment and intervention design with school age children.

Prerequisites: SPSY 5310 FOR LEVEL GR WITH MIN. GRADE OF B OR SPSY 7310 FOR LEVEL GR WITH MIN. GRADE OF B

SPSY7340 School Psychology Practicum II **Credit Hours: 4**

Practice in individual evaluation, assessment and intervention design, with preschool and other special populations. Includes practice in functional behavioral assessment.

Prerequisites: SPSY 7330 FOR LEVEL GR WITH MIN. GRADE OF B

SPSY7510 Supervision In Counseling And School Psychology **Credit Hours: 3**

Training in supervision models, methods, roles, ethical issues, research and evaluation. Advanced training in consultation.

SPSY7530 Advanced Theories Of Counseling And Consultation **Credit Hours: 4**

Advanced preparation in theory pertaining to the principles and practice of individual counseling, group work and consultation.

SPSY7920 Specialist Research Project **Credit Hours: 1-3**

In this capstone experience, specialist students review the literature, report implications and produce a project which can be applied in school psychology and counseling-related settings.

SPSY7930 Doctoral Research Seminar **Credit Hours: 3**

Advanced preparation in research problems, design and implementation of quantitative and qualitative research and methodology in the fields of counseling and supervision.

SPSY7940 Internship In School Psychology **Credit Hours: 1-8**

Academic year on-the-job experience in a school supervised by a school psychologist with further supervision by the university. Broad range of assessment, consultation and counseling experiences are emphasized.

Prerequisites: SPSY 7330 FOR LEVEL GR WITH MIN. GRADE OF S

SPSY8480 Advanced Training In Professional, Legal, And Ethical Issues **Credit Hours: 3**

Advanced training in contemporary professional, legal and ethical issues that regulate or affect the work of counselors, psychologists and other mental health professionals.

SPSY8930 Advanced Doctoral Seminar **Credit Hours: 3**

This seminar will consider problems and provide advanced study. Open only to advanced graduate students.

SPSY8950 Workshop In Counseling, Mental Health, And School Psychology **Credit Hours: 1-6**

Workshops developed around topics of interest and concern to counselors, school psychologists, or other mental health care professionals. Practical application of topics will be stressed.

SPSY8960 Doctoral Research Dissertation **Credit Hours: 1-12**

Dissertation credit may not total less than 10 semester hours and no greater than 32 hours. A doctoral student may register for such credit in more than one semester.

SPSY8980 Special Topics In Counseling, Mental Health, And School Psychology **Credit Hours: 1-3**

This course is open to a graduate student pursuing a master's, specialist or doctoral degree program and may be a requirement of that program.

SPSY8990 Doctoral Independent Study **Credit Hours: 1-4**

Provides students the opportunity to work independently on professional problems under the direction of a faculty member in the Department of Counseling and Mental Health Services.

STAB1000 Study Abroad **Credit Hours: 0-21**

THR1010 Creative Process **Credit Hours: 3**

Using theatre games and theatrical techniques, students explore the nature of creativity and its relationship to their own processes of creative expression.

THR1030 Stagecraft **Credit Hours: 3**

Introduction to scenic design and construction using the tools and techniques of theatre including properties and scene painting. Lectures, readings and projects with practical laboratory experience.

THR1040 Stage Lighting And Sound **Credit Hours: 3**

Introduction to theory and practice in stage lighting and sound. Students will use lighting and sound tools and equipment in production crews on department productions.

THR1050 Costuming **Credit Hours: 3**

Introduction to the theory and practice of stage costuming. Lectures, readings and projects offer practical laboratory experiences. Students will use tools and equipment of the costume shop on production crews.

THR1100 Introduction To Theatre **Credit Hours: 3**

Introductory survey of the development of theatre and drama from the ancient world to the present day; discussion of representative plays; slides and films complement lectures. (Not recommended or required for majors.)

THR1ELD Theatre Elective-Design/Tech **Credit Hours: 0-5**

THR1ELP **Theatre Elective-Performance** **Credit Hours: 0-5**

THR1ELT **Theatre Elective-Theatre Studi** **Credit Hours: 0-5**

THR2000 **Theatre Practicum** **Credit Hours: 1**

Students will be assigned a crew position for one of the department productions.

THR2200 **Perspectives On Theatre** **Credit Hours: 3**

A study of contemporary theatrical organization and styles; theatre compared with film and television; Broadway, regional and experimental theatre; research skills development; exploration of career opportunities in theatre and related fields.

THR2420 Makeup For The Actor **Credit Hours: 2**

Principles and techniques of makeup for stage. Practical execution of stage makeup problems. Students are required to purchase supplies.

THR2610 Acting I **Credit Hours: 3**

An introduction to the art and craft of acting. Through scene work and improvisation, students learn to use acting terminology, identify dramatic beats, develop character objectives and play actions.

Prerequisites: THR 1010 FOR LEVEL UG WITH MIN. GRADE OF D-

THR2620 Acting II **Credit Hours: 3**

Students are exposed to a range of techniques explicated by primary acting theorists/practitioners, including diagnosis of individual skills, work in voice, movement, textual analysis and scene preparation.

Prerequisites: THR 2610 FOR LEVEL UG WITH MIN. GRADE OF D-

THR2640 Voice And Movement **Credit Hours: 2**

Theory and practice of vocal and physical techniques for the actor. Repeatable for up to 8 hours of credit. (BFA Performance majors should enroll in the course every semester up to the maximum credit.)

THR2990 Special Projects **Credit Hours: 1-3**

Individual study provides a student an opportunity to work independently on a problem of special interest in theatre under the direction of the faculty. (Seminar forms available in the department office.)

THR2ELD Theatre Elective-Design/Tech **Credit Hours: 0-5**

THR2ELP Theatre Elective-Performance **Credit Hours: 0-5**

THR2ELT Theatre Elective-Theatre Studi **Credit Hours: 0-5**

THR3110 World Theatre I **Credit Hours: 3**

Developments and trends in theatre and drama from the ancient world through the Renaissance, including traditional forms of theatre in India, China and Japan.

THR3120 World Theatre II **Credit Hours: 3**

Developments and trends in theatre and drama from the late 17th Century to the present day, including developments in Latin America and Africa.

THR3210 Playwriting **Credit Hours: 3**

Creative writing for the theatre analyzing traditional and contemporary structure and style.

Prerequisites: ENGL 2720 FOR LEVEL UG WITH MIN. GRADE OF D- OR THR 2200 FOR LEVEL UG WITH MIN. GRADE OF D-

THR3410 Stage Lighting Design **Credit Hours: 3**

Principles and theories of lighting design for theatrical productions are explored. Develop skills of script analysis, light study, light plot and related graphics for conceptualization and communication of design ideas.

Prerequisites: THR 1040 FOR LEVEL UG WITH MIN. GRADE OF D-

THR3440 Stage Design **Credit Hours: 3**

Theory and principles of scenic design for stage are the focus. Conceptualization and communication of design ideas are explored through renderings, models, ground plans and elevations. Students are required to purchase supplies.

Prerequisites: THR 1030 FOR LEVEL UG WITH MIN. GRADE OF D-

THR3470 Theatre Sound **Credit Hours: 3**

Students study the methods and techniques of sound production and design used in the theatre. Tools and techniques of audio production are used in laboratory recording and mixdown.

Prerequisites: THR 1040 FOR LEVEL UG WITH MIN. GRADE OF D- OR MUS 2270 FOR LEVEL UG WITH MIN. GRADE OF D-

THR3480 Costume Design **Credit Hours: 3**

Principles and theories of costume design for theatrical productions are explored. Develop skills of script analysis, sketching, fabric study and rendering for conceptualization and communication of design ideas. Students are required to purchase supplies.

Prerequisites: THR 1050 FOR LEVEL UG WITH MIN. GRADE OF D-

THR3610 Acting For The Camera **Credit Hours: 3**

Performing dramatic material for camera with an emphasis on the differences between stage and screen performing.

Prerequisites: THR 2620 FOR LEVEL UG WITH MIN. GRADE OF D-

THR3620 Acting: Contemporary Styles **Credit Hours: 3**

Contemporary, nonrealistic theatre requires adjustments for actors trained in the Stanislavski tradition. This course examines the theory and praxis of artists such as Brecht, Artaud, Grotowski, Boal and others.

Prerequisites: THR 2620 FOR LEVEL UG WITH MIN. GRADE OF D-

THR3640 Voice And Diction **Credit Hours: 2**

Theories and practice of vocal techniques for the actor. Diagnosis of individual skills continues work begun in voice and movement.

Prerequisites: THR 2640 FOR LEVEL UG WITH MIN. GRADE OF D-

THR3650 Stage Movement **Credit Hours: 2**

Theories and practice of physical techniques for the actor. Diagnosis of individual skills continues the work begun in voice and movement.

Prerequisites: THR 2610 FOR LEVEL UG WITH MIN. GRADE OF D- OR THR 2640 FOR LEVEL UG WITH MIN. GRADE OF D-

THR3710 Directing I **Credit Hours: 3**

The director's approach to analyzing a script, formulating a production concept and realizing that concept on stage. Discussions and exercises progress to directing scenes or short plays in class.

Prerequisites: (THR 2610 FOR LEVEL UG WITH MIN. GRADE OF D- AND THR 2640 FOR LEVEL UG WITH MIN. GRADE OF D- AND THR 3110 FOR LEVEL UG WITH MIN. GRADE OF D-) OR (THR 2610 FOR LEVEL UG WITH MIN. GRADE OF D- AND THR 2640 FOR LEVEL UG WITH MIN. GRADE OF D- AND THR 3120 FOR LEVEL UG WITH MIN. GRADE OF D-)

THR3800 Production **Credit Hours: 1-3**

Through study and practice the student contributes significantly to department productions. This course is for students who have auditioned for roles or applied for design/tech positions in department productions.

THR3830 Costume Construction **Credit Hours: 1-3**

Through study and practice students contribute significantly as members of the costume shop and wardrobe crew on productions. As a laboratory course students must see instructor to arrange lab time.

THR3ELD Theatre Elective-Design/Tech **Credit Hours: 0-5**

THR3ELP Theatre Elective-Performance **Credit Hours: 0-5**

THR3ELT Theatre Elective-Theatre Studi **Credit Hours: 0-5**

THR4110 Modern American Theatre **Credit Hours: 3**

Developments and trends in the American Theatre since 1945.

THR4130 American Musical Theatre **Credit Hours: 3**

A history of the American musical theatre from the 19th century to the present.

THR4400 Seminar Topics In Design **Credit Hours: 3**

Individual and group investigations of particular topics in all phases of design and technology, i.e. scene painting, advanced design and rendering technique, new technology.

THR4500 Professional Aspects Of Theatre **Credit Hours: 2**

Study of the professional theatre as a business: contracts, unions, the theatre marketplace, preparation of resumes, portfolios, audition pieces, interview.

Prerequisites: THR 2200 FOR LEVEL UG WITH MIN. GRADE OF D-

THR4620 Acting: Historical Styles **Credit Hours: 3**

Advanced training in acting with emphasis on effective vocal and rhetorical techniques and the use of poetic rhythm and imagery in creating a role psychologically as well as physically.

Prerequisites: (THR 2610 FOR LEVEL UG WITH MIN. GRADE OF D- AND THR 2620 FOR LEVEL UG WITH MIN. GRADE OF D- AND THR 2640 FOR LEVEL UG WITH MIN. GRADE OF D-)

THR4700 Majors Seminar **Credit Hours: 1**

Survey of the full range of professional opportunities and practices in Theatre. Students in designated program tracks are instructed in resume, portfolio and interview processes.

THR4900 Special Topics: Theatre And Drama **Credit Hours: 3**

Exploration of a special topic in the history and criticism of theatre and drama - e.g., Modern Theories of Theatre Art or Stanislavski's Heritage or Baroque Theatre Architecture and Its Scenic Conventions.

THR4940 Internship **Credit Hours: 3**

Internship with an approved program, company, or agency in theatre. Students must submit proposal for approval of instructor. (Repeatable for 6 hours credit.)

THR4950 Honors Thesis **Credit Hours: 3**

Research or a creative project on a topic in theatre. Required of all candidates seeking department honors. (Repeatable for 6 hours credit.)

THR4990 Special Projects **Credit Hours: 1-3**

Individual study provides a student an opportunity to work independently on a problem of special interest in theatre under the direction of the faculty.

THR4ELD Theatre Elective-Design/Tech **Credit Hours: 0-5**

THR4ELP **Theatre Elective-Performance** **Credit Hours: 0-5**

THR4ELT **Theatre Elective-Theatre Studi** **Credit Hours: 0-5**

TSOC1500 **Education In A Diverse Society** **Credit Hours: 2**

Introduction to the socio-cultural foundations of schooling in the United States, including purposes of schooling in a multicultural society and the resulting nature of teacher work.

TSOC2000 **Diversity In Contemporary Society** **Credit Hours: 3**

This course analyzes the roles of people in a culturally diverse society through an exploration of issues of race, class, gender, ethnicity and disability.

TSOC2500 Historical-Philosophical Perspectives On Education **Credit Hours: 2**

This course uses history and philosophy as lenses through which to inspect and reflect on the developing role of public schooling in the US from colonial times to the present.

TSOC3000 Schooling And Democratic Society **Credit Hours: 3**

The evolving role of education in the US, including the historical and contemporary relationship of schooling to other educational institutions, groups of people and the process of social change.

TSOC3010 Educating The Reflective Practitioner **Credit Hours: 3**

Emphasizes being and teaching others to be "reflective practitioners" in vocational and avocational endeavors. Coping with changing client circumstances, effective thinking, higher levels of learning and self-renewal are also studied.

TSOC3100 Inquiry And Creative Action **Credit Hours: 3**

Different approaches to problem solving are examined and students use some to complete real-life projects they have designed. Creativity, logical analysis, personal effectiveness and polarity management will be studied.

TSOC3500 Society Culture and History Infuenced Middle Grades **Credit Hours: 3**

TSOC3540 Education And The Construction Of Societies **Credit Hours: 3**

Examines life long conceptual learning tools from several humanity disciplines that help define and frame action on real life problems of a diverse, global nature.

TSOC4000 Socio-Cultural And Historical Influences On U.s. Education **Credit Hours: 3**

The evolving role of education in the US, including the historical and contemporary relationship of schooling to other educational institutions, groups of people and the process of social change.

TSOC4100 Group Processes In Education **Credit Hours: 3**

Investigation of theory, research and individual interactions which undergird effective actions in groups. Group processes and individual-group relationships are emphasized in education, voluntary and business group settings.

TSOC4130 Children And The Law **Credit Hours: 2**

Examines major issues and laws involved in public education and health services, especially the role of advocate for students that the school nurse and other professionals play.

TSOC4150 Education And Community Relations **Credit Hours: 3**

Provides a framework, the analysis skills and the action implementation behaviors for understanding community schools and agencies. Develops skills in project management within the context of understanding and valuing diversity.

TSOC4190 Workshop In Educational Theory & Social Foundations **Credit Hours: 1-5**

Practical applications of topics of interest and concern for preservice teachers and other education personnel.

TSOC4940 Field Experience In Pacs **Credit Hours: 1-10**

Students will establish and complete an internship focusing on specified objectives, actions and time schedules under both on and off-campus supervision. Progress reports and a summary evaluation are required.

TSOC4990 Independent Study In Educational Theory **Credit Hours: 1-4**

Directed study of a current topic in educational theory and social foundations. The student meets with the instructor at arranged intervals without formal classes.

TSOC5100 Group Processes In Education **Credit Hours: 3**

Examines intrapersonal and interpersonal principles of high performing teams, meaningful relationships, and being an effective leader and member of groups. Real-life projects will be designed, implemented and evaluated.

TSOC5110 Modern Educational Controversies **Credit Hours: 3**

Examines controversial contemporary educational issues, the forces that perpetuate them and the socio-cultural contexts in which they exist. Teachers' work and ethical tenets shaping practice are also examined.

TSOC5190 Summer Institute On Diversity In Education **Credit Hours: 3**

School personnel collaborate with persons from higher education, the community, and scholars who have created model multicultural/urban education programs to learn new ways of teaching and learning among diverse populations.

TSOC5200 Sociological Foundations Of Education **Credit Hours: 3**

Critical examination of the socio-cultural foundations of schooling in the United States, including purposes of schooling in a multicultural society and the resulting nature of teacher work.

TSOC5210 Multicultural Non-Sexist Education **Credit Hours: 3**

Examines how race, class, gender, ethnicity and disability intersect with power, culture, knowledge and ideology in American schools to influence the lives of students and teachers in a multicultural society.

TSOC5230 Intergroup And Intercultural Education **Credit Hours: 3**

In-depth history of America's racial and ethnic minorities and the role of schooling in assisting their adaptation to and assimilation into American society.

TSOC5300 Philosophy And Education **Credit Hours: 3**

Exploring the nature of philosophic inquiry in education and examining competing traditions in the West, particularly in the United States. A distinction between education and schooling will be drawn.

TSOC5400 History Of Schooling & Teaching In The U.s. **Credit Hours: 3**

Evolving role of schooling and teaching in the US, using history to reflect on the relationship of schooling to other social institutions, groups of people and the process of social change.

TSOC5950 Workshop In Educational Theory And Social Foundations **Credit Hours: 3**

Each workshop is developed around a topic of interest and concern to inservice teachers and other educational personnel. Practical application of workshop topics will be emphasized.

TSOC6000 Women, Culture And Pedagogy **Credit Hours: 3**

This course surveys works of prominent feminist scholars in order to address the impact of dominant ideology upon the lives of women and girls in American schools.

TSOC6120 Comparative Education **Credit Hours: 3**

The purposes, structure and practice of non-formal and formal education are explored using a wide range of concepts and paradigms of comparative educational analysis throughout the globe.

Prerequisites: TSOC 5400 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7400 FOR LEVEL GR WITH MIN. GRADE OF D-

TSOC6140 History Of Socio-Political Issues In School-state Relations **Credit Hours: 3**

An examination of the historical, legal, sociological interaction between state and schooling in US, emphasizing both religious/non-religious issues. These concerns are compared and analyzed with respect to other countries.

Prerequisites: TSOC 5200 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 5400 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7200 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7400 FOR LEVEL GR WITH MIN. GRADE OF D-

TSOC6190 Seminar In Educational Theory/Social Foundations **Credit Hours: 3**

The collaborative study of a specific topic in educational theory and social foundations by a group of advanced students under the direction of one or more professors.

TSOC6220 Problems And Issues In Multicultural Education **Credit Hours: 3**

2Application of theoretical assumptions presented in TSOC 5210/7210 to US schools and classrooms, with particular attention given to program and curriculum issues, teachers and teaching policies, practices and procedures.

Prerequisites: TSOC 5210 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7210 FOR LEVEL GR WITH MIN. GRADE OF D-

TSOC6240 Sociological Analyses Of Urban Education **Credit Hours: 3**

Development and dynamics of schooling in urban centers across the United States, including historical and critical analyses of current problems, issues and reform initiatives.

Prerequisites: TSOC 5200 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 5210 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7200 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7210 FOR LEVEL GR WITH MIN. GRADE OF D-

TSOC6310 Major Educational Theorists **Credit Hours: 3**

An examination of selected educational philosophers who have addressed themselves to the problem of the ends and means of education from Classical Hellenic Times to the present.

TSOC6320 Education And The Democratic Ethic **Credit Hours: 3**

Examination of the interdependence among education, democracy and ethics in the context of civic life. Applications made to the practice of schooling as cultural production in a democratic society.

Prerequisites: TSOC 5200 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 5300 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 5400 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7200 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7300 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7400 FOR LEVEL GR WITH MIN. GRADE OF D-

TSOC6330 THE ETHICS OF WAR AND PEACE AND EDUCATION **Credit Hours: 3**

The purpose of this seminar is to explore the ethics of war and peace and its implications for the moral and civic education of democratic citizens.

TSOC6340 Human Rights Education **Credit Hours: 3**

The purpose of this seminar is to explore the nature of human rights and human rights education. The origin, definition, content, scope, foundation, and correlative duties of human rights, as well as, the theory of human rights education will be explored.

TSOC6350 Environmental Ethics and Education **Credit Hours: 3**

The purpose of this seminar is to explore the nature of environmental ethics and its implications for educational theory, in particular moral and civic education.

TSOC6500 Anthropology And Education **Credit Hours: 3**

Examination of cross-cultural, comparative and other studies directed toward understanding processes of cultural transmission and transformation, and implications of anthropological research for contemporary issues in education.

Prerequisites: TSOC 5200 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 5210 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7200 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7210 FOR LEVEL GR WITH MIN. GRADE OF D-

TSOC6960 Master's Thesis In Educational Theory And Social Foundations **Credit Hours: 1-3**

A formal, independent study culminating in a written discourse that advances our understanding of educational theory or social foundations.

TSOC6980 Master's Project In Educational Theory And Social Foundations **Credit Hours: 1-3**

A formal, independent project applying principles of educational theory or social foundations to analyze a particular problem and culminating in a written discourse.

TSOC6990 Independent Study In Educational Theory And Social Foundations **Credit Hours: 1-3**

Directed study of a current topic in educational theory and social foundations. The student meets with the instructor at arranged intervals without formal classes.

TSOC7100 Group Processes In Education **Credit Hours: 3**

Examines intrapersonal and interpersonal principles of high performing teams, meaningful relationships, and being an effective leader and member of groups. Real-life projects will be designed, implemented and evaluated.

TSOC7110 Modern Educational Controversies **Credit Hours: 3**

Examines controversial contemporary educational issues, the forces that perpetuate them and the socio-cultural contexts in which they exist. Teachers' work and ethical tenets shaping practice are also examined.

TSOC7190 Summer Institute On Diversity In Education **Credit Hours: 3**

School personnel collaborate with persons from higher education, the community, and scholars who have created model multicultural/urban education programs to learn new ways of teaching and learning among diverse populations.

TSOC7200 Sociological Foundations Of Education **Credit Hours: 3**

Critical examination of the socio-cultural foundations of schooling in the United States, including purposes of schooling in a multicultural society and the resulting nature of teacher work.

TSOC7210 Multicultural Non-Sexist Education **Credit Hours: 3**

Examines how race, class, gender, ethnicity, and disability intersect with power, culture, knowledge and ideology in American schools to influence the lives of students and teachers in a multicultural society.

TSOC7230 Intergroup And Intercultural Education **Credit Hours: 3**

In-depth history of America's racial and ethnic minorities and the role of schooling in assisting their adaptation to and assimilation into American society.

TSOC7300 Philosophy And Education **Credit Hours: 3**

Exploring the nature of philosophic inquiry in education and examining competing traditions in the West, particularly in the United States. A distinction between education and schooling will be drawn.

TSOC7400 History Of Schooling & Teaching In The U.s. **Credit Hours: 3**

Evolving role of schooling and teaching in the US, using history to reflect on the relationship of schooling to other social institutions, groups of people and the process of social change.

TSOC7950 Workshop In Educational Theory And Social Foundations **Credit Hours: 3**

Each workshop is developed around a topic of interest and concern to inservice teachers and other educational personnel. Practical application of workshop topics will be emphasized.

TSOC8000 Women, Culture, And Pedagogy **Credit Hours: 3**

This course surveys works of prominent feminist scholars in order to address the impact of dominant ideology upon the lives of women and girls in American schools.

TSOC8120 Comparative Education **Credit Hours: 3**

The purposes, structure and practice of non-formal and formal education are explored using a wide range of concepts and paradigms of comparative educational analysis throughout the globe.

Prerequisites: TSOC 5400 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7400 FOR LEVEL GR WITH MIN. GRADE OF D-

TSOC8140 History Of Socio-Political Issues In School-state Relations **Credit Hours: 3**

An examination of the historical, legal, sociological interaction between state and schooling in US, emphasizing both religious/non-religious issues. These concerns are compared and analyzed with respect to other countries.

Prerequisites: TSOC 5200 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 5400 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7200 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7400 FOR LEVEL GR WITH MIN. GRADE OF D-

TSOC8150 CULTURAL PERSPECTIVES IN LEARNING AND DEVELOPMENT **Credit Hours: 3**

This course aims to develop a broader understanding of the role of culture in psychological processes and the implications of such psychological understanding for a culturally diverse society.

TSOC8180 Interdisciplinary Seminar In Educational Psychology, Research, And Social Foundations **Credit Hours: 1**

The proseminar will enable doctoral students to improve their understanding of the research process. Students will learn to ask research questions, choose alternative methodologies and interpret the validity of conclusions.

TSOC8190 Seminar In Educational Theory/Social Foundations **Credit Hours: 3**

The collaborative study of a specific topic in educational theory and social foundations by a group of advanced students under the direction of one or more professors.

TSOC8220 Problems And Issues In Multicultural Education **Credit Hours: 3**

2Application of theoretical assumptions presented in TSOC 5210/7210 to US schools and classrooms, with particular attention given to program and curriculum issues, teachers and teaching policies, practices and procedures.

Prerequisites: TSOC 5210 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7210 FOR LEVEL GR WITH MIN. GRADE OF D-

TSOC8240 Sociological Analyses Of Urban Education **Credit Hours: 3**

Development and dynamics of schooling in urban centers across the United States, including historical and critical analyses of current problems, issues and reform initiatives.

Prerequisites: TSOC 5200 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 5210 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7200 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7210 FOR LEVEL GR WITH MIN. GRADE OF D-

TSOC8310 Major Educational Theorists **Credit Hours: 3**

An examination of selected educational philosophers who have addressed themselves to the problem of the ends and means of education from Classical Hellenic Times to the present.

TSOC8320 Education And The Democratic Ethic **Credit Hours: 3**

Examination of the interdependence among education, democracy and ethics in the context of civic life. Applications made to the practice of schooling as cultural production in a democratic society.

Prerequisites: TSOC 5200 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 5300 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 5400 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7200 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7300 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7400 FOR LEVEL GR WITH MIN. GRADE OF D-

TSOC8330 THE ETHICS OF WAR AND PEACE AND EDUCATION **Credit Hours: 3**

The purpose of this seminar is to explore the ethics of war and peace and its implications for the moral and civic education of democratic citizens.

TSOC8340 Human Rights Education **Credit Hours: 3**

The purpose of this seminar is to explore the nature of human rights and human rights education. The origin, definition, content, scope, foundation, and correlative duties of human rights, as well as, the theory of human rights education will be explored.

TSOC8350 ENVIRONMENTAL ETHICS AND EDUCATION **Credit Hours: 3**

The purpose of this seminar is to explore the nature of environmental ethics and its implications for educational theory, in particular moral and civic education.

TSOC8500 Anthropology And Education **Credit Hours: 3**

Examination of cross-cultural, comparative, and other studies directed toward understanding processes of cultural transmission and transformation, and implications of anthropological research for contemporary issues in education.

Prerequisites: TSOC 5200 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 5210 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7200 FOR LEVEL GR WITH MIN. GRADE OF D- OR TSOC 7210 FOR LEVEL GR WITH MIN. GRADE OF D-

TSOC8960 Dissertation Research In Foundations Of Education **Credit Hours: 1-12**

A formal, independent study culminating in a written discourse central to the advancement of knowledge in educational theory or social foundations.

TSOC8990 Independent Study In Educational Theory And Social Foundations **Credit Hours: 1-6**

Directed study of a current topic in educational theory and social foundations. The student meets with the instructor at arranged intervals without formal classes.

UC1000 Orientation **Credit Hours: 1**

An orientation to college for adults over 25. Provision of information to equip students with the tools for academic success. Open only to students in University College.

UC1110 Creative Problem Solving **Credit Hours: 2**

UC1120 Career And Self-Evaluation **Credit Hours: 2**

This course offers an opportunity to explore two important considerations in choosing a career: (1) career opportunities and requirements, (2) individual interests, abilities, skills, needs, values and goals.

UC1200 Applications of Thinking Critically **Credit Hours: 3**

Introduces students to critical thinking and fosters intellectual abilities. The course is designed for first year students who earned below a 2.0 their first or second semester and for transfer or adult students entering college with less than a 2.00 GPA.

UC2010 Portfolio Development **Credit Hours: 3**

Course is designed for non-traditional students whose prior learning experiences will be formatted into a portfolio for faculty assessment with the potential of earning college credit.

UC2980 Special Topics **Credit Hours: 1-4**

Special Topics is an opportunity to create and pilot potential courses at a 2000 level.

UC4940 Internships Field Experiences **Credit Hours: 1-8**

This is the capstone course for Individualized Program students. The field experience internship is gone under the guidance of academic advisor. It is done prior to graduation.

UC4980 Special Topics **Credit Hours: 1-4**

Topics of interest to University College students offered by various instructors. Open to any University College student.

VCT566 Prin of Multimedia Products **Credit Hours: 3**

WGST1150 Proseminar In Women's And Gender Studies I **Credit Hours: 1**

Students reflect on the academic and professional and community activist dimensions of Women's and Gender Studies. Students develop a proliminary plan for the development of their portfolio.

WGST2010 Introduction To Gender Studies: Gender, Sex And Difference **Credit Hours: 3**

Interdisciplinary introduction to gender studies. Critically examines competing theories of gender and sex identification, construction, and biological determinism. Considers ethical issues regarding differences of gender, sex and sexuality.

WGST2150 Proseminar In Women's & Gender Studies II **Credit Hours: 1**

Designed for majors only. Students reflect on the academic and professional and community activist dimensions of Women's and Gender Studies. Special emphasis will be dedicated to the completion of the portfolio for future career, community activism and graduate studies.

Prerequisites: WGST 1150 FOR LEVEL UG WITH MIN. GRADE OF D-

WGST2400 Women's Roles: A Global Perspective **Credit Hours: 3**

The course focuses on the current and evolving social, economic and political status of women in the United States and selected non-Western societies.

WGST2610 Women In American Politics **Credit Hours: 3**

An examination of the role of women in the American political system with special attention to the socializing experiences, political power bases and legal status.

Prerequisites: PSC 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

WGST2640 Race, Class, And Gender **Credit Hours: 3**

Introduction to the study of race, class and gender as factors in American stratification.

WGST2880 Contemporary U.S. Queer Cultures **Credit Hours: 3**

An interdisciplinary, multicultural examination of diverse lesbian, gay, bisexual, transgender, and other queer cultural productions, this course examines continuities and conflicts in aesthetics, issues, materials, and motivations for queer culture.

WGST2980 Special Topics In Women's And Gender Studies **Credit Hours: 3**

Study of selected topics relevant to Women's and Gender Studies. May be repeated for major or minor credit when topic varies.

WGST3010 Issues In Women's Studies **Credit Hours: 3**

Required for the major. An interdisciplinary introduction to basic works of feminist thought, feminist methodologies and current issues in the field world-wide. Writing Intensive (WAC) course.

WGST3020 Visual Construction Of Gender **Credit Hours: 3**

Writing intensive (WAC) course. This non-studio course focuses on the ways images reflect and shape our understanding of gender. Students will learn to analyze visual material in order to identify and articulate their cultural significance in relation to gender.

WGST3200 Issues In Lesbian, Transgender, Bisexual And Gay Communities **Credit Hours: 3**

This course will provide the student with an understanding of current issues facing LTBG communities including historical, developmental, socio-cultural and political perspectives.

WGST3400 Feminist Approaches To Social Problems **Credit Hours: 3**

This course will examine current social problems from a feminist perspective. The course will examine such issues as the feminization of poverty, violence against women, homeless, prostitution, teen pregnancy, HIV/AIDS and addictions.

WGST3550 Feminism And Philosophy **Credit Hours: 3**

An examination of feminist perspectives in philosophy, exploring the relevance of gender to central questions in ethics, political theory and epistemology.

WGST3650 Economics Of Gender **Credit Hours: 3**

Analysis of labor market outcomes and income distribution characteristics resulting from gender differences; Gender-related economic outcomes; the feminization of poverty, persistent male-female wage differential, expanding proportion of female headed households.

Prerequisites: ECON 1150 FOR LEVEL UG WITH MIN. GRADE OF D- OR ECON 1200 FOR LEVEL UG WITH MIN. GRADE OF D-

WGST3700 Women's Studies Topics In Literature **Credit Hours: 3**

Specific topics vary. Check schedule of classes for specific subject.

WGST3750 Women And Literature **Credit Hours: 3**

Examines literary works in light of major issues raised by feminist criticism. Specific emphasis varies. Recommended ENGL 2700 or 3790

WGST3800 Sexual Politics **Credit Hours: 3**

This course examines sexual politics through studying canonical literature of Western political theory, feminism and postmodern theory.

WGST3980 Topics In Women's Studies **Credit Hours: 3**

Specific topics vary. Check schedule of courses for specific subject.

WGST4010 Women's Studies Topics In Film **Credit Hours: 3**

Specific topics vary. Check schedule of courses for specific subject and prerequisites.

WGST4130 Family Violence Across The Life Cycle **Credit Hours: 3**

This course will examine the issues of family violence, including child abuse and elder abuse. Gender and cultural issues will be explored along with the intergenerational nature of family violence.

WGST4160 Health And Gender **Credit Hours: 3**

An examination of gender as a predisposing factor of health status, health behavior, health care delivery, and the structure and posture of health care professionals. Writing intensive (WAC) course.

WGST4170 Mental Health And Gender **Credit Hours: 3**

This course will examine the significance of gender in understanding the historical development of mental health concepts. Contemporary feminist critiques of diagnostic categories will be discussed.

WGST4180 Gender And Work **Credit Hours: 3**

Analysis of the contemporary position in the U.S. work force focusing on the expansion of the number of women joining the labor force in recent decades, and the persistence of relatively low pay, status and authority in female-dominated occupations.

WGST4350 Women's Studies Topics In Communication **Credit Hours: 3**

Cross-listings of 4000-level courses with the communication department. Specific topics vary. Check schedule of courses for specific subject and prerequisites determined by the department of communication.

WGST4500 Women's Studies Topics In History **Credit Hours: 3**

Crosslistings of 4000 level courses with the history department. Specific topics vary. Check schedule of courses for specific subject and prerequisites.

WGST4510 Women In American History **Credit Hours: 3**

This course presents American history from early settlement to the present by examining the contributions of women, in interaction with men, to the immensely complex fabric of American life.

WGST4540 Witchcraft And Magic In Medieval And Early Modern Europe **Credit Hours: 3**

Witchcraft, religion and magic in western Europe from the 12th through 17th centuries, focusing on the origins of witchcraft belief, diabolical magic, the witchcraft and its decline.

WGST4610 Feminist Political Theory **Credit Hours: 3**

An analysis and discussion of contemporary feminist theory.

Prerequisites: PSC 2800 FOR LEVEL UG WITH MIN. GRADE OF D-

WGST4700 Women's Studies Topics In Literature **Credit Hours: 3**

Specific topics vary. Check Course Schedules for specific subject.

WGST4770 American Women Writers **Credit Hours: 3**

Author/authors vary with each offering. Consult schedule of courses for specific subject. Recommended ENGL 2700, 2800 or 3790.

WGST4870 Feminisms **Credit Hours: 3**

This introduction to global feminist thought familiarizes students with feminist terminology and a variety of feminist theoretical frameworks.

WGST4880 Queer Theory WAC **Credit Hours: 3**

This course explores the theoretical concepts/texts of Queer Theory and its locations in communities and identities, focusing principally on the theories that have emerged since the late 1990s.

Prerequisites: WGST 3010 FOR LEVEL UG WITH MIN. GRADE OF D- OR WGST 2010 FOR LEVEL UG WITH MIN. GRADE OF D-

WGST4890 Women's Studies Research And Methodologies **Credit Hours: 4**

Investigates and applies current trends in Women's Studies as a discipline and the ways in which Women's Studies methodologies inform other disciplines. Requires research project.

WGST4900 Seminar In Women's Studies **Credit Hours: 3**

Seminar focused on timely topics in Women's Studies chosen by rotating faculty.

WGST4910 Honors Thesis In Women's And Gender Studies **Credit Hours: 1-3**

Supervised research and writing for honors students only.

WGST4940 Internship In Women's Studies **Credit Hours: 1-3**

Practical field experience applying Women's Studies theories, arranged in conjunction with the department of women's and gender studies. Students must have pre-approval based on detailed written proposal.

WGST4980 Advanced Topics In Women's Studies **Credit Hours: 3**

A course on a special topic in Women's Studies. Consult schedule of courses for topic to be studied and semester offered. Recommended WGST 3010.

WGST4990 Independent Study In Women's Studies **Credit Hours: 1-4**

Supervised independent reading and research on selected topics. Before the end of open registration, students must present the supervising instructor a detailed written proposal and get written approval.