Courses of Instruction

This section lists and describes all undergraduate and graduate courses taught by the departments of the university. The courses are presented by subject area and arranged in departmental order, alphabetically. The subject name (the heading in large type) is followed by the subject area code in parentheses.

The subject name (subject area) together with the course number constitutes the official designation for the course for purposes of registration and official records. The specific course title appears following the course number. The figures in parentheses denote the number of hours of semester credit for the course. Following the credit hours are the prerequisites. The course is listed with contact hours, the estimate of the actual hours per week a student should expect to be in class, if none are listed, the course will meet each week the number of hours that equals the number of course credit hours.

Next appear the pre-requisites (required courses to be taken prior to and co-requisites (required courses to be taken simultaneously with), if applicable.

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(Subject area codes in parentheses)

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Accountancy (ACCT)
Dr. Norman Godwin - 844-6225

ACCT 2110 PRINCIPLES OF FINANCIAL ACCOUNTING (3) LEC. 3 Basic accounting principles with focus on preparation and use of financial statements. Credit will not be given for both ACCT 2110 and 2810. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

ACCT 2117 HONORS PRINCIPLES OF FINANCIAL ACCOUNTING (3) LEC. 3 Basic accounting principles with focus on preparation and use of financial statements. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

ACCT 2210 PRINCIPLES OF MANAGERIAL ACCOUNTING (3) LEC. 3 Pr., ACCT 2110 or ACCT 2117 A continuation of ACCT 2110, with emphasis on cost accounting, budgeting, and decision making using managerial accounting information. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

ACCT 2217 HONORS PRINCIPLES OF MANAGERIAL ACCOUNTING (3) LEC. 3 Pr., ACCT 2117 A continuation of ACCT 2117, with emphasis on cost accounting, budgeting, and decision-making using managerial accounting information. Spring. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ACCT 2810 FUNDAMENTALS OF ACCOUNTING (3) LEC. 3 Principles of financial and managerial accounting. Not open to undergraduates majoring in Business. Credit will not be given for both ACCT 2110 and 2810. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ACCT 2990 BUSINESS LAW (3) LEC. 3 Introduction to contracts, sales, torts, ethics and the judicial system. Focus is on the business environment. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ACCT 2991 LEGAL ENVIRONMENT OF BUSINESS (3) LEC. 3 Legal and social environment for business operations with emphasis on contemporary issues. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ACCT 3110/3113 INTERMEDIATE ACCOUNTING I (3) LEC. 3 Pr., ACCT 2110 Accounting principles and theory including accounting for current assets, liabilities, and investments. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ACCT 3120/3123 INTERMEDIATE ACCOUNTING II (3) LEC. 3 Pr., ACCT 3110 or ACCT 3113 Continuation of ACCT 3110, with emphasis on fixed assets, capital structure, and cash flows. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ACCT 3210/3213 COST ACCOUNTING (3) LEC. 3 Pr., ACCT 2210 or ACCT 2217 A study of how cost data for products, projects, or services are recorded, analyzed, and used for decision making. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ACCT 3510/3513 ACCOUNTING INFORMATION SYSTEMS (3) LEC. 3 Pr., ACCT 3110 or ACCT 3113 Introduction to accounting information systems with emphasis on understanding computer-based systems and developing technology skills. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ACCT 3710 SMALL BUSINESS ACCOUNTING AND TAX CONSULTING (3) LEC. 3 Pr., ACCT 2210 or ACCT 2217 or ACCT 2910 Focus on financial statements for closely-held companies and designing strategies for wealth accumulation and asset management. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ACCT 3990/3993 ADVANCED BUSINESS LAW (3) LEC. 3 Pr., ACCT 2990 Legal principles concerning secured transactions, bankruptcy, trusts and estates, partnership law, property, corporations, accountant's liability, and negotiable instruments. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ACCT 4140 SPECIAL TOPICS IN ACCOUNTING (3) LEC. 3 Pr., ACCT 3120 or ACCT 3123 A study of current issues in accounting theory and practice. Topics include regulations and standards, economic and technological developments. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ACCT 4310/4313 AUDITING AND ASSURANCE SERVICES (3) LEC. 3 Pr., ACCT 3120 or ACCT 3123 Principles of auditing standards, ethics, controls, evidence, sampling, and audit reports. Pr., 2.2 GPA or College of Business Academic Excellence Initiative requirements.

ACCT 4410/4413 INCOME TAX I (3) LEC. 3 Pr., ACCT 3110 or ACCT 3113 Principles of federal taxation as it applies to individuals and property transactions. Pr., 2.2 GPA or College of Business Academic Excellence Initiative requirements.

ACCT 4900 INDEPENDENT STUDY (1-3) IND. Course may be repeated for a maximum of 6 credit hours.

ACCT 4920 ACCOUNTING INTERNSHIP (1-8) LEC. SU. Internship opportunity with an accounting firm, corporation, or governmental entity. Pr., 2.2 GPA or College of Business Academic Excellence Initiative requirements. Course may be repeated for a maximum of 6 credit hours.

ACCT 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

ACCT 4997 HONORS THESIS (1-3) IND. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

ACCT 5130/5133 ADVANCED ACCOUNTING TOPICS (3) LEC. 3 Pr., ACCT 3120 or ACCT 3123 Emphasis on advanced accounting topics including business combinations, foreign currency transactions, derivatives, and other advanced financial topics. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

ACCT 5210/5213 CONTROLLERSHIP (3) LEC. 3 Pr., ACCT 3210 or ACCT 3213 The impact of ethical, international, environmental, and personnel issues on corporate accounting. Pr., departmental approval; 2.2 GPA or College of Business Academic Excellence Initiative requirements.

ACCT 5310/5313 ADVANCED AUDIT AND ASSURANCE SERVICES (3) LEC. 3 Pr., ACCT 4310 or ACCT 4313 Advanced topics in auditing and assurance services. Pr., departmental Approval; 2.2 GPA or College of Business Academic Excellence Initiative requirements.

ACCT 5420/5423 INCOME TAX II (3) LEC. 3 Pr., ACCT 4410 or ACCT 4413 Tax accounting for individuals, partnerships, corporations, estates and trusts. Extensive use of a tax-service program. Pr., 2.2 GPA or College of Business Academic Excellence Initiative requirements.

ACCT 5610/5613 GOVERNMENTAL AND NOT-FOR-PROFIT ACCOUNTING (3) LEC. 3 Pr., ACCT 3120 or ACCT 3123 Accounting for governmental and not-for-profit entities. Focus on effective use of resources. Pr., 2.2 GPA or College of Business Academic Excellence Initiative requirements.

ACCT 6130/6136 ADVANCED ACCOUNTING TOPICS (3) LEC. 3 Pr., ACCT 3120 or ACCT 3123 Emphasis on advanced accounting topics including business combinations, foreign currency transactions, derivatives, and other advanced financial topics. Pr., 2.2 GPA.

ACCT 6210/6216 CONTROLLERSHIP (3) LEC. 3 Pr., ACCT 3210 or ACCT 3213 The impact of ethical, international, environmental, and personnel issues on corporate accounting.

ACCT 6310/6316 ADVANCED AUDIT AND ASSURANCE SERVICES (3) LEC. 3 Pr., ACCT 4310 or ACCT 4313 Advanced topics in assurance and auditing services.

ACCT 6420/6426 INCOME TAX II (3) LEC. 3 Pr., ACCT 4410 or ACCT 4413 Tax accounting for individuals, partnerships, corporations, estates and trusts. Extensive use of a tax-service program.

ACCT 6510/6516 GOVERNMENTAL AND NOT-FOR-PROFIT ACCOUNTING (3) LEC. 3 Pr., ACCT 3120 or ACCT 3123 Accounting for governmental and not-for-profit entities. Focus on effective use of resources.

ACCT 7110/7116 RESEARCH IN ACCOUNTING (3) LEC. 3 Pr., ACCT 5130 or ACCT 5133 or ACCT 6130 or ACCT 6136 An evaluation, critique, and application of references, including the use of computer-based systems in accounting. Pr., departmental approval.

ACCT 7120/7126 INTERNATIONAL ACCOUNTING (3) LEC. 3 Pr., ACCT 5130 or ACCT 5133 or ACCT 6130 or ACCT 6136 Review of accounting issues unique to international business activity. Pr., departmental approval.

ACCT 7210/7216 ACCOUNTING FOR DECISION MAKING AND CONTROL (3) LEC. 3 Pr., ACCT 3210 or ACCT 3213 Relationship between management accounting and information systems and analysis of costs. Pr., departmental approval.

ACCT 7310/7316 RISK ANALYSIS AND CONTROL (3) LEC. 3 Pr., ACCT 4310 or ACCT 4313 Analysis of strategic and business process risks and design of effective financial controls. Pr., departmental approval.

ACCT 7320/7326 FINANCIAL ANALYSIS AND VALUATION (3) LEC. 3 Pr., ACCT 5130 or ACCT 5133 or ACCT 6130 or ACCT 6136 Forecast of earnings and financial statements, valuation approaches, and other advanced financial topics. Pr., departmental approval.

ACCT 7410/7416 FEDERAL TAX RESEARCH (3) LEC. 3 Pr., ACCT 5420 or ACCT 5423 or ACCT 6420 or ACCT 6426 Sources of authority used in federal tax research and survey of tax policy issues. Pr., departmental approval.

ACCT 7420/7426 CORPORATE AND PARTNERSHIP TAXATION (3) LEC. 3 Pr., ACCT 7410 or ACCT 7416 Taxation of corporations and partnerships.

ACCT 7430/7436 TAXES AND DECISION MAKING (3) LEC. 3 Pr., ACCT 5420 or ACCT 5423 or ACCT 6420 or ACCT 6426 Emphasis on identifying, understanding, and evaluating tax planning opportunities. Pr., departmental approval.

ACCT 7510/7516 INTEGRATED ACCOUNTING APPLICATION (3) LEC. 3 Pr., ACCT 3510 or ACCT 3513 Design and analysis of accounting information systems and relational databases. Pr., departmental approval.

ACCT 7520 ENTERPRISE ACCOUNTING SYSTEMS (3) LEC. 3 Pr., ACCT 7510 or ACCT 7516 Design, analysis and use of Enterprise accounting systems.

ACCT 7970/7976 ADVANCED SPECIAL TOPICS IN ACCOUNTING (3) LEC. 3 Pr., ACCT 7110 or ACCT 7116 Industry and technology issues in accounting.
AERSONIC ENGINEERING (AERO)

AERO 4997 HONORS THESIS (1-3) LEC. 3 Final semester in Master of Accountancy Program or departmental approval; Capstone course for majors.

Aerospace Engineering (AERO) Dr. Robert Gross B 844-8646

AERO 2200 AEROSPACE FUNDAMENTALS (2) LEC. 1, LAB. 3 Pr., ENGR 1110 Introduction to the fundamental physical concepts required for the successful design of aircraft and spacecraft.

AERO 3040 ELEMENTARY METEOROLOGY (3) LEC. 3 Basic principles, causes, effects and phenomena of weather with fundamental techniques of forecasting.

AERO 3110 AERODYNAMICS I (3) LEC. 3 Pr., MATH 2650 Properties of fluids, fluid statics, conservation of mass and momentum, atmospheric properties, two dimensional airfoils, three dimensional wings, drag, and flight performance.

AERO 3120 AERODYNAMICS II (3) LEC. 3 Pr., AERO 3110 and ENGR 2010 Principles of compressible flow including flows with area changes, friction and heat transfer. Fundamental analysis of aerodynamics and potential flow theory. Correlation of potential flow theory with experimental data.

AERO 3130 AERODYNAMICS LABORATORY (2) LEC. 1, LAB. 3 Pr., AERO 3110 Application of fundamental aerodynamic principles to subsonic and supersonic wind tunnel experiments.

AERO 3220 AEROSPACE SYSTEMS (3) LEC. 3 Pr., ENGR 2350 and MATH 2650 Modeling of system elements, classical feedback control techniques used in the analysis of linear systems, analysis of systems undergoing various motions connected with flight.

AERO 3230 FLIGHT DYNAMICS (4) LEC. 3, LAB. 3 Pr., AERO 3110 and ENGR 2350 and MATH 2650 Airplane performance and stability and control including analytical prediction of performance characteristics, experimental determination of static stability parameters, and analytical prediction of dynamic stability characteristics.

AERO 3310 ORBITAL MECHANICS (3) LEC. 3 Pr., ENGR 2350 and MATH 2650 Geometry of the solar system and orbital motion, mathematical integrals of motion, detailed analysis of two-body dynamics and introduction to artificial satellite orbits; Hohmann transfer and patched conics for lunar and interplanetary trajectories.

AERO 3610 AEROSPACE STRUCTURES I (2) LEC. 1, LAB. 3 Pr., ENGR 2070 Fundamental concepts employed in the mechanical testing of engineering materials and structures. Load, stress, and strain measurement techniques are utilized to determine the structural response.

AERO 3970 SPECIAL TOPICS (1-3) AAB.SU. Departmental approval; Investigation of various topics in Aerospace Engineering. Course may be repeated for a maximum of 6 credit hours.

AERO 4140 AERODYNAMICS III (3) LEC. 3 Pr., AERO 3120 Theoretical background essential to a fundamental understanding of laminar and turbulent boundary layers and their relations to skin friction and heat transfer.

AERO 4510 AEROSPACE PROPULSION (4) LEC. 3, LAB. 3 Pr., AERO 3120 Fundamental analysis of air breathing jet propulsion. Introduction to chemical rocket propulsion.

AERO 4620 AEROSPACE STRUCTURES II (4) LEC. 3, LAB. 3 Pr., AERO 3610 and MATH 2660 Aircraft and space vehicle structures. An introduction to the finite element method and its application to structural analysis. The laboratory will utilize state-of-the-art software numerical solution of aerospace structural systems.

AERO 4630 AEROSPACE STRUCTURAL DYNAMICS (4) LEC. 3, LAB. 3 Pr., AERO 4620 Free, forced and damped vibration of single and multiple degree-of-freedom systems. The laboratory will utilize state-of-the-art software for the analysis of the vibration and dynamic response of structural systems.

AERO 4710 AEROSPACE DESIGN I (3) LEC. 2, LAB. 3 Pr., AERO 3120 Introduction to the principles required to design aerospace vehicles.

AERO 4720 AEROSPACE DESIGN II (3) LEC. 2, LAB. 3 Pr., AERO 4710 This course is continuation of AERO 4710.

AERO 4730 SPACE MISSION DESIGN I (3) LEC. 2, LAB. 3 Pr., AERO 3110 Introduction to the design of space systems including the identification of launch requirements, spacecraft system components, satellite tracking and orbital analysis to achieve a stated scientific objective.

AERO 4740 SPACE MISSION DESIGN II (3) LEC. 2, LAB. 3 Pr., AERO 4730 A continuation of AERO 4730, Space Mission Design I.

AERO 4970 SPECIAL TOPICS IN AEROSPACE ENGINEERING (1-3) LEC. Investigation of current state-of-the-art technologies in aerospace engineering. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

AERO 4997 HONORS THESIS (1-3) IND. Membership in the Honors College and departmental approval required; Directed research and writing of an honors thesis. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

AERO 4AA0 PROGRAM ASSESSMENT (0) LAB. SU. Pr., AERO 4710 or AERO 4730 Academic program assessment covering the areas of aerodynamics, aerospace structures, orbital mechanics, propulsion and vehicle design.

AERO 5110 MISSILE AERODYNAMICS (3) LEC. 3 Pr., AERO 3120 Cr., AERO 4140 Aerodynamics of slender wing-body combinations, interference effects, linear and non-linear effects, applications to missile design and performance.

AERO 5120 ROTARY WING AERODYNAMICS (3) LEC. 3 Pr., AERO 3110 Aerodynamics and flight characteristics of rotary-wing aircraft.

AERO 5210 FLIGHT SIMULATION (3) LEC. 3 Pr., AERO 3230 Time domain simulation of nonlinear, six-degree-of-freedom motion of flight vehicles. Development of modular digital simulations including vehicle models for aerodynamics and propulsion, control, guidance subsystems.

AERO 5320 APPLICATIONS OF THE GLOBAL POSITIONING SYSTEM (3) LEC. 3 Operating principles of the control, space and user segments of the Global Positioning System. Implementation of post-processing and real-time positioning strategies and applications. Field work demonstrating the use of GPS receivers, data processing and position accuracy. Pr., departmental approval.

AERO 5330 APPLIED ORBITAL MECHANICS (3) LEC. 3 Pr., AERO 3310 Special perturbation techniques: N-body perturbations; general and restricted three-body problems; preliminary orbit determination; C-W equations, targeting and rendezvous; constellation design; mission planning.

AERO 5340 SATELLITE APPLICATION (3) LEC. 3 Pr., AERO 3310 AERO 3310 or departmental approval; Principles related to the application of satellites to remote sensing, telecommunications, navigation and trajectory determination. Principles of space policy applied to both the unmanned and manned space flight programs.

AERO 5520 ROCKET PROPULSION (3) LEC. 3 Pr., AERO 4510 Analysis of the thermodynamics, gas dynamics and design of liquid and solid propellant rocket engines.

AERO 5630 SPACE PROPULSION (3) LEC. 3 Pr., AERO 4510 Analysis of space propulsion systems. Dynamics of electromagnetic systems, ion engines, photon drives, laser propulsion.

AERO 5650 DYNAMIC SIMULATION (3) LEC. 3 Pr., ENGR 2350 Computer techniques applied to the analysis of aerospace engineering problems using the digital problem-oriented language, Advanced Continuous Simulation Language (ACSL).

AERO 5660 AEROSPACE APPLICATIONS OF COMPOSITE MATERIALS (4) LEC. 3, LAB. 3 Pr., AERO 3610 Basic material and manufacturing information for laminated composite structures. Computational structural analysis of typical aerospace composite structures coupled with experimental verification of the structural response.

AERO 5750 LEGAL ASPECTS OF ENGINEERING PRACTICE (3) LEC. 3 Pr., PHIL 1020 or PHIL 1027 The role of the law in the manufacture of a product. Ethical issues that may confront designers and engineers.

AERO 6110/6116 MISSILE AERODYNAMICS (3) LEC. 3 Pr., AERO 3120 Cr., AERO 4140 Aerodynamics of slender wing-body combinations, interference effects, linear and non-linear effects, applications to missile design and performance.

AERO 6120/6126 ROTARY WING AERODYNAMICS (3) LEC. 3 Pr., AERO 3110 Aerodynamics and flight characteristics of rotary-wing aircraft.

AERO 6210/6216 FLIGHT SIMULATION (3) LEC. 3 Pr., AERO 3230 Time domain simulation of nonlinear, six-degree-of-freedom motion of flight vehicles. Development of modular digital simulations including vehicle models for aerodynamics and propulsion, control, guidance subsystems.

AERO 6320/6326 APPLICATIONS OF THE GLOBAL POSITIONING SYSTEM (3) LEC. 3 Operating principles of the control, space and user segments of the Global Positioning System. Implementation of post-processing and real-time positioning strategies and applications. Field work demonstrating the use of GPS receivers, data processing, and position accuracy. Pr., departmental approval.

AERO 6330/6336 APPLIED ORBITAL MECHANICS (3) LEC. 3 Pr., AERO 3310 Special perturbation techniques: N-body perturbations; general and restricted three-body problems; preliminary orbit determination; C-W equations, targeting and rendezvous; constellation design; mission planning.

AERO 6340/6346 SATELLITE APPLICATION (3) LEC. 3 Pr., AERO 3310 Principles related to the application of satellites to remote sensing, telecommunications, navigation and trajectory determination. Principles of space policy applied to both the unmanned and manned space flight programs. Pr., departmental approval.

AERO 6520/6526 ROCKET PROPULSION (3) LEC. 3 Pr., AERO 4510 Analysis of the thermodynamics, gas dynamics and design of liquid and solid propellant rocket engines.

AERO 6530/6536 SPACE PROPULSION (3) LEC. 3 Pr., AERO 4510 Analysis of space propulsion systems. Dynamics of electromagnetic systems, ion engines, photon drives, laser propulsion.

AERO 6620/6626 DYNAMIC SIMULATION (3) LEC. 3 Pr., ENGR 2350 Computer techniques applied to the analysis of aerospace engineering problems using the digital problem-oriented language, Advanced Continuous Simulation Language (ACSL).
AERO 6650/6656 AEROSPACE APPLICATIONS OF COMPOSITE MATERIALS
(4) LEC. 3, LAB. 3 Pr., AERO 3610 Basic material and manufacturing information for laminated composite structures. Computational structural analysis of typical aerospace composite structures coupled with experimental verification of the structural response.

AERO 6750/6756 LEGAL ASPECTS OF ENGINEERING PRACTICE (3) LEC. 3 Pr., PHIL 1020 The role of the law in the manufacture of a product. Ethical issues that may confront designers and engineers.

AERO 7100/7106 ADVANCED SUPersonic AERODYNAMICS (3) LEC. 3 Pr., AERO 4140 A rigorous development of linearized and nonlinear fluid flow theories and application. Flow over surfaces, lifting bodies, duct flow, boundary layer effects, shock and expansion waves and method of characteristics.

AERO 7110/7116 AIRFOIL AERODYNAMICS (3) LEC. 3 Pr., AERO 3120 Thin airfoil theory, Joukowski transformations, Karman Trefitz transformations, thick airfoil theory, panel methods and comparison with experimental data.

AERO 7120/7126 DYNAMICS OF VISCOUS FLUIDS I (3) LEC. 3 Pr., AERO 7100 or AERO 7106 Exact solutions to the Navier Stokes equations. Exact and approximate solutions of the laminar boundary layer equations. Incompressible and compressible boundary layers in theory and experiment.

AERO 7130/7136 DYNAMICS OF VISCOUS FLUIDS II (3) LEC. 3 Pr., AERO 7120 or AERO 7126 Turbulent flows, the Reynolds stresses and turbulence modeling. Computation of incompressible and compressible turbulent boundary layers. Stability theory and transition.

AERO 7140/7146 ADVANCED COMPUTATIONAL FLUID DYNAMICS (3) LEC. 3 Pr., AERO 5140 and AERO 6140 Advanced methods for solving problems in computational fluid dynamics. Topics include: discretization approaches, implicit solution techniques, curvilinear coordinate systems, and upwind schemes.

AERO 7200/7206 DYNAMICS OF FLIGHT (3) LEC. 3 Pr., AERO 3230 Development of specialized concepts and methods in dynamics applicable to the modeling of flight vehicle motion. Stability concepts and analysis of the stability of flight vehicle motions. Effects of variable mass and flexibility. Pr., departmental approval.

AERO 7210/7216 FLIGHT DYNAMICS OF HYPERVELOCITY VEHICLES (3) LEC. 3 Pr., AERO 7200 or AERO 7206 Development of specialized concepts and methods in dynamics applicable to the modeling of hypersonic flight vehicle motion. Stability concepts and analysis of the stability of steady-state motions of very high speed flight vehicles. Pr., departmental approval.

AERO 7220/7226 SPACECRAFT ATTITUDE DYNAMICS AND CONTROL (3) LEC. 3 Pr., AERO 7200 or AERO 7206 Development of specialized concepts and methods in dynamics applicable to the modeling of spacecraft rotational motion. Methods for controlling spacecraft attitude. Analysis of the attitude stability and controllability of spacecraft attitude motion. Pr., departmental approval.

AERO 7230/7236 HELICOPTER DYNAMICS AND CONTROL (3) LEC. 3 Pr., AERO 7200 or AERO 7206 Development of specialized concepts and methods in dynamics applicable to the modeling of helicopters. Analysis of helicopter stability and controllability. Pr., departmental approval.

AERO 7330/7336 ORBIT DETERMINATION (3) LEC. 3 Pr., AERO 6330 or AERO 6336 Elements of orbit determination; least squares, minimum norm, minimum variance solutions; batch, sequential and extended sequential filters.

AERO 7340/7346 ADVANCED ORBITAL MECHANICS (3) LEC. 3 Pr., AERO 6330 or AERO 6336 Elements of time measurements, earth orientation/coordinate system; f and g series; Lambert’s Problem; linear orbit theory and circumlinear trajectories.

AERO 7350/7356 OPTIMAL CONTROL OF AEROSPACE VEHICLES (3) LEC. 3 Pr., AERO 3220 Principles of optimization; Pontryagin’s principle; Linear quadratic regulator; Observers, state estimation, LQG problem. Optimal output feedback; Synthesis of flight control systems. Pr., AERO 3220 or equivalent.

AERO 7370/7376 FUNDAMENTALS OF THE GLOBAL POSITIONING SYSTEM (3) LEC. 3 Pr., AERO 7350 Principles of the Global Positioning System: GPS overview and historical development; modeling of pseudo-range and carrier phase measurements; positioning solution strategies using kinematic, dynamic, and reduced dynamic techniques. Pr., departmental approval.

AERO 7390/7396 SATELLITE REMOTE SENSING (3) LEC. 3 Topics in satellite remote sensing principles and techniques including active and passive instruments, data processing, and geophysical parameter recovery algorithms. Pr., departmental approval.

AERO 7510/7516 THRUST GENERATION (3) LEC. 3 Pr., AERO 4510 Aerothermodynamics of propulsion. Selected topics in gas dynamics, thermodynamics, and heat transfer as applied to air breathing and space propulsion.

AERO 7520/7526 ADVANCED AIRBREATHING PROPULSION (3) LEC. 3 Pr., AERO 4510 Topics emphasizing interaction between external aerodynamics and performance of air breathing jet engines. Performance optimization of ramjet, turbojet, and turbofan engines. Component matching. Pr., departmental approval.

AERO 7520/7538 AEROTHERMCHM OF PROPULSION (3) LEC. 3 Pr., AERO 4510 Aerothermodynamics of compressible flow, chemical propellant characteristics, heat transfer in fluid flow, statistical gas dynamics, kinetic theory of gases.

AERO 7610/7616 ADVANCED AEROSTRUCTURES (3) LEC. 3 Pr., AERO 4620 Development of the fundamental principles of the analysis of non-linear problems in solid mechanics. Structural problems involving non-linear deflections and/or material properties. Pr., departmental approval.

AERO 7620/7626 AEROSPACE COMPUTATIONAL STRUCTURAL ANALYSIS: STATIC STRUCTURES (3) LEC. 3 Pr., AERO 4620 Advanced techniques for the numerical solution of static elastic and plastic problems, including two and three dimensional solutions. Pr., departmental approval.

AERO 7630/7636 AEROSPACE COMPUTATIONAL STRUCTURAL ANALYSIS: DYNAMIC STRUCTURES (3) LEC. 3 Pr., AERO 4630 Advanced techniques for the numerical solution to problems in structural dynamics, including steady state and transient response of two- and three-dimensional structures. Pr., departmental approval.

AERO 7640/7646 ADAPTIVE AERO-STRUCTURES (4) LEC. 3, LAB. 3 Basic material and manufacturing information for materials employed in adaptive structures. Shape-memory, magnetorestrictive, magnetorheological-electrorheological and piezoelectric materials are examined. Pr., departmental approval.

AERO 7660/7666 AEROSPEEDS (3) LEC. 3 Pr., AERO 4630 Introduction to the field of aerodynamics and the interaction therein of structural mechanics and fluid mechanics with dynamics as the “interface adhesive” between them. Flutter, divergence, aileron reversal and related phenomena.

AERO 7670/7676 INTRODUCTION TO LARGE SPACE STRUCTURES (3) LEC. 3 Pr., AERO 4630 Large space structures and their unique concepts, novel on-earth testing requirements, variety of damping schemes and analysis techniques. Concepts and analysis related to shape control, active and passive damping, and structural dynamics/controls interaction.

AERO 7950 SEMINAR (1) LEC. 1SU. Weekly lectures on current developments in aerospace sciences by staff members, graduate students, and visiting scientists and engineers.

AERO 7970/7976 SPECIAL TOPICS IN AEROSPACE ENGINEERING (1-3) LEC. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

AERO 7980 AEROSPACE ENGINEERING PROJECT (3) LEC. 3SU. Intended for students in the MAE program. On or off-campus project. The nature of the project is to be determined by the student’s major professor. Approval of the project and its final written report by the student’s advisory committee is required. Course may be repeated with change in topic. Pr., departmental approval.

AERO 7990 RESEARCH AND THESIS (1-10) MST. Credit hours to be arranged. Course may be repeated with change in topics.

AERO 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topic.

African Studies (AFR)
Dr. Patience Essah - 844-6651

AFRI 2000 INTRODUCTION TO AFRICAN STUDIES (3) LEC. 3 Pr., (ENGL 1100 or ENGL 1107) and (ENGL 1120 or ENGL 1127). An introduction to theory and method that offers an interdisciplinary perspective on Africa and the African Diaspora.

Agricultural Economics (AGEC)
Dr. Curtis Jolly - 844-4800

AGEC 3010 AGRIBUSINESS MARKETING (3) LEC. 3 Pr., (ECON 2020 or ECON 2027) and COMP 1000 Principles and problems of marketing farm and agribusiness products including marketing methods, channels, structures, and institutions.

AGEC 3050 FARM APPRAISAL (2) LEC. 2 Theory of land values; terminology, processes and procedures for alternative appraisal purposes; factors affecting value; and evaluation of appraisal methods.

AGEC 3080 FUTURES AND OPTIONS MARKETING (2) LEC. 2 Pr., (ECON 2020 or ECON 2027) and COMP 1000 Functions, institutions, economic performance, and practices and procedures involved in utilizing futures and options markets to manage market price risks.

AGEC 3100 COMPUTER APPLICATIONS IN AGRICULTURAL ECONOMICS (3) LEC. 3 Pr., COMP 1000 or STAT 2510 or STAT 2610 Analytical methods for agricultural economics: spreadsheet applications, optimization, regression, budgeting, and risk management.

AGEC 3920 AGRICULTURAL BUSINESS AND ECONOMICS INTERNSHIP (1-3) INT. SU. Departmental approval. Practical experience with agricultural business firms and agencies including finance, farm supply, production, marketing and sales and government. Course may be repeated for a maximum of 6 credit hours.

AGEC 4000 PRINCIPLES OF AGRIBUSINESS MANAGEMENT (3) LEC. 3 Pr., (ECON 2020 or ECON 2027) and COMP 1000 Economies and business principles applied to agriculture: business formation, composing and analyzing financial statements, financial analysis and decision-making functions of management, capital budgeting and investment decisions. (Credit will not be given to majors in AGEC, ECON, or business).
Agricultural Economics (AGEC)

AGEC 4040 AGRICULTURAL FINANCE (3) LEC. 3 Pr., (ECON 2020 or ECON 2027) and COMP 1000 and (ACCT 2210 or ACCT 2910) Economic problems and policies in financing agriculture.

AGEC 4070 AGRICULTURAL LAW (3) LEC. 3 Recognition of legal problems associated with property ownership, contracts, torts, financing, estate planning and environmental controls and restrictions.

AGEC 4100 AGRICULTURAL COOPERATIVES (2) LEC. 2 Principles and problems of organizing and operating farmers' cooperative buying and selling associations.

AGEC 4120 ENVIRONMENTAL AND NATURAL RESOURCEconomics (3) LEC. 3 Economic principles related to common property, public goods, property rights, externalities and resource scarcity and allocation applied to current issues.

AGEC 4300 AGRICULTURAL POLICIES AND TRADE (3) LEC. 3, Pr., ECON 3020 Public policies affecting agriculture. Theory and significance of international trade, distribution of production and trade, issues and policies, and influence of exchange rates.

AGEC 4900 DIRECTED STUDIES IN AGRICULTURAL ECONOMICS (1-3) IND. Departmental approval. Individualized work and study in consultation with a faculty member on a subject of mutual concern. May include directed readings, research, data analysis or a combination of these. Course may be repeated for a maximum of 4 credit hours.

AGEC 4950 UNDERGRADUATE SEMINAR (0) SEM. SU. Current developments in agricultural economics; role of agricultural economists in agribusiness firms and the general economy. Interaction with agricultural and agribusiness leaders.

AGEC 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Membership in the Honors College required. Topics in agricultural economics. Course may be repeated for a maximum of 3 credit hours.

AGEC 4997 HONORS THESIS (1-3) LEC. 3 Directed research and writing of honors thesis. Course may be repeated for a maximum of 3 credit hours.

AGEC 5010 FARM MANAGEMENT (3) LEC. 3 Pr., COMP 1000 and ECON 2020 Principles of economics applied to agriculture; uses of farm records to improve management of the farm; developing enterprise budgets and use in preparing a profit-maximizing farm plan.

AGEC 5030 AGRICULTURAL PRICES (3) LEC. 3, Pr., ECON 3020 and MATH 1690 and (STAT 2610 or STAT 2510) Functions of prices and principles of supply and demand in price determination for agricultural products and markets. Statistical estimation of price and demand relationships. Spring.

AGEC 5090 RESOURCE ECONOMICS I (3) LEC. 3 Pr., COMP 1000 and ECON 3020 Supply, demand, future requirements and availability of natural resources plus institutional framework affecting and conditioning such use through property rights, zoning, taxation, etc.

AGEC 5100 AGRICULTURAL BUSINESS MANAGEMENT (3) LEC. 3 Pr., (ECON 2020 or ECON 2027) and COMP 1000 and AGEC 4040 and ACCT 2210 Principles and problems in acquiring or starting, organizing, and operating successful agribusiness; financial and operational efficiency; human resource and public relations; decision-making tools.

AGEC 5210 ADVANCED AGRIBUSINESS MANAGEMENT (3) LEC. 3 Pr., AGEC 5100 and ECON 3020 and MATH 1690 and (STAT 2510 or STAT 2610) Case studies, managerial economics.

AGEC 6010 FARM MANAGEMENT (3) LEC. 3 Pr., COMP 1000 and ECON 3020 Principles of economics applied to agriculture; uses of farm records to improve management of the farm; developing enterprise budgets and use in preparing a profit-maximizing farm plan.

AGEC 6030 AGRICULTURAL PRICES (3) LEC. 3 Pr., ECON 3020 and MATH 1690 and (STAT 2510 or STAT 2610) Functions of prices and principles of supply and demand in price determination for agricultural products and markets. Statistical estimation of price and demand relationships. Spring.

AGEC 6090 RESOURCE ECONOMICS I (3) LEC. 3 Pr., COMP 1000 and ECON 3020 Supply, demand, future requirements and availability of natural resources plus institutional framework affecting and conditioning such use through property rights, zoning, taxation, etc.

AGEC 6100 AGRICULTURAL BUSINESS MANAGEMENT (3) LEC. 3 Pr., (ECON 2020 or ECON 2027) and COMP 1000 and AGEC 4040 and ACCT 2210 Principles and problems in acquiring or starting, organizing, and operating successful agribusiness; financial and operational efficiency; human resource and public relations; decision-making tools.

AGEC 6210 ADVANCED AGRIBUSINESS MANAGEMENT (3) LEC. 3 Pr., AGEC 6100 and ECON 3020 and MATH 1690 and (STAT 2510 or STAT 2610) Case studies, managerial economics.

AGEC 7000 ADVANCED AGRICULTURAL AND ENVIRONMENTAL POLICY (3) LEC. 3 Pr., (AGEC 6030 and AGEC 4300) or AGEC 6030 Food and farm problems and related governmental actions from historical, political and analytical viewpoints. Welfare economics and other procedures used to evaluate costs and benefits of existing and proposed governmental programs and actions affecting agriculture, environment and the consumer.

AGEC 7010 ADVANCED FARM MANAGEMENT (3) LEC. 3 Pr., AGEC 6010 Advanced theory and application of farm management principle principles and economic concepts to agriculture. Planning, implementation, and control of various types of farms for optimum utilization of available resources.

AGEC 7030 ADVANCED AGRICULTURAL PRICES (3) LEC. 3 Pr., AGEC 6030 and ECON 6020 Theory and measurement of farm supply, retail demand and marketing-marg relationship. Introduction to equilibrium-displacement modeling.

AGEC 7080 PRODUCTION ECONOMICS I (3) LEC. 3 Pr., ECON 6020 Resource allocation and efficiency of production in the firm, between firms, and between agriculture and other industries.

AGEC 7090 RESOURCE ECONOMICS II (3) LEC. 3 Pr., AGEC 6090 Analysis of institutional and economic factors affecting use of natural resources including economic feasibility/conservation, benefit-cost analysis, environmental controls and other interventions.

AGEC 7100 OPERATIONS RESEARCH METHODS IN AGRICULTURAL ECONOMICS (3) LEC. 3 Optimization techniques with emphasis on linear programming and its extensions applied to agriculture. General theoretical background and associated computational procedures are used for presentation of models and modeling techniques.

AGEC 7110 AGRICULTURAL ECONOMIC DEVELOPMENT (3) LEC. 3 Pr., ECON 2020 or ECON 2027 Conceptual and empirical analysis of economic development with emphasis on the lesser developed areas and countries. Analysis of financial and technical aid to other countries case studies of development problems.

AGEC 7200 AQUACULTURAL ECONOMICS I (3) LEC. 3 Pr., ECON 2020 or ECON 2027 Application of economic theories and principles to production, marketing, and consumption of aquacultural enterprises and products. Role of aquaculture in economic development.

AGEC 7250 AQUACULTURAL ECONOMICS II (3) LEC. 3 Pr., AGEC 7200 Application of advanced economic theory and principles of production, marketing, and consumption of aquacultural products. Analysis of comparative role and competitive position of aquaculture in economic development and resource allocation.

AGEC 7590 INTRODUCTION TO AGRICULTURAL ECONOMETRICS (3) LEC. 3 Pr., (MATH 1610 or MATH 1617) and STAT 2610 Regression analysis in economic research. Model specification and estimation plus introduction to detection and correction of violations of assumptions of OLS. Hypothesis testing, dummy variables, heteroschedasticity, autocorrelation and measurement errors.

AGEC 7700 RESEARCH METHODS IN AGRICULTURAL ECONOMICS (3) LEC. 3 Pr., ECON 7130 and AGEC 7590 Overview of the philosophy of science, detailed discussion of how various research tools are used to perform applied research in agricultural economics.

AGEC 7950 GRADUATE SEMINAR (1) SEM. 1 SU. A forum for sharing research information and interaction on topics and issues of current interest.

AGEC 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

AGEC 8060 THEORY OF AGRICULTURAL MARKETS (3) LEC. 3 Pr., AGEC 7590 and ECON 6020 Theory and methods for estimating complete demand systems (e.g., LES, Translog, ALIDS, and Rotterdam) for food products. Introduction to imperfect competition models.

AGEC 8080 PRODUCTION ECONOMICS II (3) LEC. 3 Pr., AGEC 7080 Firm-level economics problems are extended. Consideration of the influence of risk on firm behavior; empirical analysis of theoretical problems; welfare analysis; technical change; impacts of research investment.

AGEC 8090 RESOURCE ECONOMICS III (3) LEC. 3 Pr., AGEC 7090 Quantitative analysis of economic relationships related to natural resource and environmental problems. Economic framework includes dynamic efficiency of resource allocation and welfare analysis techniques, property rights and resource policy, with consideration of legal ramifications and non-market values.

AGEC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topic.

RURAL SOCIOLOGY (RSOC)

RSOC 3190 AGRICULTURE AND SOCIETY (3) LEC. 3 Values and conflicts associated with technological and other changes in farming, rural communities and the food system. Perspectives on agrarian structures, food security, and government policy.

RSOC 3620 COMMUNITY ORGANIZATION (3) LEC. 3 Analysis of social organization at the community level. Conceptual framework developed to examine both internal and external forces affecting urban as well as rural communities in the U.S., and to identify strategies to strengthen local capacity to adapt to changing social and economic environments.

RSOC 4410 EXTENSION PROGRAMS AND METHODS (3) LEC. 3 Principles and models of applied social change in U.S. and developing nations. The Cooperative Extension System is analyzed as an educational institution. Fundamental steps in program development and evaluation.

RSOC 4900 DIRECTED STUDIES (1-3) IND. Departmental approval. Individualized study of topics in rural sociology and community development, natural resources...
and environmental issues conducted in consultation with a faculty member. Course may be repeated for a maximum of 3 credit hours.

**RSOC 5510 SOCIAL WELFARE, FAM & POVERTY (3)** LEC. 3 Pr., SOCY 1000 or ECON 2020 Description for Bulletin: Measuring and explaining poverty inequality and their effects on families and society; analysis of anti-poverty programs.

**RSOC 5610 RURAL SOCIOLOGY (3)** LEC. 3 Pr., SOCY 1000 or SOCY 1007 Theories and conceptual approaches to rurality in international and domestic contexts. Rural-urban differences in demographic composition, occupational structure, attitudes, and values of rural people and regional cultures. Rural services and institutions as determinants of the quality of life.

**RSOC 5640 SOCIOLOGY OF COMMUNITY DEVELOPMENT (3)** LEC. 3 Pr., SOCY 1000 or SOCY 1007 Principles of applied social change at the community level in both industrialized and non-industrialized settings; impacts of economic and technological changes on urban and rural communities; citizen participation in community affairs.

**RSOC 5650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3)** LEC. 3 The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.

**RSOC 6510 SOCIAL WELFARE, FAM & POVERTY (3)** LEC. 3 Pr., SOCY 1000 or ECON 2020 Description for Bulletin: Measuring and explaining poverty inequality and their effects on families and society; analysis of anti-poverty programs.

**RSOC 6610 RURAL SOCIOLOGY (3)** LEC. 3 Theories and conceptual approaches to rurality in international and domestic contexts. Rural-urban differences in demographic composition, occupational structure, attitudes and values of rural people and regional cultures. Rural services and institutions as determinants of the quality of life.

**RSOC 6640 SOCIOLOGY OF COMMUNITY DEVELOPMENT (3)** LEC. 3 Pr., SOCY 1000. Principles of applied social change at the community level in both industrialized and non-industrialized settings; impacts of economic and technological changes on urban and rural communities; and citizen participation in community affairs.

**RSOC 6650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3)** LEC. 3 The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.

**RSOC 7410 EXTENSION PROGRAMS AND METHODS (3)** LEC. 3 Principles and models of applied social change in U.S. and developing nations. The Cooperative Extension Service is analyzed as an educational institution. Fundamental steps in program development and evaluation.

**RSOC 7620 SOCIOLOGY OF COMMUNITY (3)** LEC. 3 Emphasis on theories, conceptual approaches and methods for studying communities and assessing developmental needs with attention to organizational structure, power structure, decision-making and linkage networks to societal units.

**RSOC 7630 POLITICAL ECONOMY OF DEVELOPMENT (3)** LEC. 3 Theories of societal development applied to contemporary issues associated with change in international and domestic contexts. Exploration of institutional, class, and state interests that guide development processes, as well as alternative participatory development strategies.

**RSOC 7650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3)** LEC. 3 The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.

**RSOC 7700 METHODS OF SOCIAL RESEARCH (3)** LEC. 3 Pr., SOCY 3700 Problem identification, hypothesis development and empirical analysis. Quantitative and qualitative procedures for obtaining social data using surveys, direct observation and secondary sources.

**RSOC 7990 RESEARCH AND THESIS (1-10) MST.** Course may be repeated with change in topic. Course may be repeated with change in topics

**AGRICULTURE (AGRN)**

**AGRI 1000 INTRODUCTION TO AGRICULTURE (2)** LEC. 2 Introduction to the College of Agriculture and Alabama Agriculture including its history and the organizational structure. An emphasis will be placed on learning about the different departments in the college including career opportunities, research opportunities, and academic advisement.

**AGRI 3800 AGRICULTURAL LEADERSHIP DEVELOPMENT (2)** LEC. 1, LAB. 2 Programmed sessions and activities designed to enhance self-awareness of leadership skills and enable students to become effective leaders.

**AGRI 4970 SPECIAL TOPICS IN AGRICULTURAL COMMUNICATION AND LEADERSHIP (1-3)** LEC. Directed study in agricultural communications or leadership. May repeat up to 3 credit hours. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

**AGRI 5840 ADVANCED AGRICULTURAL LEADERSHIP DEVELOPMENT (3)** LEC. 2, LAB. 2 Pr., AGRI 3800 Critical analysis of theory and practice of contemporary leadership processes and principles of learning to lead through service.

**AGRI 6840 ADVANCED AGRICULTURAL LEADERSHIP DEVELOPMENT (3)** LEC. 2, LAB. 2 Critical analysis of theory and practice of contemporary leadership processes and principles of learning to lead through service.

**Agronomy and Soils (AGRN)**

Dr. Joseph Touchton - 844-4100

AGRN 1000/1003/1004 BASIC CROP SCIENCE (4) LEC. 3, LAB. 2 Agronomic principles of classification, growth, structure, and soil-plant relationships of cultivated plants, with emphasis on influence of man and environment, and importance of crop production. Credit will not be given for both AGRN 1000 and AGRN 1003/1004.

AGRN 2040 BASIC SOIL SCIENCE (4) LEC. 3, LAB. 2 Pr., (CHEM 1010 and CHEM 1011) or (CHEM 1030 and CHEM 1031) Formation, classification, properties, management, fertility, and conservation of soils in relation to the growth of plants. Fall, Spring, Summer.

AGRN 2910 TURFGRASSES: USES AND CARE FOR SPORTS AND LEISURE (2) LEC. 2 Introduction to commonly used turfgrasses of the United States. Turfgrasses for golf courses, athletic fields and home lawns will be discussed. Course may not be substituted for AGRN 3150. Spring.

AGRN 3100 SOILS IN AGRICULTURAL AND EARTH SYSTEMS (4) LEC. 3, LAB. 2 Pr., GEOL 1100 and CHEM 1010 The role of the soils as key components in changing earth and agricultural systems. Intended for those who will teach earth science at the middle school level. Credit will not be given for AGRN 3100 and either AGRN 2040 or AGRN 3040. Spring, Summer, Fall.

AGRN 3120 PRINCIPLES OF WEED SCIENCE (4) LEC. 3, LAB. 2 Pr., BIOL 1020 and BIOL 3100 and AGRN 2040 Weed identification and biology, methods of weed management and classification of herbicides and how they are used in weed control. Laboratory subject is weed identification and sprayer calibration. Fall.

AGRN 3150/33/54 TURFGRASS MANAGEMENT (4) LEC. 3, LAB. 2 Pr., AGRN 2040 and BIOL 1020 The management of recreational and home area turfgrass will be studied including establishment and maintenance of turf and the effect of the light, traffic, soil fertility and water on its growth. Fall, Spring.

AGRN 3920 AGRONOMY AND SOILS INTERNSHIP (3) INT. 3 Practical experience under the supervision of an approved employer and the department. Internship may be in the areas of production, business, turf or science. Pr., departmental approval.

AGRN 4000 ADVANCED CROP SCIENCE (3) LEC. 3 Pr., (AGRN 1000 or BIOL 1030) and AGRN 2040 Application and integration of principles from undergraduate agricultural, biological and physical sciences courses in the management of crop production systems.

AGRN 4010 FORAGE PRODUCTION AND UTILIZATION (3) LEC. 3 Grass and legume forage crops. The crops are considered from the standpoint of (a) pasture crops, (b) hay and silage crops, (c) soil-improving crops. Spring.

AGRN 4200 SOIL JUDGING (2) LEC. 1, LAB. 4 Description, evaluation and interpretation of soil-profile characteristics. Fall.

AGRN 4210 ADVANCED SOIL JUDGING (2) LEC. 1, LAB. 2 Pr., AGRN 4200 Advanced description, evaluation, and interpretations of soil-profile characteristics. Spring.

AGRN 4950 SENIOR SEMINAR (1) SEM. Professional communication related to selected topics in agronomy and soils. Spring.

AGRN 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

AGRN 4997 HONORS THESIS (1-3) IND. Course may be repeated for a maximum of 3 credit hours. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

AGRN 5000 SOILS ENVIRONMENTAL QUALITY (3) LEC. 3 Pr., AGRN 2040 Role of soils in biogeochemical cycling of major elements and compounds of environmental concern; interactions of pollutants with soils and aquatic and atmospheric environments; methods to minimize or correct pollution; risk assessment.

AGRN 5020 NUTRITION MANAGEMENT (3) LEC. 3 Pr., AGRN 2040 Lectures and problems illustrate principles of nutrient management as related to soil or growth media, plant, fertilizer practices, management systems and environment. Required for all students majoring in Agronomy and Soils. Spring.

AGRN 5060 SOIL MICROBIOLOGY (4) LEC. 3, LAB. 2 Pr., BIOL 3200 Ecology, physiology, and biochemistry of soil microorganisms with emphasis on soil microbial processes that are important to environmental quality and soil productivity. Spring.

AGRN 5080/5083 SOIL RESOURCES AND CONSERVATION (4) LEC. 3, LAB. 2 Pr., AGRN 2040 Soils as a natural resource for land-use planning; their use and management for sustainable crop production, urban and industrial development and ecosystem protection. Fall.

AGRN 5100 PLANT GENETICS AND CROP IMPROVEMENT (3) LEC. 3 Pr., BIOL 1030 or BIOL 1037 Principles related to Mendelian, population, and molecular genetics of plants including inheritance of qualitative and quantitative traits, and plant transformation. Improvement of crop plants including heritability, role of
environment, pedigree selection, recurrent selection, the backcross method, and marker-assisted selection. Fall.

AGRN 5150 SOIL MORPHOLOGY (4) LEC. 3, LAB. 2 Pr., AGRN 2040 Physical, chemical and mineralogical properties of soils are studied in relation to their distribution and classification for environmental, engineering and agricultural use and interpretations. Spring.

AGRN 5160 ADVANCED TURFGRASS MANAGEMENT (3) LEC. 3 Pr., AGRN 3150 Factors affecting the turfgrass plant as a component of a dynamic community. Influence of soil chemical and physical conditions, management practices and climate are discussed. Theoretical and practical aspects of turfgrass management practices are discussed along with design and construction of golf courses and other athletic purpose turf areas.

AGRN 5300 SOIL CHEMISTRY (4) LEC. 3, LAB. 2 Pr., AGRN 2040 An introduction to the basic soil chemical properties of mineral composition, weathering, absorption, cation exchange, acidity, alkalinity, salinity and soil reactions with fertilizers, pesticides and heavy metals. Fall.

AGRN 5400 BIOENERGY AND THE ENVIRONMENT (3) LEC. 3 The role of bioenergy in reducing environmental problems related to use of fossil fuels and certain agricultural practices, and in addressing declining rural economies.

AGRN 5060 SPECIAL PROBLEMS (1-3) IND. Work under the direction of a staff member on special problems in crop, soil or weed science. Course may be repeated for a maximum of 6 credit hours or departmental approval.

AGRN 6000 SOILS AND ENVIRONMENTAL QUALITY (3) LEC. 3 Pr., AGRN 2040 Role of soils in bio-geochemical cycling of major elements and compounds of environmental concern; interactions of pollutants with soils and aquatic and atmospheric environments; methods to minimize or correct pollution; risk assessment.

AGRN 6020 NUTRIENT MANAGEMENT (3) LEC. 3 Pr., AGRN 2040 Lectures and problems illustrate principles of nutrient management as related to soil or growth media, plant, fertilizer practices, management systems and environment. Required for all students majoring in Agronomy and Soils. Spring.

AGRN 6060 SOIL MICROBIOLOGY (4) LEC. 3, LAB. 2 Ecology, physiology, and biochemistry of soil microorganisms with emphasis on soil microbial processes that are important to environmental quality and soil productivity. Spring.

AGRN 6080/6086 SOIL RESOURCES AND CONSERVATION (4) LEC. 3, LAB. 2 Pr., AGRN 2040 Soils as a natural resource for land-use planning; their use and management for sustainable crop production, urban and industrial development and ecosystem protection. Fall.

AGRN 6100 PLANT GENETICS AND CROP IMPROVEMENT (3) LEC. 3 Pr., BIOL 1030 Principles related to Mendelian, population, and molecular genetics of plants including inheritance of qualitative and quantitative traits, and plant transformation. Improvement of crop plants including heritability, role of environment, pedigree selection, recurrent selection, the backcross method, and marker-assisted selection. Fall.

AGRN 6150 SOIL MORPHOLOGY (4) LEC. 3, LAB. 2 Pr., AGRN 2040 Physical, chemical and mineralogical properties of soils are studied in relation to their distribution and classification for environmental, engineering and agricultural use and interpretations. Spring.

AGRN 6160 ADVANCED TURFGRASS MANAGEMENT (3) LEC. 3 Pr., AGRN 3150 and (BIOL 3100 or BIOL 6130) Factors affecting the turfgrass plant as a component of a dynamic community. Influence of soil chemical and physical conditions, management practices and climate are discussed. Theoretical and practical aspects of turfgrass management practices are discussed along with design and construction of golf courses and other athletic purpose turf areas. Spring.

AGRN 6300 SOIL CHEMISTRY (4) LEC. 2, LAB. 4 Pr., AGRN 2040 An introduction to the basic soil chemical properties of mineral composition, weathering, absorption, cation exchange, acidity, alkalinity, salinity and soil reactions with fertilizers, pesticides and heavy metals. Fall.

AGRN 6400 BIOENERGY AND THE ENVIRONMENT (3) LEC. 3 The role of bioenergy in reducing environmental problems related to use of fossil fuels and certain agricultural practices, and in addressing declining rural economies.

AGRN 6960 SPECIAL PROBLEMS (1-3) IND. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.

AGRN 7080 EXPERIMENTAL METHODS (3) LEC. 3 Pr., STAT 7000 Experimentation in the agricultural sciences including experimental techniques, interpretation of research data, use of library references, and preparation of publications. Problems, assigned readings and lectures. Summer.

AGRN 7120 CYTOLOGY AND CYTOGENETICS (4) LEC. 2, LAB. 4 Pr., BIOL 3000 Cell structure and function with emphasis on cell reproduction and factors contributing to the evolution of organisms. Fall.

AGRN 7140 CHEMISTRY AND USE OF HERBICIDES IN CROP PRODUCTION (4) LEC. 3, LAB. 2 Pr., CHEM 1040 Principles and use of herbicides in agronomic crops. Methods of herbicide application, including time, incorporation and formulation, the fate of herbicides in soil and the ecological impact on succeeding plant species. Fall.

AGRN 7150 SEMINAR IN GENETICS (1) SEM. 1 Pr., BIOL 3000 Reports by students and staff members on current research and literature in the field of genetics. Spring.

AGRN 7160 GENETIC DATA ANALYSIS (3) LEC. 3 Pr., (AGRN 5100 or AGRN 6100) and STAT 4020 Introduces procedures to study the genetic characteristics of individuals and populations. Computer models will be used to simulate genomes and traits. Application of quantitative methods to experimental populations used to plan breeding programs. Fall.

AGRN 7170 ADVANCED PLANT BREEDING (3) LEC. 3 Pr., AGRN 7160 Estimation and interpretation of genetic variance components, heritability, selection response, yield stability indices and their effect on choice of breeding method. Recurrent selection theory and breeding for resistance to plant stresses.

AGRN 7180 CROP ECOLOGY (3) LEC. 3 Pr., (BIOL 6130 or AGRN 7250) and AGRN 2040 Analysis of structure and function of crop and pasture farming systems with emphasis on production processes and resource management.

AGRN 7190 ADVANCED FORAGE MANAGEMENT AND RESEARCH METHODS (3) LEC. 3 Principles involved in successful establishment, maintenance and management of crops used for grazing, hay and silage, and research methods related to this field. Field trips will be made to research stations and private farms to observe management practices. Spring.

AGRN 7250 CROP PHYSIOLOGY (3) LEC. 3 Pr., BIOL 3100 Integrates principles of plant physiology, biochemistry, ecology, and genetics as they relate to plant growth and development and crop yield. The effect of management practices and abiotic stress on plant growth and development will be discussed.

AGRN 7540 PRINCIPLES OF PLANT NUTRITION (3) LEC. 3 Pr., AGRN 6020 Processes of nutrient flux to plant roots growing in soil. Chemistry and properties of soil in relation to the nutrition and growth of plants. Summer.

AGRN 7550 SOIL AND PLANT ANALYSIS (4) LEC. 1, LAB. 6 Pr., CHEM 3050 and AGRN 6020 Principles, methods and techniques of quantitative chemical analysis of soils and plants applicable to soil science. Fall.

AGRN 7560 CLAY MINERALOGY (4) LEC. 3, LAB. 2 Crystal structure and properties of the important clay-size minerals of soils and clay deposits combined with identification techniques involving x-ray diffraction and spectroscopy, differential thermal analysis, electron microscopy, specific surface analysis, and infrared absorption.

AGRN 7590 SOIL PHYSICS (4) LEC. 3, LAB. 2 Pr., AGRN 2040 and MATH 1610 and PHYS 1500 Lectures, laboratory exercises, and demonstrations to illustrate fundamental physical properties of soils. Introduction to flow and transport phenomena through soils. Fall.

AGRN 7950 SEMINAR (1) SEM. 1 SU. Required of all graduate students in Agronomy and Soils. Course may be repeated for a maximum of 2 credit hours. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.

AGRN 7990 RESEARCH AND THESIS (1-10) MST. Research and thesis on problems in the soil and crop sciences. Course may be repeated with change in topic.

AGRN 8570 PHYSICAL SOIL CHEMISTRY (3) LEC. 3 Pr., CHEM 6070 and AGRN 6300 Interpretation of soil properties and chemical reactions in terms of ion exchange, solubility diagrams, solutions equilibria, electrochemistry and electrokinetics of charged particles. Fall.

AGRN 8580 ADVANCED SOIL PHYSICS (3) LEC. 3 Pr., MATH 1720 and (PHYS 1600 or PHYS 1607) and AGRN 7590 Transport phenomena in soils. Physical principles and analysis of the storage and movement of water, solutes, heat, and gases in soils. Spring.

AGRN 8990 RESEARCH AND DISSERTATION (1-10) DSR. Research and dissertation on problems in the soil and crop sciences. Course may be repeated with change in topic.

Aerospace Studies (AIRF)

Col. Scott E. Lewis - 844-4355

AIRF 1010 THE FOUNDATIONS OF US AIR FORCE (1) LEC. 1 Introduction to the US Air Force and Air Force ROTC.

AIRF 1011 AFROTC LEADERSHIP LABORATORY (0) LAB. 2 SU. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force. Pr., departmental approval.

AIRF 1020 THE FOUNDATIONS OF US AIR FORCE (1) LEC. 1 Introduction to the US Air Force and Air Force ROTC.

AIRF 1021 AFROTC LEADERSHIP LABORATORY (0) LAB. 2 SU. Coreq., AIRF 1020 Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force. Pr., departmental approval.

AIRF 1010 EVOLUTION OF US AIR AND SPACE POWER (1)

AIRF 1010 EVOLUTION OF US AIR AND SPACE POWER (1) LEC. 1 Power history, doctrine, capabilities and functions.
ANSC 2020 EVOLUTION OF US AIR AND SPACE POWER (1) LEC. 1 Air and space power history, doctrine, capabilities and functions.

ANSC 2021 AFROTC LEADERSHIP LABORATORY (0) LAB. 2 SU. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force. Pr., departmental approval.

ANSC 3010 AIR FORCE LEADERSHIP STUDIES (3) LEC. 3 Pr., AIRF 2020 Coreq., AIRF 3011 Advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and supervision concepts. Pr., departmental approval.

ANSC 3011 AFROTC LEADERSHIP LABORATORY (0) LAB. 2 SU. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force. Pr., departmental approval.

ANSC 3020 AIR FORCE LEADERSHIP STUDIES (3) LEC. 3 Pr., AIRF 3010 Coreq., AIRF 3021 Advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and supervision concepts. Pr., departmental approval.

ANSC 3021 AFROTC LEADERSHIP LABORATORY (0) LAB. 2 SU. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force. Pr., departmental approval.

ANSC 4010 NATIONAL SECURITY AFFAIRS AND PREPARATION FOR ACTIVE DUTY (3) LEC. 3 Pr., AIRF 3020 For AFROTC senior cadets. The role of military officers in American society. Pr., departmental approval.

ANSC 4011 AFROTC LEADERSHIP LABORATORY (0) LAB. 2 SU. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force. Pr., departmental approval.

ANSC 4020 NATIONAL SECURITY AFFAIRS AND PREPARATION FOR ACTIVE DUTY (3) LEC. 3 Pr., AIRF 4010 For AFROTC senior cadets. The roles of military officers in American society. Pr., departmental approval.

ANSC 4021 AFROTC LEADERSHIP LABORATORY (0) LAB. 2 SU. Coreq., AIRF 4020 Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force. Pr., departmental approval.

Animal Sciences (ANSC)

Dr. Wayne Greene - 844-1523

ANSC 1000 INTRODUCTION TO ANIMAL SCIENCES (4) LEC. 3, LAB. 2 The importance of livestock to agriculture and to the health and nutrition of a modern society. Livestock terminology, selection, reproduction, nutrition, management, marketing, and species characteristics of beef and dairy cattle, swine, sheep, and horses.

ANSC 1100 ORIENTATION TO ANIMAL SCIENCES (1) LEC. 1 SU. An introduction to the departmental programs and personnel and how to make the most of the college experience. Breadth of career opportunities for animal science graduates.

ANSC 2000 COMPANION ANIMAL MANAGEMENT (3) LEC. 3 Practical aspects of behavior, nutrition, breeding, reproduction, health and management of dogs, cats and other animals generally considered to be human companions.

ANSC 2010 ANIMALS AND SOCIETY (3) LEC. 3 Ethical and scientific issues surrounding human-animal interactions and the role human-animal interactions play in modern society.

ANSC 2050 INTRODUCTION TO HORSE MANAGEMENT AND TRAINING (3) LEC. 1, LAB. 4 An introduction to the management, training, and enjoyment of horses.

ANSC 2150 SKILLS AND CONCEPTS OF EQUESTRIAN SPORTS (1) LEC. 4 Basic management and care of animals used in intercollegiate equestrian and rodeo sports. Pr., departmental approval. Course may be repeated for a maximum of 2 credit hours.

ANSC 2650 EQUINE BIOMECHANICS AND SHOEING (2) LAB. 4 Pr., ANSC 1000 and BIOL 2500 Anatomy, function and care of the horse foot; mechanical forces and joint/tissue health; hoof traits, quality and correction through shoeing.

ANSC 2700 VALUE-BASED ANALYSIS OF MEAT ANIMALS (2) LAB. 4 Pr., ANSC 1000 Comparative evaluation of body composition and application of federal grading standards to determine relative value and price of live animals, carcasses, and wholesale cuts.

ANSC 2710 COMMERCIAL MEAT MANAGEMENT (4) LEC. 3, LAB. 2 The importance of meat in the food service industry, including food safety, purchasing, cooking, and meat in the diet. For non-majors only.

ANSC 3000 HERD HEALTH MANAGEMENT (3) LEC. 3 Pr., ANSC 1000 and BIOL 3200 The prevention and control of the major diseases of farm animals and the development of herd health programs.

ANSC 3150 EQUINE MARKETING (2) LAB. 4 Pr., ANSC 1000 and (ECON 2020 or ECON 2027) Practical concepts of equestrian marketing including evaluating the horse, assessing the market, targeting customers, and presenting the horse.

ANSC 3300 INTRODUCTORY LIVESTOCK EVALUATION AND MARKETING (2) LAB. 6 Pr., ANSC 1000 Comprehensive study of live animal and carcass evaluation techniques used in the selection and marketing of beef cattle, swine and sheep. The development of decision-making oral communication skills is emphasized.

ANSC 3310 INTRODUCTION TO MEAT SELECTION AND GRADING (2) LAB. 6 Pr., ANSC 1000 Development of grading standards and application of federal grades to beef, pork and lamb carcasses. Comparative evaluation of carcasses, primal, and sub-primal cuts.

ANSC 3330 INTRODUCTION TO DAIRY CATTLE JUDGING (2) LAB. 6 Pr., ANSC 1000 Theory and practice in the selection of dairy cattle based on visual appraisal, pedigree, and performance records. The development and presentation of oral reasons also is emphasized.

ANSC 3350 EQUESTRIAN COACHING (2) LAB. 4 Principles and practices of instructing students on horseback, safety for horse and rider, lesson plans and class management, evaluation of riders, teaching riders with special needs.

ANSC 3400 ANIMAL NUTRITION (4) LEC. 3, LAB. 2 Pr., BCHE 3200 and BIOL 1030 or (BIOL 1037) Principles and practice of animal nutrition, nutrient contents of feedstuff, and diet formulation. Pr., departmental approval.

ANSC 3500 ANIMAL BREEDING (3) LEC. 3 Pr., ANSC 1000 and (STAT 2510 or STAT 2613) Genetic and environmental effects of animal differences. Selection and mating systems used in the improvement of domestic animals with an emphasis on livestock.

ANSC 3600 REPRODUCTIVE PHYSIOLOGY (4) LEC. 3, LAB. 2 Pr., ANSC 1000 and (STAT 2510 or STAT 2613) Comparative evaluation of reproduction in livestock and man. Reproductive efficiency in mammalian systems.

ANSC 3610 ANIMAL GROWTH AND DEVELOPMENT (4) LEC. 3, LAB. 2 Pr., ANSC 1000 and (BIOL 1030 or BIOL 1037) Biology of prenatal and postnatal growth of meat animals, emphasizing muscle, adipose, and bone tissues from a molecular, cellular, endocrine perspective. Application of concepts to improve rate, efficiency, and composition of growth.

ANSC 3650 PHYSIOLOGY OF EQUINE ATHLETE (2) LEC. 2 Pr., ANSC 1000 and BCHE 3200 and BIOL 2510 Selection and development of the horse for athletic performance; exercising, training, and fitness conditioning for performance horses.


ANSC 3800 CAREERS IN ANIMAL SCIENCE (1) LEC. 1 SU. Career opportunities for animal science graduates. Identifying and investigating careers and presenting oneself professionally for employment or post-baccalaureate education.

ANSC 3840 STUDY/TRAVEL IN ANIMAL SCIENCE (1-10) FLD. Concentrated study in animal production and management, equine science and the meat industry within the US or international locations. Pr., departmental approval. Course may be repeated for a maximum of 50 credit hours.

ANSC 4000 MODERN LIVESTOCK SYSTEMS (4) LEC. 3, LAB. 2 Pr., ANSC 3400 and ANSC 3500 and ANSC 3650 Overview of beef, dairy, swine and small ruminant production systems. Modern concepts, ideas, and methodology associated with the application of technology to reproduction, breeding, health, nutrition, waste nutrient utilization, and management.

ANSC 4030 DAIRY CATTLE PRODUCTION (4) LEC. 3, LAB. 3 Pr., ANSC 3400 and ANSC 3500 and ANSC 3650 Practical application and integration of nutrition, breeding, reproduction, selection, herd health, economics, and management for efficient dairy production.

ANSC 4050 HORSE PRODUCTION (4) LEC. 3, LAB. 2 Pr., ANSC 3400 and ANSC 3500 and ANSC 3650 Practical application and integration of nutrition, breeding, reproduction, selection, herd health, economics, and management for efficient horse production.

ANSC 4070 SWINE PRODUCTION (4) LEC. 3, LAB. 2 Pr., ANSC 3400 and ANSC 3500 and ANSC 3650 Practical application and integration of nutrition, breeding, reproduction, selection, herd health, economics, and management for efficient swine production.

ANSC 4090 SHEEP PRODUCTION (4) LEC. 3, LAB. 2 Pr., ANSC 1000 Application and integration of breeding and selection, nutrition, reproduction, health, and marketing to achieve optimum lamb and wool production in the southeastern U. S.

ANSC 4100 FARM ANIMAL BEHAVIOR (2) LEC. 2 Pr., ANSC 3600 Basic information on behavior, its purpose, and measurement. Examination of eating, locomotive, sexual, aggressive, territorial, maternal, and resting behaviors in cattle, horses, swine, and sheep.

ANSC 4150 ADVANCED SKILLS AND CONCEPTS OF EQUESTRIAN SPORTS (1) LEC. 4 Pr., ANSC 2150 Principles and skills utilized in intercollegiate equestrian and rodeo team competition and management. Issues affecting management, training, marketing, and promotion of animals used in equestrian and rodeo sports. Course may be repeated for a maximum of 2 credit hours.

ANSC 4300 ADVANCED LIVESTOCK JUDGING (1) LEC. 4 Pr., ANSC 3300 Advanced course in principles and techniques of livestock selection based on visual
ANSC 4310 ADVANCED MEAT JUDGING (1) LAB. 4 Pr., ANSC 3310 Practice in evaluation and grading of beef, pork, and lamb carcasses and cuts. Development of communication skills and exposure to animal agriculture through training and inter-collegiate competition. Course may be repeated for a maximum of 2 credit hours.

ANSC 4320 ADVANCED ANIMAL EVALUATION AND MARKETING (1) LAB. 4 Pr., ANSC 4300 or ANSC 4310 Live animal and carcass evaluation techniques used in marketing cattle, swine, and sheep.

ANSC 4330 ADVANCED DAIRY CATTLE JUDGING (1) LAB. 4 Pr., ANSC 3330 Advanced course in the selection of dairy cattle and presentation of oral reasons. Course may be repeated for a maximum of 2 credit hours.

ANSC 4450 EQUINE NUTRITION (2) LEC. 2 Pr., ANSC 3400 Principles of digestive physiology, nutrition, and metabolic disorders unique to the horse with special emphasis on nutritional needs of the equine athlete.

ANSC 4650 EQUINE REPRODUCTIVE TECHNIQUES (2) LEC. 4 Pr., ANSC 3600 Reproductive management and application of modern technologies to enhance reproductive efficiency of the domestic horse.

ANSC 4700 MEAT PROCESSING (4) LEC. 3, LAB. 3 Pr., ANSC 3700 Integration of topics in meat and non-meat ingredient chemistry and their applications to muscle food processing. Physical, chemical, and sensory properties of fresh and processed meat products.

ANSC 4900 ISSUES IN ANIMAL AGRICULTURE (2) LEC. 4 Pr., COMM 1000 Issues affecting animal agriculture, dealing with concerns of consumers and activists, involvement in public debate, and the political process.

ANSC 4910 PROFESSIONAL DISCOURSE IN AGRICULTURE (1) LAB. 2 Pr., COMM 1000 Methods for enhancing effective discourse concerning issues facing the livestock industry.

ANSC 4920 INTERNSHIP IN ANIMAL SCIENCES (5-15) INT. SU. Departmental approval. Course may be repeated for a maximum of 15 credit hours. Course may be repeated for a maximum of 15 credit hours.

ANSC 4960 SPECIAL PROBLEMS (1-5) IND. Pr., Departmental Approval. Students will work under the direction of staff members on specific problems. Course may be repeated for a maximum of 15 credit hours.

ANSC 4967 HONORS SPECIAL PROBLEMS (3-6) IND. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

ANSC 4997 HONORS THESIS (3-6) IND. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

ANSC 5010 BEEF PRODUCTION (4) LEC. 3, LAB. 2 Pr., ANSC 3400 and ANSC 3500 and ANSC 3600 Overview of the beef cattle industry. Modern concepts, ideas and methodology associated with the application of technology to reproduction, breeding, nutrition, management and the use of facilities in a modern beef cattle enterprise.

ANSC 5730 SENSORY EVALUATION (3) LEC. 2, LAB. 2 Pr., STAT 2510 History and methods of sensory testing of food products, factors affecting results. May count only one of the following: ANSC 5730, ANSC, 6730, POUL 5730, POUL 6730.

ANSC 6010 STOCKER CATTLE PRODUCTION (4) LEC. 3, LAB. 4 Application of the principles of animal science to the successful production of stocker cattle. Emphasis placed on marketing and management strategies. Lab will involve a considerable amount of fieldwork.

ANSC 6730 SENSORY EVALUATION (3) LEC. 2, LAB. 2 Pr., STAT 2510 History and methods of sensory testing of food products, factors affecting results. May count only one of the following: ANSC 5730, ANSC, 6730, POUL 5730, POUL 6730.

ANSC 7400 RUMINANT NUTRITION (3) LEC. 3 Pr., BCHE 7210 Digestive physiology, mechanisms of rumen fermentation, postprandial nutritional biochemistry.

ANSC 7410 NONRUMINANT NUTRITION (3) LEC. 3 Pr., BCHE 7210 Digestion, absorption, and utilization of macro and micro nutrients, nutrient interrelationships in swine and other non-ruminant species.

ANSC 7420 NUTRITIONAL TOXICOLOGY (3) LEC. 3 General principles of nutrition and toxicology applied toward understanding and managing livestock responses to toxicants in feeds and plants.

ANSC 7500 EXPERIMENTAL METHODS (3) LEC. 3 Pr., STAT 7010 Research methods used in the animal sciences for the analysis and interpretation of data. Included are experimental designs and computing techniques.

ANSC 7510 QUANTITATIVE GENETICS (3) LEC. 3 Pr., BIOL 3000 and STAT 7010 Principles of population genetics; gene frequency, biometric relationships between relatives, additive, dominance and epistatic effects, estimation and use of repeatability, heritability, genetic correlations, and breeding values. Pr., departmental approval.

ANSC 7600 PHYSIOLOGY OF REPRODUCTION (3) LEC. 3 Pr., ANSC 3600 and BIOL 8240 Physiological, endocrinological, cellular, and molecular mechanisms regulating reproduction, with emphasis on mammalian systems.

ANSC 7610 PHYSIOLOGY OF GROWTH (3) LEC. 3 Pr., BCHE 7210 Molecular and cellular basis of tissue differentiation, growth and development with emphasis on muscle, adipose and connective tissues and factors influencing gene expression controlling such events.

ANSC 7700 MUSCLE FOODS AND APPLIED MUSCLE BIOLOGY (4) LEC. 3, LAB. 2 Pr., ANSC 3700 and BCHE 7210 Investigations of muscle microanatomy, biochemistry of muscle proteins and lipids, biochemistry of skeletal muscle contraction, lipid/protein interactions, antemortem and postmortem factors affecting fresh and processed meat quality; discussion of classic and current scientific literature.

ANSC 7950 SEMINAR (1) LEC. 1 SU. An intensive study of selected topics in some facet of animal sciences.

ANSC 7960 SPECIAL PROBLEMS (1-5) IND. Conference problems, assigned reading, literature searches in one or more of the following major fields; (a) biochemistry, (b) nutrition, (c) animal breeding, (d) reproductive physiology, (e) growth physiology, (f) muscle foods, (g) microbiology, and (h) behavior. Course may be repeated for a maximum of 15 credit hours.

ANSC 7990 RESEARCH AND THESIS (1-15) MST. Research and thesis may be on technical laboratory problems or on problems directly related to beef and dairy cattle, sheep, swine, or laboratory animals. Course may be repeated with change in topic.


ANSC 8410 VITAMIN AND MINERAL METABOLISM (3) LEC. 3 Pr., BCHE 7210 Vitamin and mineral nutrition with emphasis on chemical structures and characteristics, metabolic functions, deficiencies and toxicity syndromes, interrelationships and requirements of vitamins and minerals.

ANSC 8500 LINEAR MODEL APPLICATIONS IN ANIMAL BREEDING (4) LEC. 4 Pr., ANSC 7510 and STAT 7010 Selection indices and mixed linear model genetic theory, estimation and prediction. Equivalent animal models, properties of solutions, and extension of methods to consider genetic relationships, multiple records, culling bias and multiple trait evaluation. Current literature will also be discussed.

ANSC 8610 MUSCLE PHYSIOLOGY AND BIOCHEMISTRY (3) LEC. 3 Pr., BCHE 7210 and BIOL 6600 Heterogeneity and plasticity of muscle as a tissue, ontogeny, differentiation, growth and regulation of metabolic and molecular properties of muscle fibers by innervation, usage, hormones, and artificial modulation. Evaluation of current literature.

ANSC 8990 DOCTORAL RESEARCH AND DISSERTATION (1-15) DSR. Course may be repeated with change in topic.

Architecture (ARCH)

Prof. Rusty Smith - 844-4582

ARCH 1000 CAREERS IN DESIGN AND CONSTRUCTION (1) LEC. 1, LST. 1 SU. Introduction to the environmental design and construction professions and the curriculum in the chosen field.

ARCH 1010 INTRODUCTION TO ARCHITECTURE DESIGN (5) LEC. 1, LST. 12 SU. Principles of visual organization, research and design process skills, and the graphic communication of form and ideas.

ARCH 1020 INTRODUCTION TO ARCHITECTURE DESIGN II (5) LEC. 1, LST. 12 Pr., ARCH 1010 and ARCH 1000 and ARCH 1060 Principles of visual organization, research and design process skills, and the graphic communication of form and ideas.

ARCH 1030 VISUAL COMMUNICATION (2) LEC. 1, LEC/STU. 2 SU. Cr., ARCH 1010 Introduction to graphic communication. Focus on developing graphic skills for the purpose of explaining form and communicating ideas via exercises in drafting, sketching, and diagramming.

ARCH 1420 INTRODUCTION TO DIGITAL MEDIA (2) LEC. 1, LST. 2 Pr., ARCH 1060 Cr., ARCH 1020 Introduction to the principles of 2-D and 3-D digital media and how these principles are utilized in architectural design.

ARCH 2010 STUDIO I (6) LEC. 2, LST. 10 Pr., ARCH 1020 and ARCH 1420 Basic issues of architectural design centered on the thoughtful creation of exterior and interior space. Studies of light, material, texture, proportion, scale, and site are integrated into each project.

ARCH 2020 STUDIO II (6) LEC. 2, LST. 10 Pr., ARCH 2010 Fundamental design process skills including observation, analysis, and synthesis.

ARCH 2110 ARCHITECTURAL HISTORY I: HISTORY OF THE BUILT ENVIRONMENT (3) LEC. 3 Pr., ARCH 1020. Minimum grade of C. Examination of the social determinants that shape the public beliefs and practices that produce buildings.

ARCH 2117 ARCH HIST I HIST OF BUILT ENV (3) LEC. 3 Pr., ARCH 1020. Minimum grade of C. Examination of the social determinants that shape the public beliefs and practices that produce buildings.

ARCH 2600 THE ART OF ARCHITECTURE, PLACE, AND CULTURE (3) LEC. 3 The interrelationship of art, architecture, place, and culture with emphasis on the art of architecture from a global multicultural perspective. Illustrated lecture, read-
ing, and essays. May not be enrolled in one of the following Majors: Architecture, Pre-Architecture, Interior
ARCH 3010 STUDIO 3 (6) LEC. 2, LST. 10 Pr., ARCH 2020 Builds on ARCH 2010 and 2020. The process of making architecture through critical inquiry and investiga-
The physical, social, ethical contexts that inform the design of every building.
ARCH 3020 STUDIO 4 (6) LEC. 2, LST. 10 Pr., (ARCH 3010 or ARIA 3020) and
ARCH 3110 and BSCI 3450 and BSCI 3100 Builds on ARCH 3010 and adds
emphasis on the integration of construction tectonics in the development of archi-
tectural form.
ARCH 3110 ARCHITECTURAL HISTORY II: HISTORY OF EUROPEAN AR-
CHITECTURE TO 1800 (3) LEC. 3 Pr., ARCH 2110 Introduction to key European
buildings and towns from the Bronze Age to the Enlightenment. Examines how societal beliefs and practices influence the making of architecture.
ARCH 3120 ARCHITECTURAL HISTORY III: 19TH CENTURY TO PRESENT (3)
LEC. 3 Pr., ARCH 3110 History of architecture, 1850-present, with an emphasis on
the rise of the modern movement in Europe and the U.S.
ARCH 3320 MATERIALS AND METHODS OF CONSTRUCTION I (3) LEC. 3
Pr., ARCH 1020 The properties and potential design function of materials used in
contemporary construction, with an emphasis on foundation systems, wood, and
masonry.
ARCH 3410 DESSEIN ELECTIVES (3) LEC. 3 Explorations in the art of representa-
tion. Complete descriptions of specific courses and their prerequisites are available
from the School of Architecture. Course may be repeated for a maximum of 6 credit
hours.
ARCH 3500 SEMINAR IN METHODS AND PROCESSES (3) LEC. 3 Pr., ARCH
2020 Tools and techniques available to the design professional including specific
design specializations, and design methodologies. Descriptions of specific semi-
nars are available from the School of Architecture. Course may be repeated with a
change in topic. Course may be repeated with change in topics.
ARCH 3600 SEMINAR IN CONTEMPORARY ISSUES (3) LEC. 3 Pr., ARCH 2020
Investigation of significant topics that present opportunities and constraints to
architectural thought and practice. Course may be repeated with change in topic.
ARCH 3700 SEMINAR IN HISTORY AND THEORY (3) LEC. 3 Pr., ARCH 2010
Investigation of theories, schools or periods to examine the potential and limita-
tions of architecture. Descriptions of specific seminars available from School of
Architecture. Course may be repeated with change in topic.
ARCH 3710 SEMINAR IN HISTORICAL PERSPECTIVES (3) LEC. 3
ARCH 3800 SEMINAR IN ASPECTS OF DESIGN (3) LEC. 3 Pr., ARCH 2020 Study of
aspects of design, such as form, space, style, meaning, perception, culture. Descriptions of specific seminars available from the School of Architecture.
Course may be repeated with a change in topic. Course may be repeated with change in topics.
ARCH 4010 STUDIO 5 (6) LEC. 2, LST. 10 Pr., (ARCH 3020 or ARIA 3020) and
ARCH 3320 and ARCH 2110 and BSCI 3400 Design of buildings, building com-
plexes, and spaces in an urban context. Lectures emphasize urban issues, research
methods, Programming and analysis will parallel studio projects of increasing
complexity.
ARCH 4020 STUDIO 6 (6) LEC. 2, AAB/LST. 10 Pr., (ARCH 4010 or ARIA 4020) and
ARCH 3320 and ARCH 2110 and BSCI 3400 Architectural design in the community.
Includes the development of team-based design proposals. Based in the School's
Birmingham Center. Lectures will focus on issues of urban planning and design.
ARCH 4220 STUDIO 6: EUROPE TRAVEL STUDIO (6) LEC. 6 Pr., ARCH 4010
First hand exposure to the canonical works of European architecture and urban
design. The specific subjects of study and trip itinerary will vary slightly based on
the objectives of the faculty leading the studio.
ARCH 4320 MATERIALS AND METHODS OF CONSTRUCTION 2 (3) LEC. 3
Pr., ARCH 3320 Properties and potential design applications of materials used in
contemporary construction, with an emphasis on steel and concrete, roofing, glass
and glazing, cladding, and interior finishes.
ARCH 4500 PROFESSIONAL PRACTICE (3) LEC. 3 Pr., ARCH 3020 or ARIA 3020
Architectural legal responsibilities, frameworks of professional practice, office orga-
nization, business planning, marketing, project delivery, internship and professional
ethics and leadership.
ARCH 4900 DIRECTED STUDIES (1-6) IND/ST. Development of an area of spe-
cial interest through independent study. May be a group or individual effort under
direction of the faculty and with prior approval of the School Head. Evaluation of the
work may be by faculty jury. Course may be repeated for a maximum of 6 credit
hours. Pr., departmental approval.
ARCH 4910 RURAL STUDIO COMPLETION (6) LEC. Completion of construction
project for ARCH 4120 Elective Studio. This studio is based in the School's remote
facilities in Newbern, AL.
ARCH 4960 SPECIAL PROBLEMS (1-6) LEC. 4900 Course may be repeated for
a maximum of 6 credit hours.
ARCH 4997 HONORS THESIS (1-6) LEC. Course may be repeated for a maximum
of 6 credit hours. Pr., departmental approval.
ARCH 5010 STUDIO 7 (6) LEC. 2, LST. 10 Pr., ARCH 4020 and ARCH 3120 and
BSCI 3450 and BSCI 3110 Advanced problem-solving in the synthesis of previous
design experiences. Development of a comprehensive design project from pro-
graming to construction documents.
ARCH 5020 THESIS STUDIO (7) LEC. 3, LST. 10 Pr., ARCH 5010 and ARCH 5990
Cr., ARCH 5991 Exploration and development of an architectural thesis project of
the student's choice under the direction of a faculty member.
ARCH 5100 TEACHING METHODS (1) LEC. 1
ARCH 5240 BEING THERE (1) LEC. 1
ARCH 5340 METHODS IN COMMUNITY BASED LEARNING (3) LEC. 3
ARCH 5990 INTRODUCTION TO THESIS RESEARCH (2) LEC. 2 Cr., ARCH 5010
Tools, techniques, and strategies required to select, develop, refine, write, and
present a thesis argument.
ARCH 5991 THESIS RESEARCH (1) LEC. 1 Pr., ARCH 5990 Cr., ARCH 5020
Expansion on the individual thesis argument and research begun in ARCH 5990 in
parallel with the development of their thesis design project in ARCH 5020.
INTERIOR ARCHITECTURE (ARIA)
Prof. Christian Dagg - 844-4519
ARIA 2150 ELEMENTS OF INTERIOR ARCH I (3) LEC. 3 Pr., ARCH 2020 The
time of design principles, aesthetics and concepts. Graphic drawings and models
of interior spaces explored. Projects outside of class.
ARIA 2160 ELEMENTS OF INTERIOR ARCHITECTURE II (3) LEC. 3 The theory
design principles, aesthetics and concepts. Graphic drawings and models of
interior spaces explored. Projects outside of class.
ARIA 3020 STUDIO 4A INTERIOR ARCHITECTURE (6) LEC. 2, LST. 10 Pr., ARCH
2020 Parallels Architecture Studio 4, but with an emphasis on interior architecture
with exploration of design and accommodation.
ARIA 4020 STUDIO 6A INTERIOR ARCHITECTURE (6) LEC. 2, LST. 10 Pr., ARCH
3020 and ARCH 3320 and ARCH 2110 and BSCI 3400 Parallels Architecture Studio
6, with emphasis on the development of interior architecture and spaces within an
urban context. Consideration will be given to adaptive reuse.
ARIA 4030 INTERIOR ARCHITECTURE THESIS (6) LEC. 3, LST. 10 Pr., ARCH
4020 Cr., ARIA 4080 Interior design project of the student's choice, under the direc-
tion of a faculty member.
ARIA 4080 INTERIOR ARCHITECTURE THESIS RESEARCH (2) LEC. 2 Pr., ARCH
4020 Research and writing of thesis documents, to include programming, site, and
case studies.
ARIA 4450 INTERIOR ARCHITECTURE PROFESSIONAL PRACTICE (2) LEC. 2
Pr., ARCH 4020 Prepares student to enter professional office with an understanding
of the skills, concepts and technical knowledge expected.
ARIA 4680 HISTORY AND THEORY OF INTERIOR ARCHITECTURE (3) LEC. 3
Pr., ARCH 4020 Theory and history of interior spaces, their social, material, and
aesthetic development and their artifacts.
COMMUNITY PLANNING (CPLN)
Dr. John Pittari, Jr. - 844-5424
CPLN 5000 HISTORY AND THEORY OF URBAN FORM (3) LEC. 3 The vocabu-
lar and historical development of urban design, focusing on the environmental and
cultural forces that design, shape, build, and redevelop the urban fabric.
CPLN 5020 DEATH AND LIFE OF GREAT AMERICAN CITIES (3) LEC. 3 Global,
economic, technical, and social change influences on the evolution of cities and
planners responses. Use of computer simulation to create ideal cities.
CPLN 5100 URBAN DESIGN METHODS (3) LEC. 3 Techniques and method-
ologies in urban design problem-solving and strategies for implementation, Pr.,
departmental approval.
CPLN 5300 REAL PROPERTY DEVELOPMENT (3) LEC. 3 Survey and analysis of
the financial, legal, administrative, planning and design factors influencing the
process of land development from the perspectives of developers, planners and
consumers.
CPLN 5400 PRESERVATION PLANNING (3) LEC. 3 Planning for the preserva-
tion, restoration, conservation, adaptive reuse of historic buildings, sites and districts
within the comprehensive planning process.
CPLN 5500 ENVIRONMENTAL PLANNING (3) LEC. 3 Traditional and emerging
methods and policy for environmental planning. Or departmental approval.
CPLN 5520 REAL ESTATE DEVELOPMENT STUDIO (6) LEC. 6 Application of
knowledge of real estate development gained in earlier coursework. Real Property
Analysis; studio work and development of feasibility for actual site. Pr., departmen-
tal approval.
CPLN 5970 SPECIAL TOPICS IN PLANNING (1-3) LEC. Study of a substantive
area related to community planning in a seminar setting. Course may be repeated
for a maximum of 9 credit hours with a change in topic. Course may be repeated
for a maximum of 9 credit hours.
CPLN 6000 HISTORY AND THEORY OF URBAN FORM (3) LEC. 3 The vocabulary and historical development of urban design, focusing on the environmental and cultural forces that design, shape, build, and redevelop the urban fabric.

CPLN 6020 DEATH AND LIFE OF GREAT AMERICAN CITIES (3) LEC. 3 Global, economic, technical, and social change influences the evolution of cities and planners' responses. Use of computer simulation to create ideal cities.

CPLN 6100 URBAN DESIGN METHODS (3) LEC. 3 Techniques and methodologies in urban design problem-solving and strategies for implementation.

CPLN 6300 REAL PROPERTY DEVELOPMENT (3) LEC. 3 Survey and analysis of the financial, legal, administrative planning and design factors influencing the process of land development from the perspectives of developers, planners and consumers.

CPLN 6400 PRESERVATION PLANNING (3) LEC. 3 Planning for the preservation, restoration, conservation and adaptive reuse of historic buildings, sites and districts within the comprehensive planning process.

CPLN 6500 ENVIRONMENTAL PLANNING (3) LEC. 3 Traditional and emerging methods and policy for environmental planning.

CPLN 6520 REAL ESTATE DEVELOPMENT STUDIO (6) LEC. 6 Application of knowledge of real estate development gained in earlier coursework. Real Property Analysis; studio work and development of feasibility for actual site.

CPLN 6970 SPECIAL TOPICS IN PLANNING (1-3) LEC. Study of a substantive area related to community planning in a seminar setting. Course may be repeated for a maximum of 9 credit hours.

CPLN 7200 URBAN DESIGN STUDIO (6) STU. 12 Conceptual issues in urban design are explored, with an emphasis on the interpretation and representation of urban form; projects provide experience in both the making and the critical understanding of design actions within the community.

CPLN 7240 QUANTITATIVE METHODS FOR PLANNING (3) LEC. 3 Development of working knowledge of planning techniques such as data collection, basic statistics, demographic analysis, economic analysis, social research, transportation, and evaluation.

CPLN 7400 COMMUNITY PLANNING STUDIO (6) STU. 12 Application of the comprehensive planning process to assist a client in the solution of a community planning problem, under faculty direction in cooperation with other professionals.

CPLN 7430 PLANNING, LAW, ETHICS & IMPLEMENTATION (3) LEC. 3 This course covers three key elements of the planning profession: ethics, law and plan implementation.

CPLN 7440 PLANNING THEORY (3) LEC. 3 Historical development of communities with emphasis on the interaction of their dynamic and structural elements; impact of the planning process and planners on public and private decision-making; ethics and professional responsibility of planners.

CPLN 7450 PLANNING HISTORY (3) LEC. 33 This course will address the historical development of American urban planning as it has evolved primarily since mid-nineteenth century.

CPLN 7460 DIGITAL APPLICATIONS FOR PLANNING, DEVELOPMENT AND DESIGN (3) LEC. 3 Basic concepts and range of applications of geographic information systems in land use planning, development, and local government. Emphasis on the use of information for spatial decision-making in the areas of service delivery, management and policy-planning.

CPLN 7500 PLANNING WORKSHOP (3) LEC. 3 Necessary practical tools for planners, with emphasis on process, practice, and public involvement.

CPLN 7600 SYNTHESIS STUDIO I (6) STU. 12 Pr., CPLN 7400 Cr., CPLN 7600 Demonstration of competence in community planning and design through the production of an original, comprehensive project that integrates knowledge and experience in addressing a complex planning and design problem. Pr., departmental approval.

CPLN 7620 RESEARCH METHODS (3) LEC. 3 The tools for conducting research that are essential for the development of a comprehensive community planning and design synthesis project. Pr., departmental approval.

CPLN 7800 SYNTHESIS PROJECT (6) STU. 12 Demonstration of competence in community planning and design through production of an original, comprehensive project that integrates knowledge and experience in addressing a complex planning and design problem. Pr., departmental approval.

CPLN 7920 PLANNING INTERNSHIP (1-6) INT. Professional experience in public, private or non-profit planning or planning-related agency. Pr., departmental approval.

LANDSCAPE ARCHITECTURE (LAND)
Dr. Rod Barnett - 844-0192

LAND 5000 LANDSCAPE FOUNDATION STUDIO (10) STU. 10 Cr., LAND 5001 Introduction to the fundamentals of design, and the fundamentals of landscape architecture.

LAND 5001 FIELD STUDIES, FOUNDATION STUDIO (2) FLD. 4 Cr., LAND 5000 Field studies related to LAND 5000.

LAND 5100 MATERIALS AND STRUCTURE STUDIO (5) STU. 10 Cr., LAND 5101 Landscape architecture design studio emphasizing material research, planning, and design problems at the neighborhood to community scales.

LAND 5101 FIELD STUDIES, MATERIALS AND STRUCTURE STUDIO (1) FLD. 2 Cr., LAND 5100 Field studies related to LAND 5100. Fall, Spring.

LAND 5110 BASIC LANDSCAPE ARCHITECTURAL DESIGN (6) STU. 12 Landscape architectural design studio emphasizing research, planning and design problems at neighborhood to community scales.

LAND 5120 HISTORY OF LANDSCAPE DESIGN (3) LEC. 3 Survey of the traditions and heritage of landscape architecture from antiquity to the present.

LAND 5130 HISTORY OF LANDSCAPE ARCHITECTURE (6) LEC. 3 The heritage and traditions of landscape architecture from antiquity to the 17th Century.

LAND 5140 LANDSCAPE ARCHITECTURE CONSTRUCTION I (3) LEC. 3 Fundamental skills needed to analyze, understand, and manipulate landform with respect to form, grading, and drainage.

LAND 5160 PROFESSIONAL PRACTICE OF LANDSCAPE ARCHITECTURE (3) LEC. 3 Procedure in architectural practice, construction methods, office organization, legal requirements, professional organizations and relations, civic responsibilities, and professional ethics.

LAND 5170 DESIGN COMMUNICATION (3) LEC. 3 Graphic and communication theories and skills in a variety of media.

LAND 5200 COMMUNITY FABRIC STUDIO (5) STU. 5 Pr., LAND 5100 Cr., LAND 5201 A continuation of the Materials & Structure Studio emphasizing research, planning, and design problems at community to regional scales.

LAND 5201 FIELD STUDIES, COMMUNITY FABRIC STUDIO (1) FLD. 1 Cr., LAND 5200 Field studies related to LAND 5200. Approximately four days devoted to a Field Study(ies). Spring.

LAND 5210 URBAN HOUSING STUDIO (6) STU. 12 Spatial/formal qualities of multi-unit housing utilizing the weight of housing typologies erected in North America.

LAND 5220 HISTORY OF URBAN DESIGN (3) LEC. 3 An introduction to the history and theories of Urban Design from antiquity to present. Spring.

LAND 5230 THE AMERICAN URBAN LANDSCAPE (3) LEC. 3 Explores the 20th Century American landscape through the writings of J.B. Jackson.

LAND 5240 LANDSCAPE CONSTRUCTION II (3) LEC. 3 Pr., LAND 5140 Advanced skills necessary to direct construction in the built environment including road design, grading design, cut and fill calculations and drainage planning.

LAND 5250 SEMINAR IN HISTORY OF LANDSCAPE ARCHITECTURE (3) LEC. 3 Exploration of different topics in Landscape Architecture; A) The formal garden in America, B) 20th Century Landscape Architecture, C) The life and works of Frederick Law Olmstead. Course may be repeated with change of topic.

LAND 5260 LANDSCAPE ARCHITECTURE: CONSTRUCTION II; SITE ENGINEERING, DESIGN AND DETAILING (3) LEC. 3 Pr., LAND 5150 Advanced skills necessary to direct construction in the built environment.

LAND 5270 STUDY ABROAD (3-15) FLD. Study abroad, China, Europe or Canada. Course may be repeated for a maximum of 15 credit hours. Course may be repeated for a maximum of 15 credit hours.

LAND 5280 LANDSCAPE ELEMENTS: EARTH, FIRE AND WATER (3) LEC. 3 Introduces students to the basic elements used in the design of the built landscape.

LAND 5310 INDEPENDENT STUDY THESIS (6) STU. 12 Extensive exploration and development of a landscape architecture issue of the student’s choice beyond the level associated with entry to the profession. Pr., Level-III standing; departmental approval.

LAND 5320 AMERICAN URBAN LANDSCAPE (3) LEC. 3 Explores the 20th century American landscape through the writings of J.B. Jackson.

LAND 5330 THESIS RESEARCH SEMINAR (3) LEC. 3 Tools of research essential to support the student’s thesis. Pr., Level-III standing.

LAND 5340 ADVANCED THEORY SEMINAR (3) LEC. 3 Current and compelling issues in the fields relevant to Landscape Architecture.

LAND 5420 HISTORY SEMINAR PLACE OR TIME (3) LEC. 3 Pr., LAND 5120 Historical investigations and research on the cultural and historical implications of a specific site. Previous topics have included: The formal garden in America, 20th century American landscape architecture. The life and works of Frederick Law Olmstead. Course may be repeated with change of topic. Fall, Spring. Course may be repeated with change in topic.

LAND 5430 URBAN THEORY (3) LEC. 3 An introduction to contemporary theories of urban design, geography, and cultural theory using case study methods.

LAND 5500 LAND ETHICS AND ENVIRONMENTAL RESPONSIBILITY (3) LEC. 3 Explores the ethical relationship of man and nature.

LAND 5510 ENVIRONMENTAL PLANNING STUDIO (6) STU. 12 Natural systems analysis as a basis for site planning and large scale facilities design. Pr., Level-II standing.
LAND 5520 LANDSCAPE ARCHITECTURE DESIGN STUDIO (6)STU. 12 Pr., LAND 5110 A continuation of the basic design studio emphasizing research, planning, and design problems at community to regional scales.

LAND 5540 HISTORY OF LANDSCAPE ARCHITECTURE II (3)LEC. 3 Explores the built landscape from the 17th Century to the present including designs in America, Europe and Asia.

LAND 5590 INDEPENDENT STUDY THESIS (6)STU. 12 A major integrative investigation of a focused problem area, defined and pursued by the student under the direction of a faculty member.

LAND 6000 LANDSCAPE FOUNDATION STUDIO (10)STU. 10 Cr., LAND 6001 Introduction to the fundamentals of design, and the fundamentals of landscape architecture. Summer.

LAND 6001 FIELD STUDIES: LANDSCAPE ARCHITECTURE FOUNDATION STUDIO (2)FLD. 4 Cr., LAND 6000 Field studies related to LAND 6000. Summer.

LAND 6100 MATERIALS AND STRUCTURE STUDIO (9)STU. 10 Cr., LAND 6101 Landscape architecture design studio emphasizing material research, planning and design problems at the neighborhood to community scales.

LAND 6101 FIELD STUDIES, MATERIAL AND STRUCTURES STUDIO (1)FLD. 2 Cr., LAND 6100 Field studies related to LAND 6100. Fall, Spring.

LAND 6120 HISTORY OF LANDSCAPE DESIGN (3)LEC. 3 Survey of the traditions and heritage of landscape architecture from antiquity to the present.

LAND 6140 LANDSCAPE ARCHITECTURE CONSTRUCTION I (3)LEC. 3 Fundamental skills needed to analyze understand, and manipulate landform with respect to form, grading, and drainage.

LAND 6170 DESIGN COMMUNICATION (3)LEC. 3 Graphic and communication theories and skills in a variety of media.

LAND 6200 COMMUNITY FABRIC STUDIO (5)STU. 5 Pr., LAND 6100, LAND 6201 A continuation of the Materials & Structure Studio emphasizing research, planning, and design problems at community to regional scales. Spring.

LAND 6201 FIELD STUDIES, COMMUNITY FABRIC STUDIO (1)FLD. 2 Cr., LAND 6200 Field studies related to LAND 6200. Approximately four days devoted to a Field Study(s). Spring.

LAND 6220 HISTORY OF URBAN DESIGN (3)LEC. 3 An introduction to the history and theories of Urban Design from antiquity to present. Spring.

LAND 6240 LANDSCAPE CONSTRUCTION II (3)LEC. 3 Pr., LAND 6140 Advanced skills necessary to direct construction in the built environment including road design, grading design, cut and fill calculations and drainage planning.

LAND 6320 AMERICAN URBAN LANDSCAPE (3)LEC. 3 Explores the 20th century American landscape through the writings of J.B. Jackson.

LAND 6420 HISTORY SEMINAR: PLACE OR TIME (3)LEC. 3 Pr. LAND 6120 Historical investigations and research on the cultural and historical implications of a specific site. Previous topics have included: The formal garden in America, 20th century American landscape architecture. The life and works of Frederick Law Olmstead. Course may be repeated with change of topic. Course may be repeated with change in topic.

LAND 6430 URBAN THEORY (3)LEC. 3 An introduction to contemporary theories of urban design, geography, and cultural theory using case study methods.

LAND 7300 ENVIRONMENT AND DWELLING STUDIO (5)LEC. 5 Cr., LAND 7301 Spatial qualities of multi-unit housing utilizing the wealth of housing prototypes erected in North American.

LAND 7301 FIELD STUDIES, ENVIRONMENT AND DWELLING STUDIO (1)FLD. 2 Cr., LAND 7300 Field studies related to LAND 7300. Fall, Spring.

LAND 7320 LANDSCAPE ECOLOGY (3)LEC. 3 Facilitates a working knowledge of natural ecological systems in site analysis; how they can be preserved or restored to enhance human and ecological health.

LAND 7360 PROFESSIONAL PRACTICE (3)LEC. 3 Studies in landscape and architecture practice, construction methods, office organization, legal requirements, professional organizations and relations, civic responsibility, and professional ethics. Fall, Spring.

LAND 7400 ENVIRONMENTAL FABRIC STUDIO (9)STU. 10 Pr., LAND 7300 Cr., LAND 7401 Natural systems analysis as a basis for site planning and large-scale facilities design.

LAND 7401 FIELD STUDIES, ENVIRONMENTAL FABRIC STUDIO (1)FLD. 2 Cr., LAND 7400 Field studies related to LAND 7400.

LAND 7510 ADVANCED RESEARCH TOPICS (3)LEC. 3 Cr., LAND 7930 Advanced studies of a contemporary issue related to Landscape Architecture and related disciplines.

LAND 7900 DIRECTED STUDIES (1-3)LEC. An individual student can pursue an area of research beyond the required curriculum. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval; MLA II standing. Course may be repeated for a maximum of 9 credit hours.

LAND 7970 SPECIAL TOPICS (1-6)AAB. Groups of student work with a specific faculty on a special topic in an area of interest. Course may be repeated for a maximum of 9 credit hours.

LAND 7980 INDIVIDUAL SUMMARY RESEARCH STUDIO II (8)LEC. 8 Pr., LAND 7970 Cr., LAND 7981 Integrative studio work for a landscape architecture research issue. Pr., MLA level III status.

LAND 7981 SUMMARY RESEARCH SEMINAR (1)LEC. 1 Pr., LAND 7930 Cr., LAND 7980 Colloquia devoted to the individual summary design research work of thesis students. Pr., MLA Level III status.

LAND 7990 DESIGN THESIS I (6)LEC. 6

LAND 7991 DESIGN THESIS II (4)LEC. 8

LAND 7992 THESIS RESEARCH SUMMARY (1)

Arts (ARTS)

Arts (ARTS)

Prof. Barry Fleming - 844-4373

ARTS 1010 BASIC DRAWING (3)STU. 9 Instruction in freehand drawing concepts, materials and techniques. A variety of approaches and subject matter will be used. Not open to ARTS majors. Credit not applicable to BA and BFA degree.

ARTS 1030 BASIC CERAMICS (3)STU. 9 Instruction in principles of three-dimensional design and sculpture. Clay is used to explore techniques of casting, constructing, modeling, and wheel throwing. Work with glazes and surface decoration. Credit not applicable to BA and BFA degrees.

ARTS 1040 BASIC PAINTING (3)STU. 9 Instruction in painting concepts, materials, and techniques. Waterbased paints and other media are used to explore a variety of approaches and subject matter. Not open to ARTS majors. Credit not applicable to BA and BFA degrees.

ARTS 1110 DRAWING I (3)AAB/STU. 9 Basic drawing with emphasis on accurate observation, pictorial organization, and the depiction of space; development of drawing skills using various black and white media. Pr., departmental approval. ARTS majors only.

ARTS 1120 DRAWING II (3)STU. 9 Pr., ARTS 1110 Continuation of concepts and processes from ARTS 1110. Introduction to interpretive approaches with emphasis on concept, content, and creativity. Exploration of various black and white and color media. Pr., departmental approval. Arts majors only.

ARTS 1170 INTRODUCTION TO ART HISTORY I (3)LEC. 3 Fine Arts Core. Introduction to major art traditions of the world, from Paleolithic times to AD/CE 1000.

ARTS 1171 HONORS INTRODUCTION INTO ART HISTORY I (3)LEC. 3 Fine Arts Core. Introduction to major art traditions of the world, from Paleolithic times to AD/CE 1000.

ARTS 1720 INTRODUCTION TO ART HISTORY II (3)LEC. 3 Fine Arts Core. An introduction to world art, c.1000 to c.1700. Medieval, Renaissance, and Baroque Europe with Islamic and non-Western art of the same time period.

ARTS 1727 HONORS INTRO ART HISTORY II (3)LEC. 3 Fine Arts Core. An introduction to world art, c. 1000 to c. 1700. Medieval, Renaissance, and Baroque Europe with Islamic and non-Western art of the same period. Credit will not be given for both ARTS 1720 and ARTS 1727.

ARTS 1730 INTRODUCTION TO ART HISTORY III (3)LEC. 3 Fine Arts Core. Major works of painting, sculpture, and architecture from the Rococo period through the 20th century. Emphasis on styles and social, political and cultural relationships.

ARTS 1737 HONORS INTRODUCTION TO ART HISTORY III (3)LEC. 3 Fine Arts Core. Major works of painting, sculpture, and architecture from the Rococo period through the 20th century. Emphasis on styles and social, political and cultural relationships. Credit will not be given for both ARTS 1730 and ARTS 1737.

ARTS 2110 Figure Drawing (3)STU. 9 Pr., ARTS 1110 and ARTS 1120 and ARTS 1730 or (ARTS 1710 and ARTS 1730) or (ARTS 1720 and ARTS 1730). The human figure as form and as compositional element. Measuring and sighting for proportion. Drawing from casts, skeletons, and live nude models. Pr., departmental approval.

ARTS 2140 ADVANCED DRAWING I (3)AAB/STU. 9 Pr., ARTS 2110 Concepts, materials and techniques with emphasis on the development of a personal vision and individual approach. Live nude models may be used.

Arts (ARTS)
ARTS 2310 PAINTING I (3) AAB/STU. 9 Pr., ARTS 1110 and ARTS 1120 and ARTS 1210 and ARTS 1220 and (ARTS 1710 and ARTS 1720) or (ARTS 1710 and ARTS 1730) or (ARTS 1720 and ARTS 1730) Instruction in painting concepts, materials, and techniques with emphasis on the development of technical skills and a personal vision and individual approach. Pr., Genius Hour, and departmental approval. Course may be repeated for a maximum of 8 credit hours. Pr., Open to ARTS majors. Open to ARTS majors as a non-art elective.

ARTS 2320 SCULPTURE AS OBJECT (3) STU. 9 Pr., ARTS 2140 and ARTS 2310 and ARTS 2410 and ARTS 2510 and ARTS 2810 and ARTS 1720 and ARTS 1720 and ARTS 1730 Introduction to concepts and visual problem solving in mixed media. Pr., Genius Hour, and departmental approval. Course may be repeated for a maximum of 8 credit hours. Pr., Genius Hour, and departmental approval.

ARTS 2810 CERAMICS I (3) AAB/STU. 9 Pr., ARTS 1120 and ARTS 1210 and ARTS 1220 and (ARTS 1710 and ARTS 1720) or (ARTS 1710 and ARTS 1730) or (ARTS 1720 and ARTS 1730) A study of the materials, processes, and issues involved in the production of contemporary object-oriented sculpture. Focus on problem solving and presentations of contemporary sculpture. Pr., Two 1000 level Art History, or departmental approval.

ARTS 3720 MEDIEVAL ART OF THE WEST (3) LEC. 3 Pr., (ARTS 1710 and ARTS 1720) or (ARTS 1710 and ARTS 1730) or (ARTS 1720 and ARTS 1730) A study of major art traditions of the West from the fall of Rome to CE 1400, with a selective focus on the major art traditions: Byzantine, Carolingian, Ottonian, Romanesque, Gothic, and Italo-Byzantine. Pr., departmental approval.

ARTS 3730 RENAISSANCE ART IN ITALY (3) LEC. 3 Pr., (ARTS 1710 and ARTS 1720) or (ARTS 1710 and ARTS 1730) or (ARTS 1720 and ARTS 1730) A study of the architecture, painting, and sculpture of the 15th and 16th centuries in Italy. Pr., departmental approval.

ARTS 3740 BAROQUE AND ROCOCO ART (3) LEC. 3 Pr., (ARTS 1710 and ARTS 1720) or (ARTS 1710 and ARTS 1730) or (ARTS 1720 and ARTS 1730) A study of Baroque architecture, painting, and sculpture in 17th-century Europe and of the Rococo style of the 18th century. Pr., departmental approval.

ARTS 3750 19TH CENTURY ART (3) LEC. 3 Pr., (ARTS 1710 and ARTS 1720) or (ARTS 1710 and ARTS 1730) or (ARTS 1720 and ARTS 1730) An introduction to major art movements from Neo-Classicism to Post-Impressionism and Art Nouveau. Pr., departmental approval.

ARTS 3760 20TH CENTURY ART (3) LEC. 3 Pr., (ARTS 1710 and ARTS 1720) or (ARTS 1710 and ARTS 1730) or (ARTS 1720 and ARTS 1730) A study of major developments in painting, sculpture, and architecture in Europe and the United States from 1900 to recent times. Pr., departmental approval.
emphasis on individual stylistic and conceptual concerns. Pr., One 3000-level art history course.

ARTS 4850 PROFESSIONAL STUDIO PRACTICES (2) STU. 2 Instruction in portfolio preparation, resume writing, gallery and museum exhibition, and information on a wide range of art careers and graduate study. Fall, Spring.

ARTS 4930 DIRECTED STUDIES (2-3) IND. Open to ARTS students only, who have shown ability, initiative, and industry. Independent studies are offered Painting, Printmaking, Sculpture, Imaging, Art History, and Ceramics (see department for listing). Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval and 3.0 minimum GPA in 3000-level ARTS courses in area of emphasis. Course may be repeated for a maximum of 6 credit hours.

ARTS 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Course may be repeated for a maximum of 3 credit hours.

ARTS 4970 SPECIAL TOPICS (2-3) AAB. Pr., ARTS 1710 and ARTS 1720 and ARTS 1730 and ARTS 1110 and ARTS 1120 and ARTS 1210 and ARTS 1220 and ARTS 3100 or ARTS 3200 or ARTS 3210 or ARTS 3220 or ARTS 3240 or ARTS 3250 or ARTS 3320 or ARTS 3330 or ARTS 3420 or ARTS 3430 or ARTS 3520 or ARTS 3530 or ARTS 3620 or ARTS 3830 Offered in Design, Fine Arts, Imaging and Art History (see department for listing). Course may be repeated for a maximum of 6 credit hours. Pr., Completion of all 1000-level art history, all 1000-level Foundation courses, one 3000-level studio, and ARTS majors only. Course may be repeated for a maximum of 6 credit hours.

ARTS 4980 SENIOR PROJECT FOR FINE ARTS (4) LEC. 4 Pr., ARTS 2310 and ARTS 2410 and ARTS 2510 and ARTS 2810 Coreq., ARTS 4910 A directed terminal studio project that reflects the student’s major area of study. This project will be exhibited and a faculty committee will award a letter grade. Professional quality color images of the project work must be presented to the department before the student is cleared for graduation. Pr., Fine Arts studio sequence in one group through level IV. Must be taken in student’s final semester.

ARTS 4997 HONORS RESEARCH AND THESIS (1-3) IND. Course may be repeated for a maximum of 6 credit hours.

Aviation and Supply Chain Management (AVSC)

Dr. Joe Hanna - 844-6848

AVIATION MANAGEMENT (AVMG)

AVMG 1010 INTRODUCTION TO AVIATION (3) LEC. 3 Orientation to aviation management career opportunities. The history of significant events and accomplishments in the attempt to move through the air and space. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMG 3050 AVIATION METEOROLOGY (3) LEC. 3 Meteorology as it applies to the operation of aircraft with emphasis on observation of weather elements and interpretation of flight planning weather information. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMG 3140 AEROSPACE MNGT & OP PROBS (3) LEC. 3 Pr., ECON 2030 Introduction to the use of operations research techniques. Includes the role of math modeling procedures, manual and computer generated solutions, applied to the decision-making process. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMG 3200 ECON ANALYSIS IN AVIATION IND (3) LEC. 3 Pr., ECON 2030 Development of principles required in economic analysis. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMG 4030 GENERAL AVIATION MANAGEMENT (3) LEC. 3 Pr., MNGT 3100 An overview of general aviation and its impact and interaction with the total aviation industry including a study of the various users, the suppliers and service organizations, the aircraft and facilities and regulatory framework. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMG 4040 GENERAL AVIATION OPERATIONS (2) LEC. 2 Current principles and practices in commercial and business/corporate flight operations including organizational sources of revenue, functions, operation and typical problems. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMG 4050 AVIATION SAFETY (3) LEC. 3 Problems and issues of aviation safety including aircraft accidents, their cause, effect and the development of safety programs and procedures. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMG 4060 AVIATION ACCIDENT CAUSES & INV (3) LEC. 3 Analysis and insight into the sequence of circumstances that can occur and cause an aircraft accident to happen including the techniques, processes and limitations in determining aircraft accident causation. 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMG 4080 AIR TRANSPORT PLANNING (3) LEC. 3 Pr., AVMG 5090 Management decision making involved in selection of equipment, routes and the establishment of rates by certified and non-certified air carriers. 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMG 4130 AIRPORT MANAGEMENT (3) LEC. 3 Pr., MKTG 3310 Practices in management of a civil public airport, including organization, functions, operations, sources of revenue, funding, maintenance and administration. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMG 4140 AIRPORT PLANNING AND DESIGN (3) LEC. 3 Pr., AVMG 4130 Principles and procedures pertaining to planning airport facilities required to meet the immediate and future air transportation of a community or region. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

AVMG 4160 AIRLINE OPERATIONS (3) LEC. 3 Significance of air transportation in modern society. Development of the present system. Economic and social costs and benefits of the present air transport system. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

AVMG 4160 AIRLINE OPERATIONS (3) LEC. 3 Significance of air transportation in modern society. Development of the present system. Economic and social costs and benefits of the present air transport system. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

AVMG 4190 AIR TRAFFICE CTRL FUNDAMENTALS (3) LEC. 3 Air traffic control procedures, facilities, center, and operations. Theory of radar operation and air traffic separation using computer-based ATC radar simulators. Special fee. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

AVMG 4200 COMPARATIVE AIRLINE OP AND MGT (3) LEC. 3 Interdisciplinary study of industry globalization and global scale competition. The differences in economic characteristics, management structures in terms of organizational behavior and more, political economy frameworks, and human factors, between airlines in the United States and abroad. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

AVMG 4210 COMMUTER AIRLINE OP AND MNGT (3) LEC. 3 Management practices and operational characteristics of the commuter airline and its place in the air transportation system. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

AVMG 4220 COMPARATIVE AIRLINE OP AND MGT (3) LEC. 3 Interdisciplinary study of industry globalization and global scale competition. The differences in economic characteristics, management structures in terms of organizational behavior and more, political economy frameworks, and human factors, between airlines in the United States and abroad. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

AVMG 4300 HUMAN FACTORS CREW/RES. MNGT (3) LEC. 3 Maximizing all of the accessible resources to accomplish the safe and competent execution of any aviation task while using a multi-person work crew. 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

AVMG 4920 INTERNSHIP IN AVIATION MNGT (1-6) INT. Practical on-the-job training under supervision with aviation agencies. Written reports are required by designated faculty supervisors. Course may be repeated for a maximum of 6 credit hours. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Course may be repeated for a maximum of 6 credit hours.

AVMG 4950 AVIATION STRATEGIC MNGT SEM (1) SEM. 1 Cr., MNGT 4800 Aviation Management Capstone course in which managerial issues in the aviation and aerospace industries are analyzed through a problem solving exercise. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

AVMG 4967 HONORS READING (1-3) LEC. ADDITIONAL PREREQUISITES: 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

AVMG 4997 HONORS THESIS (1-3) IND. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

AVMG 5090 AVIATION LAW AND INSURANCE (3) LEC. 3 The legal structure of aviation including federal, local and state statutes, contracts, insurance and liability, regulatory statutes and case law. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

AVMG 5170 AIRLINE MANAGEMENT (3) LEC. 3 Airline manufacturing, economic, and operational/managerial issues, research and development and competition issues and a survey of the world’s major airlines in terms of their management strategies and style. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

AVMG 5180 INTL AIRLINE OPERATIONS (3) LEC. 3 International foreign air carriers, influences of ICAO and IATA, national ownership, determinants of power, operational and management practices, routes and fares. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

AVMG 5970 SPECIAL TOPICS AVIATION MNGT (1-4) LEC. Investigation of current issues in the aviation industry. Course may be repeated for a maximum of 4 credit hours. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Course may be repeated for a maximum of 4 credit hours.

AVMG 6090/6096 AVIATION LAW AND INSURANCE (3) LEC. 3 The legal structure of aviation including federal, local, and state statutes, contracts, insurance and liability, regulatory statutes and case law. Departmental approval.

AVMG 6170/6176 AIRLINE MANAGEMENT (3) LEC. 3 Airline manufacturing, economic, and operation/managerial issues, research and development and competition issues and a survey of the world’s major airlines in terms of their management strategies and style. Pr., departmental approval.
AVMG 6180/6186 INT'L AIRLINE OPERATIONS (3) LEC. 3 International foreign air carriers, influences of ICAO and IATA, national ownership, determinants of power, operational and management practices, routes and fares/Pr., Junior standing or departmental approval.

AVMG 6970/6976 SPECIAL TOPICS AVIATION MNGT (1-3) LEC. 1-3 Investigation of current issues in the aviation industry. Credit will not be given for both AVMG 5970 and AVMG 6970. Course may be repeated for a maximum on 9 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

PROFESSIONAL FLIGHT MANAGEMENT (AVMF)
Dr. Joe Hanna - 844-6848

AVMF 2141 FLIGHT ORIENTATION (1) LAB. 2 Pr., 2.25 GPA. Basic flight experience for non-pilots to familiarize aviation majors, engineers, teachers, and other students desiring a limited exposure to flight. Includes ground discussion and aircraft time. Special fee. 2.5 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 2150 PRINCIPLES OF PRIVATE FLIGHT (LEC) 3 LEC. 3 General introduction and preparation for the FAA private pilot written examination. Theory of flight, aircraft and engine performance, regulations, meteorology, navigation, airspace utilization and aviation physiology. Special fee. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 2171 PRIVATE PILOT FLIGHT TRNG I (1) LAB. 3 Pr., AVMF 2150 Dual and solo flight instruction and discussion to prepare for FAA Private Pilot Certificate. Special fee. Special fee. 2.5 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 2230 PRIN OF INSTRUMENT FLIGHT (LEC) 3 LEC. 3 Instruments, FAA regulations, air traffic procedures, radio navigation and air craft operation and performances as applied to instrument flying. Preparation for the FAA Instrument Pilot written examination. Special fee. Pr., Private Pilot Certificate. 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 2241 INSTRUMENT FLIGHT TRAINING I (1) LAB. 3 Pr., AVMF 2171 Continuation of dual and solo flight instruction and discussion to prepare for FAA Private Pilot Certificate. Special fee. Departmental approval. 2.5 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 2250 COMM FLIGHT PROBLEMS (LEC) 3 Pr., AVMF 2171 FAA regulations, high altitude operations, aerodynamics, commercial flight missions, aviation, mental, ice control, retractable landing gear and aircraft performances as applied to commercial flying. Preparation for the FAA Commercial Pilot knowledge examination. Special fee. Pr., Private Pilot Certificate. 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 2251 INSTRUMENT FLIGHT TRAINING II (1) LAB. 3 Pr., AVMF 2241 Continuation of Instrument Flight Training I. Special fee. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 2261 COMM FLIGHT TRAINING I (1) LAB. 3 Pr., AVMF 2241 Flight training toward the Commercial Pilot Certificate. Special fee. Pr., departmental approval. 2.5 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 2271 COMM FLIGHT TRAIN III (1) LAB. 3 Pr., AVMF 2261 Continuation of flight training towards the Commercial Pilot Certificate. Emphasis on advanced commercial maneuvers, complex airplane systems and cross country flying. Special fee. Pr., 2.5 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 3100 PROPULSION AND SYSTEMS (LEC) 3 Pr., PHYS 1500 Coverage of turbine and reciprocating engine components and principles of operation. Description and operation of systems typically found on light and heavy transport aircraft and selected aerospace vehicles. 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 3330 ADVANCED AERODYNAMICS (LEC) 3 Pr., PHYS 1500 The principles of aerodynamics and aircraft design and how aerodynamic factors affect all aircraft in terms of lift, thrust, drag, in-air performance, stability and flight control. All the steps in the aircraft design process, from concept to test flight and the reasoning behind them. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 4271 MULTI ENGINE TRAINING (1) LAB. 2 Pr., AVMF 2271 Specialized instruction in methods and techniques of multi engine aircraft operations. Sufficient classroom and flight instruction is given under FAA Part 141 to qualify for the FAA Multi-Engine Land Certificate. Special Fees. Pr., Commercial Pilot Certificate with Instrument rating and Departmental approval. 2.5 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 4280 PRINCIPLES OF PRIVATE FLIGHT I (1) LEC. 3 Principles of teaching as applied to instructing, analyzing and evaluating flight students. Emphasis is on preparation for the FAA Fundamentals of Instruction and the Flight Instructor-Airplane Knowledge Examination. Pr., Commercial Pilot Certificate with Instrument Rating. Pr., 2.5 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 4281 FLIGHT INSTRUCTION TRNG I (1) LAB. 3 Pr., AVMF 2271 Discussion, instruction and arranged practice in flight instruction in preparation for the FAA Flight Instructor Certificate. Special fee. Pr., Commercial Pilot Certificate with Instrument Rating. Pr., 2.5 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 4290 FLIGHT INSTRUCTION TRNG II (1) LEC. 2 Pr., AVMF 4280 Continuation of principles of teaching as applied to instructing and evaluating flight students. Emphasis is on preparation for the FAA Fundamentals of Instruction and the Flight Instructor-Airplane Knowledge Examinations. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 4291 PRIN OF FLIGHT INSTRUCTION II (1) LAB. 3 Pr., AVMF 4281 Continuation of discussion, instruction, and arranged practice in flight instruction in preparation for the FAA Flight Instructor Certificate. Special fee. Pr., 2.5 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 4320 PRINCIPLES OF PROFESSION FLIGHT (3) LEC. 3 Pr., AVMF 2230 Advanced aircraft performance, IFR operations, high altitude meteorology and FAR Part 135. Industry opportunities and required qualifications. Special fee. Pr., Departmental approval. 2.2 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 4331 TRANSPORT AIRCRAFT FLGT TRNG (1) LAB. 2 Includes instrument and night instruction, emergency procedures and actual air transportation operations. Preparation for the Airline Transport Pilot Certification, if otherwise qualified. Special fees. Departmental approval. 2.5 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 4332 INSTRUMENT FLIGHT INSTRCTR TRNG (1) LAB. 2 Pr., AVMF 4280 and AVMF 4291 Discussion, instruction, and arranged practice in instrument flight instruction in preparation for the FAA Instrument Instructor Certificate. Special fees. Pr., 2.5 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

AVMF 4371 MULTI-ENGINE FLIGHT INSTRCTR (1) LAB. 2 Discussion, instruction, and arranged practice in multi-engine flight instruction in preparation for the Multi-engine Instructor Certificate. Special fees. Pr., Departmental approval. 2.5 cumulative GPA or College of Business Academic Excellence Initiative Requirements.

SUPPLY CHAIN MANAGEMENT (SCMN)
Dr. Joe Hanna - 844-6848

SCMN 3150 OPS: MNGT OF BUSINESS PROCES (2) LEC. 2 Fundamental concepts, techniques and tools of business processes. Credit will not be given for both SCMN 3150 and MGT 3150. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

SCMN 3710 LOGS: MNGT OF FULFILLMENT PROC (3) LEC. 3 Management of logistics processes involved in meeting customer demand, including inventory, transportation, distribution, and related activities. Credit will not be given for both SCMN 3710 and AMLG 3710. Fall, Spring, Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

SCMN 3720 TRANS: MNGT OF PRODUCT FLOWS (3) LEC. 3 Management of transportation operations and the role of transportation in achieving supply chain objectives. Credit will not be given for both SCMN 3720 and AMLG 3720. Fall, Spring, Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

SCMN 3730 PURCHASING: SUPPLY MGT & SRCNG (3) LEC. 3 In-depth coverage of purchasing and supply management processes, strategies, and tools. Credit will not be given for both AMLG 3430 and SCMN 3730. Fall, Spring, Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

SCMN 4730 SUPPLY CHAIN TOOLS AND TECH (3) LEC. 3 Pr., SCMN 3150 Tools, techniques and technologies of various supply chain processes. Credit will not be given for both SCMN 4730 and MGT 3250. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.
SCMN 4780 TRANSPORTATION STRATEGY (3) LEC. 3 Pr., and SCMN 3720 SCMN 3710 Strategies and tactics for improving service and financial performance of transportation companies and their customers. Credit will not be given for both SCMN 4780 and AMILG 4780 Fall, Spring, Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

SCMN 4800 SUPPLY CHAIN STGY: GLOBAL PERSP (3) LEC. 3 Pr., and SCMN 3710 and SCMN 3720 and SCMN 3730 SCMN 3150 Capstone course providing an intensive study of strategies used to facilitate global flows of product, information, and payments. Fall, Spring, Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

SCMN 4810 PROF DEV IN SUPPLY CHAIN MNGT (1) LEC. 1 SU. Pr., SCMN 3150 Career planning and preparation for transition from university student to supply chain professional. Credit will not be given for both SCMN 4810 and BUSI 4010. Fall, Spring, Pr., 2.2 GPA or College of Business Academic Initiative Requirements.

SCMN 4900 SPEC PROBS IN SUPPLY CHAIN MGT (1-3) LEC, SU. Individual research or project about an advanced topic in supply chain management. Course may be repeated for a maximum of 3 credit hours.

SCMN 4920 INTERNSHIP IN SUPPLY CHAIN MNGT (1-6) AAB/INT. SU. Pr., SCMN 3710 and SCMN 3720 Work experience in a supply chain related business, industry, or organization. Course may be repeated for a maximum of 6 credit hours. Departmental approval, and 2.2 GPA or College of Business Academic Initiative Requirements. Course may be repeated for a maximum of 6 credit hours.

SCMN 4970 SPEC TOPS IN SUPPLY CHAIN MGTN (3-6) LEC, Pr., 2.2 GPA. SCMN 3150 and SCMN 3710 Current topics and issues related to the field of supply chain management. Course may be repeated for a maximum of 6 credit hours. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements. Course may be repeated a maximum of 5 credit hours.

SCMN 5710 ADVANCED PROCESS ANALYSIS (3) LEC. 3 Pr., SCMN 3150 Advanced concepts, techniques and tools for process analysis; process performance; process control; process design. Credit will not be given for both SCMN 5710 and MNGT 5250 or MNGT 5350. Fall, Spring, Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

SCMN 5720 QUALITY AND PROCESS IMPROVEMENT (3) LEC. 3 Pr., SCMN 3150 and STAT 2610 Fundamentals of process improvement; techniques for performing control functions; quality management systems. Credit will not be given for both SCMN 5720 and MNGT 5740. Fall, Spring, Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

SCMN 6710 ADVANCED PROCESS ANALYSIS (3) LEC. 3 Pr., SCMN 3150 Advanced concepts, techniques and tools for process analysis; process performance; process control; process design. Credit will not be given for both SCMN 6710 and MNGT 5260. Fall, Spring, Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

SCMN 6720 QUALITY AND PROCESS IMPROVEMENT (3) LEC. 3 Pr., SCMN 3150 and STAT 2610 Fundamentals of process improvement; techniques for performing control functions; quality management systems. Credit will not be given for both SCMN 6720 and MNGT 6740. Fall, Spring.

SCMN 7600/7606 SUPPLY MANAGEMENT AND MANUFACTURING (3) LEC. 3 The management of purchasing, supply and materials management, manufacturing processes related to the fulfillment of supply chain requirements. Spring.

SCMN 7700/7706 DEMAND MANAGEMENT FULFILLMENT (3) LEC. 3 The management of logistical processes related to the fulfillment of supply chain requirements. Primary topics include: integration planning, operations, and performance analysis of demand, inventory, transportation, distribution, and customer relationships. Summer, Pr., departmental approval.

SCMN 7800/7806 SUPPLY CHAIN STRATEGY (3) LEC. 3 Pr., SCMN 7600 and SCMN 7700 and SCMN 7706 and SCMN 7700 and SCMN 7700 and SCMN 7700 and SCMN 7700 Advanced study of integrated supply chain theory, strategy, and practice. Topics include network design, collaboration, inventory, visibility, process synchronization, information management, and financial analysis. Fall, Pr., departmental approval.

Biochemistry (BCHE)
Dr. J. V. Ortiz - 844-4043
Dr. Jack Wover - 844-1508

BCHE 3180 NUTRITIONAL BIOCHEMISTRY (3) LEC. 3 Pr., CHEM 2030 or CHEM 2080 Fundamental pathways of carbohydrate, lipid, and amino acid metabolism in human beings. Credit will not be given for both BCHE 3180 and BCHE 3200. Departmental approval.

BCHE 3200 PRINCIPLES OF BIOCHEMISTRY (3) LEC. 3 Pr., (BIOL 1010 or BIOL 1020 or BIOL 1030 or BIOL 1027 or BIOL 1037) and (CHEM 2030 or CHEM 2070 or CHEM 2080) Structure and function of biomolecules, enzyme catalysis, processing of genetic information, bioenergetics and metabolism, and regulatory mechanisms in cellular processes.

BCHE 3201 PRINCIPLES OF BIOCHEMISTRY LABORATORY (1) LAB. 2 Coreq., BCHE 3200 Fundamental theory and techniques used in the isolation, characterization, and study of biopolymers.

BCHE/CHM 5100 BIOCHEMISTRY I (3) LEC. 3 Pr., CHEM 2080 Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways. Bioenergetics.

BCHE/CHM 5180 BIOCHEMISTRY I LAB (3) Pr., BCHE 5180 Laboratory techniques required for identification and quantification of compounds of important biochemical classes.

BCHE/CHM 5191 BIOCHEMISTRY II LAB (1) LEC. 3 Pr., BCHE 5190 or CHM 5190 Laboratory techniques required for partial purification, kinetic studies, and characterization of enzymes and nucleotides from various plants, animals and bacteria.

BCHE 5250 PLANT METABOLIC PATHWAYS (3) LEC. 3 Pr., CHEM 2080 Fundamental processes of metabolism specific to plants.

BCHE/CHM 6180 BIOCHEMISTRY I (3) LEC. 3 Pr., CHEM 2080 Fundamentals of the classification, structure, and reactions of the major constituents of living matter and evaluation of binding phenomena and bioenergetics. Pr., departmental approval.

BCHE/CHM 6191 BIOCHEMISTRY II LAB (1) LEC. 3 Pr., BCHE 6190 or CHM 6190 Laboratory techniques required for partial purification, kinetic studies, and characterization of enzymes and nucleotides from various plants, animals, and bacteria.

BCHE 6250 PLANT METABOLISM (3) LEC. 3 Pr., CHEM 2080 Fundamental processes of metabolism specific to plants.

BCHE 7200 ADVANCED BIOCHEMISTRY I (3) LEC. 3 Graduate credit will not be given for both BCHE 6190 and BCHE 7200.

BCHE 7210 ADVANCED BIOCHEMISTRY II (3) LEC. 3 Structure and function of macromolecules participating in the flow of molecular information. Graduate credit will not be given for both BCHE 6180 and BCHE 7210. Pr., departmental approval.

BCHE 7220 PRINCIPLES OF CELLULAR AND MOLECULAR ENZYMOLGY (3) LEC. 3 Pr., BCHE 6190 or CHEM 6190 or BCHE 7200 The principles of enzyme chemistry including the physical, chemical, and catalytic properties of enzymes. Pr., departmental approval.

BCHE 7220 BIOCHEMISTRY OF MACROMOLECULES (3) LEC. 3 Pr., BCHE 6180 or BCHE 7200 Advanced study of the structure of protein and nucleic acids: DNA replication, RNA transcription and protein synthesis. Departmental approval.

BCHE 7250 BIOCHEMISTRY OF LIPIDS AND LIPOPROTEINS (3) LEC. 3 Pr., BCHE 7200 The regulation of lipid and lipoprotein metabolism, role of lipid mediators in signaling pathways and protein modification, assembly and dynamics of lipoproteins and biomembranes. Pr., departmental approval.

BCHE 7260 BIOINFORMATICS (3) LEC. 3 Pr., BCHE 7210 Advanced study of main concepts and tools of genomics and proteomics. Pr., departmental approval.

BCHE 7270 BIOCHEMICAL RESEARCH TECHNIQUES (3-6) LEC. 3 Pr., BCHE 6190 or CHEM 6190 Modern biochemical laboratory techniques. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

BCHE 7280 TOPICS IN BIOCHEMISTRY (1-3) LEC. Pr., BCHE 7210 Directed studies in biochemistry. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval and BCHE 7210 or equivalent.

Biological Sciences (BIOL)
Dr. Jack Fominella - 844-3906

BIOL 1000 INTRODUCTION TO BIOLOGY (4) LEC. 3. LAB. 2 Science Core. Introduction to biological principles relevant to human society. Designed for non-science majors. Credit will not be given for both BIOL 1000 and BIOL 1020 or BIOL 1027.

BIOL 1001 INTRODUCTION TO BIOLOGY LABORATORY (0) LAB. Laboratory course for BIOL 1000.

BIOL 1010 A SURVEY OF LIFE (4) LEC. 3. LAB. 2 Pr. BIOL 1000 or BIOL 1020 or BIOL 1027 or SCCM 1010 Science Core. Emphasis on contrasting strategies employed by organisms to meet similar biological needs. Credit will not be given for both BIOL 1010 and BIOL 1030 or BIOL 1037.

BIOL 1011 A SURVEY OF LIFE LABORATORY (0) LAB. Laboratory course for BIOL 1010.
BIO 1020 PRINCIPLES OF BIOLOGY (4) LEC. 3, LAB. 2 Science Core. Introduction to the physical, chemical, and biological principles common to all organisms. Credit will not be given for both BIO 1020 and BIO 1030 or BIO 1027.

BIO 1021 PRINCIPLES OF BIOLOGY LABORATORY (0) LAB. Coreq., BIO 1020 1021 Lab. Coreq., BIO 1020 Laboratory Course for BIO 1020.

BIO 1027 HONORS BIOLOGY (4) LEC. 3, LAB. 2 Science Core. Introduction to the physical, chemical, and biological principles common to all organisms. Credit will not be given for both BIO 1027 and BIO 1000 or BIO 1020.

BIO 1030 ORGANISMAL BIOLOGY (4) LEC. 3, LAB. 2 Pr., BIO 1020 or BIO 1027 Coreq., 1031 Science Core. Principles and fundamentals of biology at the organismal level. Credit will not be given for both BIO 1030 and BIO 1010 or BIO 1037.

BIO 1031 ORGANISMAL BIOLOGY LABORATORY (0) LAB. Coreq., BIO 1031 Laboratory Core by BIO 1030.

BIO 1037 HONORS ORGANISMAL BIOLOGY (4) LEC. 3, LAB. 2 Pr., BIO 1020 or BIO 1027 Science Core. Principles and fundamentals of biology at the organismal level. Credit will not be given for both BIO 1037 and BIO 1010 or BIO 1030. Pr., Membership in the Honors College.

BIO 2000 MICROBIOLOGY AND PUBLIC HEALTH (4) LEC. 3, LAB. 1 Pr., BIO 1000 or (BIO 1020 or BIO 1027) Introduction to the science of microbiology with an emphasis on the public health aspects. (Cannot be used to satisfy minor or major requirements in the biological sciences).

BIO 2015 MARINE SCIENCE I OCEANOGRAPHY (5) LEC. 3, LAB. 4 Pr., MATH 1130 An introduction to marine oceanography that integrates physical, geological, chemical and biological oceanography to provide a multidisciplinary foundation in the fundamentals of marine science. Taught at Gulf Coast Research Laboratory. Pr., departmental approval.

BIO 2415 MARINE SCIENCE II: MARINE BIOLOGY (5) LEC. 3, LAB. 4 Pr., (BIO 1020 or BIO 1027) and (BIO 1030 or BIO 1037) An overview of biological oceanography with emphasis on organisms, habitats, and fisheries of Mississippi Sound and the Gulf of Mexico. Taught at Gulf Coast Research Laboratory. Pr., departmental approval.

BIO 2425 MARINE BIOLOGY (4) LEC. 4 Pr., BIO 1030 or BIO 1037 The invertebrates, vertebrates and marine plants as communities with emphasis on local examples. Taught only at Dauphin Island Sea Lab. Pr., departmental approval.

BIO 2445 COASTAL ECOLOGY FOR TEACHERS (4) LEC. 3, LAB. 2 Provides teachers with a background in basic coastal ecology. Interdisciplinary concepts involving the environment and its conservation. Taught at the Gulf Coast Research Laboratory. Basic science course required for education degree. Pr., departmental approval.

BIO 2500 HUMAN ANATOMY AND PHYSIOLOGY I (4) LEC. 3, LAB. 3 Pr., BIO 1000 or (BIO 1020 or BIO 1027) Study of the structure and function of the human body. First half of two-part sequence with BIO 2510, concentrating on tissues, muscle, and nervous system.

BIO 2510 HUMAN ANATOMY AND PHYSIOLOGY II (4) LEC. 3, LAB. 3 Pr., BIO 2500 Study of the structure and function of the human body. Second half of two-part sequence with BIO 2500, concentrating on cardiovascular, respiratory, digestive, urinary, reproductive and endocrine systems.

BIO 3000 GENETICS (4) LEC. 3, LAB. 1 Pr., (BIO 1020 or BIO 1027) A contemporary overview of theoretical principles of transmission, population, and molecular genetics. Principles emphasizing use of animal, plant, and microbial models.

BIO 3010 COMPARATIVE ANATOMY (4) LEC. 3, LAB. 3 Pr., BIO 1030 or BIO 1037 Comparisons of the organ systems of vertebrates.

BIO 3020 GENOMIC BIOLOGY (4) LEC. 3, LAB. 2 Pr., BIO 1020 or BIO 1027 An overview of genes, genomes, and genomic and proteomic approaches and methodology. Application of principles of biology at the genomic level. Includes an introduction to bioinformatic approaches to genomic problems in a computer laboratory setting.

BIO 3030 EVOLUTION AND SYSTEMATICS (3) LEC. 3 Pr., BIO 1030 or BIO 1037 An introduction to evolutionary processes, classification, of organisms and scientific nomenclature.

BIO 3040 BIOLOGY OF MARINE SYSTEMS (3) LEC. 3 Pr., BIO 1020 and BIO 1030 Introduction to marine systems and biological investigations of coastal, near shore and open ocean organisms and processes.

BIO 3060 ECOLOGY (4) LEC. 3, LAB. 3 Pr. 8 hours of Biology. Interactions of organisms with their environments and characteristics of populations, communities, and ecosystems.

BIO 3075 INTRODUCTION TO OCEANOGRAPHY (4) LEC. 4 Pr., MATH 1150 and CHEM 1030 and PHYS 1500 The physics, chemistry, biology, and geology of the oceans. Taught only at Dauphin Island Sea Lab. Pr., departmental approval.

BIO 3100 PLANT BIOLOGY (3) LEC. 3 Pr., (BIO 1030 or BIO 1037) and CHEM 1041 and BIO 3100 Introduction to plant biology laboratory on morphology, anatomy, physiology, and classification of plants with emphasis on the angiosperms.

BIO 3200 GENERAL MICROBIOLOGY (4) LEC. 3, LAB. 2 Pr., CHEM 1030 Introduction to the science of microbiology, emphasizing cell structure, systematics, growth, genetics, laboratory techniques.

BIO 3500 PERSPECTIVES IN IMMUNOLOGY (3) LEC. 3 Pr., (BIO 3000 or BIO 3020) and BIO 3200 Introduction to the cells and components of the immune response with an emphasis on host response to infection and medical immunology.

BIO 4000 HISTOLOGY (4) LEC. 3, LAB. 3 Pr., BIO 1030 or BIO 1037 Morphology and classification of tissues; arrangement of tissues in organs and systems of vertebrate animals.

BIO 4010 INVERTEBRATE BIODIVERSITY (4) LEC. 3, LAB. 3 Pr., BIO 1030 or BIO 1037 Survey of the phyla of invertebrates with emphasis on morphology, anatomy, ecology, evolution, and systematics.

BIO 4020 VERTEBRATE BIODIVERSITY (4) LEC. 3, LAB. 3 Pr., BIO 1030 or BIO 1037 Ecology and evolution of living vertebrates of the world.

BIO 4055 MARINE SCIENCE FOR TEACHERS (3) LEC. 3 Provides teachers an introduction to the study of marine science and incorporation of marine biology at all grade levels. Taught at Gulf Coast Research Laboratory. Pr., departmental approval.

BIO 4100 CELL BIOLOGY (3) LEC. 3 Pr., CHEM 2070 and BIO 3000 and (BIO 1030 or BIO 1037) Evolution, organization, physiology, molecular biology of cells, membranes, cytoplasm, and organelles. Energy, transport, motility, cell division, signaling, transcription, translation.

BIO 4101 CELL BIOLOGY LABORATORY (2) LAB. 4 Pr., BIO 4100 Coreq., BIO 4100 Light/electron microscopy, cell structure, origins of life, centrifugation, protein/nucleic acid electrophoresis, and blotting, motility, DNA purification, chromatography, pH, fluorescence microscopy.

BIO 4150 HUMAN GENETICS (3) LEC. 3 Pr., BIO 3000 and BIO 4100 and CHEM 2060 Study of the biological interaction of genes, effects of mutation and changes in gene frequency in human populations. Emphasis on molecular approach to study evolutionary changes in human gene pools.

BIO 4200 CLINICAL MICROBIOLOGY (4) LEC. 3, LAB. 4 Pr., BIO 3200 Isolation, cultivation, identification, classification, and pathogenesis of infectious agents with emphasis on bacteria; includes clinical materials, Eubacteria, Mycoplasma, Rickettsiae, and Spirochetes.

BIO 4395 MARINE FAUNISTIC ECOLOGY (5) LEC. 2, LAB. 6 A field survey of animals associated with three habitat types and factors controlling their distribution in the northern Gulf of Mexico. Taught at Gulf Coast Research Laboratory. Pr., departmental approval.

BIO 4400 CLINICAL PHYSIOLOGY (3) LEC. 3 Pr., BIO 2500 Exploration of membrane, muscle and nerve physiology, peripheral and central nervous systems; special consideration of physiological processes involved in cardiology, respiration, the urinary system, digestion, and reproduction.

BIO 4410 VERTEBRATE DEVELOPMENT (5) LEC. 3, LAB. 4 Pr., BIO 3000 Morphogenesis and organogenesis of frog, chick, pig, and human from a descriptive and analytical viewpoint.

BIO 4425 MARINE FISHERIES MANAGEMENT (4) LEC. 4 Fisheries management philosophy, objectives, problems, and principles involved in management decisions. Offered at the Gulf Coast Research Laboratory. Departmental approval.

BIO 4435 SPECIAL TOPICS IN MARINE SCIENCE (1-6) LEC. An opportunity for students to study in an area in which GCRL offers no formal course; not research oriented. Taught at Gulf Coast Research Laboratory. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

BIO 4445 SPECIAL PROBLEMS IN MARINE SCIENCE (1-6) LEC. Individualized research-oriented experience. Taught at Gulf Coast Research Laboratory. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

BIO 4455 MARINE INVERTEBRATE ZOOLOGY (5) LEC. 5

BIO 4465 PARASITES OF MARINE ANIMALS (6) LEC. 3, LAB. 6 Pr., BIO 5110 A study of the parasites of marine estuarine animals with emphasis on morphology, taxonomy, life histories, and host-parasite relationships. Taught at Gulf Coast Research Laboratory. Pr., departmental approval.

BIO 4475 MARINE ICHTHYOLOGY (6) LEC. 6 Pr., BIO 1000+ and BIO 3010 Biology of the major piscine taxa in Mississippi Sound. Principles involved in classification and evolutionary relationships of these organisms. Taught at Gulf Coast Research Laboratory. Pr., 16 hours including BIO 3010 and departmental approval.

BIO 4485 MARINE ECOLOGY (6) LEC. 5 Pr., BIO 1000+ and BIO 4010 The relationship of marine organisms to their environment and the effects of environment on abundance and distribution on marine organisms. Offered at Gulf Coast Research Laboratory. Ocean Springs, MS. Pr., departmental approval and 16 hours of Biological Science including BIO 4010.
BIOL 4495 COMPARATIVE HISTOLOGY OF MARINE ORGANISMS (3) LEC. 6 Detailed study of the histological organization and its relationships to physiological changes during the life cycle of representative marine organisms. Light and electron microscopy. Taught at Gulf Coast Research Laboratory. Pr., departmental approval.

BIOL 4515 MARINE INVERTEBRATE ZOOLOGY (4) LEC. 4 Pr., BIOL 2000+ The natural history, systematics, and morphology of marine invertebrates from the Gulf of Mexico; oriented toward a field and laboratory approach. Participation in extended field trips is part of the course. Taught only at Dauphin Island Sea Lab. Pr., departmental approval.

BIOL 4525 DOLPHINS AND WHALES (2) LEC. 2 Pr., BIOL 1030 or BIOL 1037 Classification, anatomy, and ecology of the cetaceans. Taught only at Dauphin Island Sea Lab. Pr., departmental approval.

BIOL 4535 COASTAL ZONE MANAGEMENT (2) LEC. 2 Pr., BIOL 1030 or BIOL 1037 Management of shorelines and flood plains, and current legislation. Water quality and ecosystem quality management. Taught only at Dauphin Island Sea Lab. Pr., departmental approval.

BIOL 4545 COASTAL ORNITHOLOGY (4) LEC. 4 Pr., BIOL 4020 Coastal and pelagic birds with emphasis on ecology, taxonomy, and distribution. Taught at Dauphin Island Sea Lab. Departmental approval.

BIOL 4565 MARINE VERTEBRATE ZOOLOGY (4) LEC. 4 Pr., BIOL 1030 or BIOL 1037 Systematics, zoogeography and ecology of marine fishes, reptiles, and mammals. Taught at Dauphin Island Sea Lab. May not be substituted for BIOL 4020. Pr., departmental approval.

BIOL 4575 MARINE ECOLOGY (4) LEC. 4

BIOL 4950 UNDERGRADUATE SEMINAR (1) LEC. 1 Oral presentation and discussion of recent scientific publications from a selected area of biological sciences. One hour is required of all majors. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

BIOL 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval and membership in the Honors College. Course may be repeated for a maximum of 3 credit hours.

BIOL 4970 SPECIAL TOPICS (1-4) AAB. Instruction and discussion in a selected current topic in Biological Sciences. Course may be repeated for a maximum of 8 credit hours. Pr., departmental approval.

BIOL 4980 UNDERGRADUATE RESEARCH (2-4) AAB/IND. Directed research in an area of specialty within the department. Course may be repeated for a maximum of 4 credit hours. Pr., departmental approval.

BIOL 4997 HONORS THESIS (1-3) IND. Undergraduate research and thesis. Course may be repeated for a maximum of 3 credit hours.

BIOL 5020 DEVELOPMENTAL BIOLOGY (3) LEC. 3 Pr., BIOL 4100 and BIOL 4410 Consideration of induction, constancy of the genome, path finding by migrating cells, morphogenetic movements, and other developmental processes. Credit will not be given for both BIOL 5020 and BIOL 6020.

BIOL 5090 CONSERVATION BIOLOGY (3) LEC. 3 Pr., BIOL 3060 Conservation of biodiversity, including endangered species, population viability analyses, species recovery plans, sustainable landscapes and environmental policy.

BIOL 5120 SYSTEMATIC BOTANY (4) LEC. 3, LAB. 3 Pr., BIOL 1030 or BIOL 1037 Classification, nomenclature, distribution, systematics, and evolution of vascular plants. Credit will not be given for both BIOL 5120 and BIOL 6120.

BIOL 5130 ADVANCED PLANT PHYSIOLOGY (3) LEC. 3 Pr., BIOL 3100 and CHEM 2050 Coreq., BIOL 5131 Physiological and biochemical processes affecting plant growth and development including water relations, photosynthesis, respiration, and hormones. Credit will not be given for both BIOL 5130 and BIOL 6110.

BIOL 5131 ADVANCED PLANT PHYSIOLOGY LABORATORY (1) LAB. 3 Pr., BIOL 3101 and CHEM 2081 and BIOL 5130 Coreq., BIOL 5130 Laboratory exercises in plant physiology. Including water relations, metabolism and growth, and development. Credit will not be given for both BIOL 5131 and BIOL 6131.

BIOL 5140 PLANT ECOLOGY (4) LEC. 3, LAB. 4 Pr., (BIOL 1030 or BIOL 1037) and BIOL 3060 Exploration of ecological interactions between plants and their environment. Field trips emphasize Southeastern habitats/plant examples. Includes 3-day weekend field trip. Credit will not be given for both BIOL 5140 and BIOL 6140.

BIOL 5150 COMMUNITY ECOLOGY (3) LEC. 3 Pr., BIOL 3060 Dynamics of natural animal communities, including niches, species interactions, succession, island biogeography, species diversity, and food webs. Credit will not be given for both BIOL 5150 and BIOL 6150.

BIOL 5160 FIELD BIOLOGY AND ECOLOGY (3-15) LEC. 3 Pr. 15 hours of biology. Intensive classroom and field studies of an area outside Alabama. Course may be repeated for a maximum of 15 credit hours. Course may be repeated for a maximum of 15 credit hours. Credit will not be given for both BIOL 5160 and BIOL 6160.

BIOL 5190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3 Pr., BIOL 4100 and BIOL 5220 and CHEM 2090 Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic, and biochemical approaches.

BIOL 5210 MICROBIAL PHYSIOLOGY (3) LEC. 3 Pr., BIOL 3200 and CHEM 2080 General physiology of microbial cells emphasizing fermentation, respiration, photosynthesis, nitrogen fixation, cell wall synthesis, membranes, and macromolecular synthesis.

BIOL 5220 INTRODUCTORY MOLECULAR GENETICS (3) LEC. 3 Pr., BIOL 3000 and BIOL 3200 Principles of gene expression including replication, transcription, and translation; structure and regulation of genes; concepts and techniques in recombinant DNA.

BIOL 5230 VIROLOGY (3) LEC. 3 Pr., BIOL 3000 and BIOL 3200 and BIOL 5220. The biology of viruses, including entry, replication strategies, assembly and release, pathogenesis, and epidemiology of virus infections, including new and emerging virus infections and prion diseases.

BIOL 5240 ANIMAL PHYSIOLOGY (4) LEC. 3, LAB. 3 Pr., BIOL 4100 or CHEM 2070 General overview of the function of the major systems in animals, including evolution and adaptation to specific environments.

BIOL 5250 MICROBIAL EVOLUTION AND DIVERSITY (4) LEC. 3, LAB. 2 Pr., BIOL 3000 and BIOL 3200 Introduction to microbial evolutionary history and theory, and survey of microbial diversity. Credit will not be given for both BIOL 5250 and BIOL 6250.

BIOL 5260 PROKARYOTIC MOLECULAR GENETICS (3) LEC. 3 Pr., BIOL 3000 and BIOL 3200 Molecular principles of bacterial genetics including gene structure, genetic organization, regulation of gene expression, acquisition and loss of genes leading to microbial evolution. Course will not be given for both BIOL5260 and BIOL 6260.

BIOL 5270 HOST-MICROBE INTERACTIONS (3) LEC. 3 Pr., BIOL 3200 and (BIOL 5220 or BIOL 5260) This course will explore interactions between microbes and their hosts including plants, insects and animals. Credit will not be given for both BIOL 5270 and BIOL 6270.

BIOL 5300 PLANT ANATOMY AND DEVELOPMENT (4) LEC. 3, LAB. 4 Pr., BIOL 3100 Investigation of the various levels of plant organization from subcellular to organ through use of light and scanning electron microscopes.

BIOL 5320 PLANT GENE EXPRESSION (4) LEC. 4 Pr., BIOL 3100 Genetic expression of genetic elements in plants from the recent literature.

BIOL 5340 PROTOZOOLOGY (4) LEC. 3, LAB. 3 Pr., BIOL 3000 Life history, identification, cell biology, and evolution of free-living and parasitic protozoa of the major groups. Laboratory includes techniques for microscopy.

BIOL 5360 POPULATION ECOLOGY (3) LEC. 3 Pr., BIOL 3060 and (MATH 1610 or MATH 1617) Quantitative study of populations, including life tables, Leslie matrices, exponential and logistic models, metapopulations, and life-history theory.

BIOL 5370 MOLECULAR ECOLOGY (3) LEC. 3 Pr., BIOL 3000 and BIOL 3030 General overview of the concepts and techniques regarding the application of molecular variation in answering questions pertaining to populations and communities of organisms. Credit will not be given for both BIOL 5370 and BIOL 3270.

BIOL 5375 MARINE SCIENCE FOR ELEMENTARY SCHOOL TEACHERS (3) LEC. 3 Pr., BIOL 0000+ Principle-centered training in a broad spectrum of subjects relating marine science to health, reading, social studies, language, arithmetic, science, and art. Taught at Gulf Coast Research Laboratory. Pr., departmental approval and 6 hours in basic biology science.

BIOL/FISH 5380 GENERAL Ichthyology (4) LEC. 3, LAB. 4 Pr., BIOL 1030 or BIOL 1037 Survey of the biodiversity of world and local fishes with an overview of ecology, behavior, biology, and conservation of fishes.

BIOL 5415 SALT MARSH PLANT ECOLOGY (4) LEC. 2, LAB. 2 Pr., BIOL 3100 The plant ecology of salt marshes.

BIOL 5425 MARINE BOTANY (4) LEC. 4

BIOL 5435 COASTAL VEGETATION (4) LEC. 2, LAB. 2 Pr., (BIOL 1030 or BIOL 1037) and BIOL 3100 Study of different coastal ecosystems with an emphasis on plant vegetation.

BIOL 5455 MARSH ECOLOGY (4) LEC. 4

BIOL 5465 MARINE MICROBIOLOGY (5) LEC. 3, LAB. 2 Pr., BIOL 3200 and BIOL 4800 The role of microorganisms in marine environments. Pr., departmental approval.

BIOL 5475 OCEANOLOGY OF THE GULF OF MEXICO (3) LEC. 2, LAB. 2 A descriptive study of the oceanology of the Gulf of Mexico and adjacent waters including coastal zone, continental shelf, and deep ocean. Summer. Pr., departmental approval.

BIOL 5495 MARINE PROTOZOOLOGY (3) LEC. 2, LAB. 3 Treatment of the major groups of protists from marine habitats including their taxonomy, structure, ecology, and methods of studying. Pr., Introductory Biology.
BIOL 5521 GENE EXPRESSION AND RECOMBINANT DNA LABORATORY (2)
LEC. 2, LAB. 4 Pr., BIOL 5220 Coreq., BIOL 5220 Laboratory experiences demonstrating concepts and techniques in recombinant DNA.

BIOL 5525 MARINE BEHAVIOURAL ECOLOGY (4)
LEC. 3, LAB. 3 Study of animal behavior and the influence by and interaction with the environment and the ecological and evolutionary significance of these behaviors. Summer. Vertebrate and Invertebrate Zoology.

BIOL 5535 MARINE CONSERVATION BIOLOGY (4)
LEC. 3, LAB. 3 general or Marine Ecology course. Examination of conservation biology based on previous study of marine ecology. Summer. Pr., General or Marine Ecology course.

BIOL 5550 WETLAND BIOLOGY (4)
LEC. 3, LAB. 3 Pr., BIOL 3060 Biology of wetland habitats. Field trips, paper, and presentation required.

BIOL 5600 MAMMALIAN PHYSIOLOGY (6)
LEC. 5, LAB. 3 Pr., BIOL 1030 or BIOL 1037 or BIOL 2500 and CHEM 2080 An in-depth investigation of the physiology of the major mammalian organ systems.

BIOL 5605 MAMMALIAN PHYSIOLOGY (6)
LEC. 5, LAB. 3 To give students a detailed overview of human physiology. Students will learn the normal function of the body systems through reading, lecture and discussion.

BIOL 5650 ETHOLOGY (4)
LEC. 3, LAB. 3 Pr., (BIOL 1030 or BIOL 1037) and BIOL 3060 Animal behaviors, analysis of their adaptive value, development, and evolution.

BIOL 5660 FOOD MICROBIOLOGY (5)
LEC. 3, LAB. 6 Pr., BIOL 3200 The role of microorganisms in food production and food spoilage with basic training in the microbiological analysis food.

BIOL 5700 APPLIED AND ENVIRONMENTAL MICROBIOLOGY (4)
LEC. 3, LAB. 2 Pr., BIOL 3200 Introduction to the ecology, systematics, interrelationships, and role of microorganisms in geochemical cycles, bioremediation and pharmaceutical production.

BIOL 5740 HERPETOLOGY (4)
LEC. 3, LAB. 3 Ecology and evolution of living amphibians and reptiles of the world.

BIOL 5750 ORNITHOLOGY (4)
LEC. 3, LAB. 3 Pr., BIOL 3030 and BIOL 3060 Taxonomy, evolution, ecology, and behavior of birds.

BIOL 5760 MAMMALLOGY (4)
LEC. 3, LAB. 3 Characteristics, origins, ecology, behavior, reproduction, physiology, and diversity of mammals. Labs include survey or current literature, field trips, data analysis, and report preparation.

BIOL 6020 DEVELOPMENTAL BIOLOGY (3)
LEC. 3 Pr., BIOL 4100 and BIOL 4410 Consideration of induction, constancy of the genome, path finding by migrating cells, morphogenetic movements, and other developmental processes.

BIOL 6090 CONSERVATION BIOLOGY (3)
LEC. 3, LAB. 3 Pr., BIOL 3060 Examination of practical and theoretical issues in the Conservation and management of endangered species.

BIOL 6110 PARASITOLOGY (4)
LEC. 3, LAB. 3 Pr., (BIOL 1030 or BIOL 1037) Development, identification, host-parasite relationships, and medical significance of parasitic protozoa, helminths, and arthropods that infect humans, domestic animals, and wildlife.

BIOL 6120 SYSTEMATIC BOTANY (4)
LEC. 3, LAB. 3 Pr., (BIOL 1030 or BIOL 1037) Classification, nomenclature, distribution, systematics, and evolution of vascular plants.

BIOL 6130 ADVANCED PLANT PHYSIOLOGY (3)
LEC. 3 Pr., BIOL 3100 and BIOL 2080 Coreq., BIOL 6131 Physiological and biochemical processes effecting plant growth and development including water relations, photosynthesis, respiration, and hormones.

BIOL 6131 ADV PLANT PHYSIOLOGY LAB (1)
LAB. 3 Pr., BIOL 3101 and CHEM 2081 Coreq., BIOL 6130 Laboratory exercises in plant physiology. Including water relations, metabolism, and growth and development.

BIOL 6140 PLANT ECOLOGY (4)
LEC. 3, LAB. 4 Pr., (BIOL 1030 or BIOL 1037) and BIOL 3060 Exploration of ecological interactions between plants and their environment. Field trips emphasize Southeastern habitats/plant examples. Includes 1-day weekend field trip.

BIOL 6150 COMMUNITY ECOLOGY (3)
LEC. 3, LAB. 2 Pr., BIOL 3060 Dynamics of natural animal communities, including niches, species interactions, succession, island biogeography, species diversity, and food webs.

BIOL 6160 FIELD BIOLOGY AND ECOLOGY (3-15)
LEC. 3 Pr., 15 hours of biology, intensive classroom and field studies of an area outside Alabama. Course may be repeated for a maximum of 15 credit hours. Course may be repeated for a maximum of 15 credit hours.

BIOL/CMBL 6190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3)
LEC. 3 Pr., BIOL 4100 and BIOL 5220 and CHEM 2080 Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic, and biochemical approaches.

BIOL 6210 MICROBIAL PHYSIOLOGY (3)
LEC. 3 Pr., BIOL 3200 and CHEM 2070 General physiology of microbial cells emphasizing fermentation, respiration, photosynthesis, nitrogen fixation, cell wall synthesis, membranes, and macromolecular synthesis.

BIOL/CMBL 6220 INTRODUCTORY MOLECULAR GENETICS (4)
LEC. 4 Pr., BIOL 3000 and BIOL 3200 Advanced principles of gene expression including replication, transcription and translation; structure and regulation of genes; detailed concepts and techniques in recombinant DNA. Credit will not be given for both BIOL 6220 and CMBL 6220.

BIOL/CMBL 6230 VIROLOGY (3)
LEC. 4 Pr., BIOL 3000 and BIOL 3200 and (BIOL 5220 or BIOL 6220). Coreq., BIOL 6220 Molecular mechanisms of virus biology including virus-cell interactions, replication, assembly and release and pathogenesis. Credit will not be given for both BIOL 6230 and CMBL 6230.

BIOL 6240 ANIMAL PHYSIOLOGY (4)
LEC. 3, LAB. 3 Pr., BIOL 4100 or CHEM 2070 General overview of the function of the major systems in animals, including evolution and adaptation to specific environments.

BIOL 6250 MICROBIAL EVOLUTION AND DIVERSITY (4)
LEC. 3, LAB. 2 Pr., BIOL 3000 and BIOL 3200 Introduction to microbial evolutionary history and theory, and survey of microbial diversity. Credit will not be given for both BIOL 5250 and BIOL 6250.

BIOL 6260 PROKARYOTIC MOLECULAR GENETICS (3)
LEC. 3 Pr., BIOL 3000 and BIOL 3200 Molecular principles of bacterial genetics including genome structure, genetic organization, regulation of gene expression, acquisition and loss of genes leading to microbial evolution. Course will not be given for both BIOL5260 and BIOL 6260.

BIOL 6270 HOST-MICROBE INTERACTIONS (3)
LEC. 3 Pr., BIOL 3200 and (BIOL 5200 or BIOL 5260) This course will explore interactions between microbes and their hosts including plants, insects and animals. Credit will not be given for both BIOL 5270 and BIOL 6270.

BIOL 6300 PLANT ANATOMY AND DEVELOPMENT (4)
LEC. 2, LAB. 4 Pr., BIOL 6130 The study of the structure and ontogeny of plant cells, tissues, and organs. Fall.

BIOL 6320 PLANT GENE EXPRESSION (4)
LEC. 4 Pr., BIOL 5320 Genetic expression of genetic elements in plants from the re recent literature. Credit will not be given for both BIOL 6320 and CMBL 6320.

BIOL 6340 PROTOZOOLOGY (4)
LEC. 3, LAB. 3 Pr., BIOL 3000 Life history, identification, cell biology, and evolution of free-living and parasitic protozoa of the major groups. Laboratory includes techniques for microscopy.

BIOL 6360 POPULATION ECOLOGY (4)
LEC. 4 Pr., BIOL 3060 Quantitative study of populations, including life tables, Leslie matrices, exponential and logistic models, metapopulations, and life-history theory.

BIOL 6370 MOLECULAR ECOLOGY (3)
LEC. 3 Pr., BIOL 3000 and BIOL 3060 General overview of the concepts and techniques regarding the application of molecular variation in answering questions pertaining to populations and communities of organisms. Credit will not be given for both BIOL 5370 and BIOL 6370.

BIOL 6375 MARINE SCIENCE FOR ELEMENTARY SCHOOL TEACHERS (3)
LEC. 3 Principle-centered training in a broad spectrum of subjects relating marine science to health, reading, social studies, language, arithmetic, science, and art. Taught at Gulf Coast Research Laboratory. Pr., departmental approval and 6 hours in basic biological science.

BIOL/CMBL 6380 GENERAL Ichthyology (4)
LEC. 3, LAB. 4 Pr., BIOL 1030 or BIOL 1037 Survey of the biodiversity of world and local fishes with an overview of ecology, behavior, biology, and conservation of fishes.

BIOL 6415 SALT MARSH PLANT ECOLOGY (4)
LEC. 2, LAB. 2 Pr., BIOL 3100 The plant ecology of salt marshes.

BIOL 6425 MARINE BOTANY (4)
LEC. 4

BIOL 6435 COASTAL VEGETATION (4)
LEC. 2, LAB. 2 Pr., (BIOL 1030 or BIOL 1037) and BIOL 3100 Study of different coastal ecosystems with an emphasis on plant vegetation.

BIOL 6455 MARSH ECOLOGY (4)
LEC. 4

BIOL 6465 MARINE MICROBIOLOGY (5)
LEC. 3, LAB. 2 Pr., BIOL 3200 and BIOL 4600 The role of microorganisms in marine environments. Pr., departmental approval.

BIOL 6475 OCEANOLOGY OF THE GULF OF MEXICO (3)
LEC. 2, LAB. 2 A descriptive study of the oceanology of the Gulf of Mexico and adjacent waters including coastal zone, continental shelf, and deep ocean. Summer. Pr., departmental approval.
LEC 3 Provides an overview of estimating and project planning practices and the relationship, spec homes vs. custom homes, etc.

BSCI 4200 RESIDENTIAL CONSTRUCTION (3) LEC. 3 Provides an overview of environmentally conscious/green energy use in building design. Course includes detailed coverage of code requirements.

BSCI 4400 CONSTRUCTION STRUCTURES (2) LEC. 2 Pr., BSCI 3450 and BSCI 3600. Coreq., BSCI 4900. Temporary construction methods and design principles to insure stability of structures during all phases of the construction process. Includes: concrete formwork, trench shoring, temporary bracing, rigging, and materials handling.

BSCI 4600 PROJECT CONTROLS III (4) LEC. 3, LAB. 1 Pr., BSCI 3650 Detailed development of project management and project administration skills including resource scheduling, logic, computerized scheduling applications, resource scheduling, change management, project documentation, billing, cost control, QA/QC techniques, and site utilization planning.

BSCI 4700 BUILDING EQUIPMENT (3) LEC. 3 Coreq., BSCI 4600. Overview of plumbing, mechanical, and electrical systems in buildings. Basic design concepts are covered with emphasis on the management and quality control of system installation during the construction process.

BSCI 4750 SOILS EARTHMOVING EQUIPMENT (2) LEC. 2 Coreq., BSCI 4600. Introduction to properties and testing of soils encountered on a job site.

BSCI 4800 CONTRACTING BUSINESS (3) LEC. 3 Pr., BSCI 3650. Coreq., BSCI 4600. Introduction to the organization and management of construction companies. Includes issues such as business planning, operations management, insurance, bonding, construction finance, employment law, etc.

BSCI 4850 BUSINESS AND CONSTRUCTION LAW (3) LEC. 3. Coreq., BSCI 4990. Introduction to the legal environment of business in the United States with emphasis on contract law and liability issues for construction companies. Course includes legal research, claims avoidance, claims documentation, and alternative dispute resolution.

BSCI 4920 BUSINESS INTERNSHIP (1-3) INT. SU. Pr., ACCT 2110 and ECON 2020 and ECON 2030 and FINC 3610 and MKGT 3530 and MKGT 3530 Internship option for students to gain work experience who seek general or free elective credit. Pr., 2.2 GPA, approval of instructor prior to internship, and completion or current enrollment in two or more of the following: ACCT 2110, ECON 2020, ECON 2030, FINC 3610, MKGT 3100, MKGT 3100.

BSCI 4960 SPECIAL PROBLEMS (1-5) IND. Special problems in construction topics. Course may be repeated for a maximum of 5 credit hours.

BSCI 4990 BUILDING SCIENCE THESIS (4) LAB. 12 Individual project demonstrating mastery of curriculum content through the application of skills/knowledge to theoretical construction company and project. Requires written thesis and oral defense of work.

BSCI 5840 MULTI-CULTURAL ISSUES IN CONSTRUCT (3) LEC. 3

BSCI 5960 SPECIAL PROBLEMS (1-5) IND. Special problems in construction topics. Offered only at the discretion of the department head. This course may not be used to replace any required Building Science course. Departmental approval.

BSCI 6840 MULTI-CULTURAL ISSUES IN CONSTRUCTION LABOR (3) LEC. 3

BSCI 6960 SPECIAL PROBLEMS IN CONSTRUCTION (3) LEC. 3 Individually proposed problems or projects related to the construction industry. Students must prepare a written proposal with defined deliverables. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

BSCI 7010 CONSTRUCTION LABOR AND PRODUCTIVITY (3) LEC. 3 Construction labor issues, productivity measurement, and productivity improvement in the construction industry. Includes reading, research, and an out of class project. Pr., departmental approval.

BSCI 7020 INTEGRATED BUILDING PROCESSES II (3) LEC. 3 Fundamentals of project conception and planning; project development; proformas; site selection and real estate purchases; sources of project funding, equity, and capital; and protocol in planning, zoning, and utilities. Individual and group research, presentations, and projects. Pr., departmental approval.

BSCI 7030 CONSTRUCTION INFORMATION MANAGEMENT (3) LEC. 3 Advanced computer and information management systems applied in the construction industry. Topics include: network systems, EDI, voice recognition, bar coding/other ID systems, imaging, etc. Independent projects, research, and homework assignments. Pr., departmental approval.

BSCI 7040 INTEGRATED BUILDING PROCESSES II (3) LEC. 3 Construction project delivery, from pre-construction service through ownership. Topics include project management, pre-construction services, pre-planning, procurement, site utilization, subcontracting, commissioning, closeout, building operation, and long-term ownership. Pr., departmental approval.

BSCI 7050 EXECUTIVE ISSUES IN CONSTRUCTION (3) LEC. 3 Construction industry executives will present 6 to 10 topics that represent a cross-section of significant management issues.

BSCI 7060 RESEARCH METHODS IN BUILDING SCIENCE (3) LEC. 3 A study of the academic research process, with an emphasis on defining research problems in construction and the development of a research proposal.

BSCI 7100 ELECTIVES IN PROJECT MANAGEMENT (3) LEC. 3 Special course offerings related to advanced project management topics. Course may be repeated with change in topic. Pr., departmental approval.
BSEN 7280 FOOD THERMAL PROCESSING (3) LEC. 2, LAB. 3 The course is an advanced analysis of the unit operations used to process and enhance the value of biological materials.

BSEN 7260 ADVANCED UNIT OPERATIONS IN BIOSYSTEMS ENGINEERING (3) LEC. 2, LAB. 3 Pr., CIVL 3110 and MATH 2650 Engineering aspects of spatial technologies applied to agricultural and forest production. Data collection in the field using GPS and use of field data in site-specific applications. Fall. Pr., departmental approval.

BSEN 3320 NATURAL RESOURCE CONSERVATION ENGINEERING (3) LEC. 2, LAB. 3 Pr., CIVL 3110 and enrollment in junior, senior, or graduate program for the engineering of natural resource systems. Design principles and practices in rainfall-runoff relationships, soil erosion and its prediction and control, hydraulic structures, and open channel hydraulics.

BSEN 3240 THERMAL PROCESS OPERATIONS IN BIOSYSTEMS (3) LEC. 2, LAB. 3 Pr., ENGR 2010 Theory and application of thermal process operations in biological, food, and agricultural systems. Heat transfer, psychrometrics, ventilation, evaporative cooling, drying and dehydration, refrigeration and biological product preservation.

BSEN 3280 ENGINEERING FOR PRECISION AGRICULTURE AND FORESTRY (3) LEC. 2, LAB. 3 Pr., ELEC 3810 and MATH 2650 Engineering aspects of spatial technologies applied to agricultural and forest production. Data collection in the field using GPS and use of field data in site-specific applications. Fall. Pr., departmental approval.

BSEN 3500 NATURAL RESOURCE SYSTEMS CONSERVATION (3) LEC. 2, LAB. 3 Pr., MATH 1130 and enrollment in junior or senior program for the engineering of natural resource systems. Design principles and practices in rainfall-runoff relationships, sediment transport capacity, runoff control structures, water supply development, surveying techniques including GPS methods.

BSEN 3510 AGRICULTURAL POWER AND MACHINERY FUNDAMENTALS (3) LEC. 2, LAB. 3 Pr., MATH 1130 Power unit fundamentals with emphasis on diesel and small gasoline engines; mechanics of operation, safety, use, and adjustment of machinery used for horticultural and agronomic crop production; and precision agriculture principles and technology.

BSEN 3530 AGRICULTURAL PRODUCTION AND PROCESSING FACILITY TECHNOLOGY (3) LEC. 3 Pr., MATH 1130 Fundamental requirements for the design and operation of agricultural production and processing facilities.

BSEN 3560 TURF SYSTEMS IRRIGATION DESIGN (3) LEC. 3 Pr., MATH 1130 Irrigation system design for turf-based systems including residential lawns, commercial properties, athletic fields, and golf courses. Irrigation scheduling and water demand are presented to provide management capabilities.

BSEN 4210 IRRIGATION SYSTEM DESIGN (3) LEC. 2, LAB. 3 Pr., CIVL 3110 Theory and design of irrigation systems for the application of water and wastewater including surveying techniques for system design. Systems include solid-set, traveling, center-pivot, and trickle. Fall.

BSEN 4230 WASTE MANAGEMENT AND UTILIZATION ENGINEERING FOR BIOSYSTEMS (3) LEC. 2, LAB. 3 Pr., CHEM 1040 and BIOL 3200 and BSEN 3230 Theory and design of physical and biological treatment processing systems for biosystems. Special emphasis on design and operation of systems for land application systems, energy production, and refeeding. Spring.

BSEN 4250 HYDRAULIC CONTROL SYSTEMS DESIGN (3) LEC. 2, LAB. 3 Pr., CIVL 3110 or MECH 3030 Principles of energy transfer by means of fluid power. Design of hydraulic control systems using prime movers, valves, actuators, and accessories. Spring.

BSEN 4260 RENEWABLE ENERGY IN BIOSYSTEMS PROCESS OPERATIONS (3) LEC. 2, LAB. 3 Pr., ENGR 2010 and ELEC 3810 and ENGR 2010 Application and use of renewable energy in biological, food, forest, and agricultural systems. Biomass handling, transportation and storage, biomass processing, conversion of biomass to bioenergy, biofuels and biopower, wind power systems, solar resource, electrical energy generation electric motors and lighting. Or departmental approval.

BSEN 4310 ENGINEERING DESIGN FOR BIOSYSTEMS (4) LEC. 2, LAB. 6 Capstone design course in biosystems engineering emphasizing teamwork, communication, safety engineering, and economic analysis to complete an engineering design project. Spring. Pr., departmental approval.

BSEN 4960 SPECIAL PROBLEMS IN BIOSYSTEMS ENGINEERING (1-4) IND. Faculty supervision of individual student investigations of specialized problems in biosystems engineering. May be repeated with change in problem. Course may be repeated with change in topic. Pr., departmental approval.

BSEN 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Course may be repeated for a maximum of 3 credit hours.

BSEN 4970 SPECIAL TOPICS IN BIOSYSTEMS ENGINEERING (1-4) LEC. Individual or small group study of a specialized area in biosystems engineering. May be repeated with change in topic. Course may be repeated for a maximum of 12 credit hours. Pr., departmental approval.

BSEN 4997 HONORS READING AND SPECIAL TOPICS (1-3) IND. Course may be repeated for a maximum of 3 credit hours.

BSEN 5220 INTRODUCTION TO SPATIAL TECHNOLOGIES FOR BIOSYSTEMS (3) LEC. 2, LAB. 3 Pr., (STAT 2510 or STAT 2513) and (STAT 2610 or STAT 3010 or AGRN 2040) Spatial technologies including GPS, GIS, and remote sensing systems applied to biosystems. Collecting, managing, and analyzing spatial data for agricultural and forest systems. Spring. Pr., departmental approval.

BSEN 5250 DETERMINISTIC MODELING FOR BIOSYSTEMS (3) LEC. 3, LAB. 2 Pr., MATH 2650 and ELEC 3810 and (ENGR 2350 or MECH 2110) Modeling of biosystems, methods to deal with complexity, and validation tools. Spring. Pr., departmental approval.

BSEN 5550 PRINCIPLES OF FOOD ENGINEERING TECHNOLOGY (4) LEC. 3, LAB. 3 Pr., MATH 1130 and PHYS 1000. Engineering concepts and unit operations used in processing food products. Fall.

BSEN 6220 INTRODUCTION TO SPATIAL TECHNOLOGIES FOR BIOSYSTEMS (3) LEC. 2, LAB. 3 Pr., STAT 2510 and (STAT 2610 or STAT 3010 or AGRN 2040) Spatial technologies including GPS, GIS, and remote sensing systems applied to biosystems. Collecting, managing, and analyzing spatial data for agricultural and forest systems. Spring. Pr., departmental approval.

BSEN 6250 DETERMINISTIC MODELING FOR BIOSYSTEMS (3) LEC. 2, LAB. 3 Pr., MATH 2650 and ELEC 3810 and (ENGR 2350 or MECH 2110) Modeling of biosystems, methods to deal with complexity, and validation tools. Spring. Pr., departmental approval.

BSEN 6550 PRINCIPLES OF FOOD ENGINEERING TECHNOLOGY (4) LEC. 3, LAB. 3 Pr., MATH 1130 and PHYS 1000. Engineering concepts and unit operations used in processing food products. Fall.

BSEN 7020 SITE-SPECIFIC TECHNOLOGIES FOR AGRICULTURE AND FORESTRY SYSTEMS (3) LEC. 2, LAB. 3 Introduction to advanced concepts of off-highway vehicle equipment for use in agricultural and forestry production with emphasis on site-specific management/Precision Agriculture/Forestry. The course will overview new concepts and technologies for equipment usage and technologies applied for site-specific crop management. Pr., departmental approval.

BSEN 7050 SOIL DYNAMICS OF Tillage and Traction (3) LEC. 3 Pr., CIVL 4300 and AGRN 7590 Analyses and measurements of soil reactions as affected by physical properties of soil when subjected to forces imposed by tillage implements and traction devices. Pr., departmental approval.

BSEN 7110 FUNDAMENTALS OF INSTRUMENTATION FOR BIOLOGICAL SYSTEMS (3) LEC. 2, LAB. 3 Students will gain an understanding of the fundamentals of sensing and sensors, simple digital electronics and measurement circuits, introductory digital signal processing, and computer data acquisition. They will be required to build and test instrumentation to collect data on biological systems that might include fluid flow, pressure, force, or other transducers. Pr., departmental approval.

BSEN 7120 STOCHASTIC MODELING FOR BIOSYSTEMS (3) LEC. 3 Pr., CIVL 3020 Solving problems in biosystems engineering and related fields by modeling data with probability distributions, statistical, autoregressive models, Monte-Carlo simulation, and reliability methods. Pr., departmental approval.

BSEN 7220 RENEWABLE ENERGY SYSTEMS DESIGN, ANALYSIS AND APPLICATIONS (3) LEC. 3 Understanding of the basic principles, applications, modeling, energetic and economic analysis of renewable energy resources namely solar, biomass, wind, hydropower and geothermal. Design of renewable energy systems.

BSEN 7240 BULK SOLIDS STORAGE, HANDLING AND TRANSPORTATION (3) LEC. 3 Sampling of particulate materials, bulk solids characterization, flow properties, particle and bulk solid flow, dynamics of fluid/solids systems, hydraulic and pneumatic conveyor design, storage bin and hopper design and geometry, safety issues. Pr., departmental approval.

BSEN 7260 ADVANCED UNIT OPERATIONS IN BIOSYSTEMS ENGINEERING (3) LEC. 2, LAB. 3 The course is an advance analysis of the unit operations used to process and enhance the value of biological materials.

BSEN 7280 FOOD THERMAL PROCESSING (3) LEC. 2, LAB. 3 Insight of technologies and approaches used in food thermal processing for commercial purposes.
Application of fundamentals of heat transfer, thermo-bacteriology, physical and chemical kinetics of food, and plant layout. Pr., departmental approval.

**BSEN 7310 NONPOINT SOURCE POLLUTION (3)** LEC. 3 Non-point source (NPS) transport of nutrients, sediment, pesticides, and pathogens from agricultural, forestry, and urban activities. Underlying processes (climate, hydrology, nutrients and pesticides, erosion, channel), land cover/plant, best management practices. Sensitivity and uncertainty analyses. Pr., departmental approval.

**BSEN 7320 NON-POINT SOURCE POLLUTION MODELING (3)** LEC. 3 Pr., BSEN 7310 Non-point source (NPS) modeling of nutrients, sediment, pesticides, and pathogens from agricultural, forestry, and urban activities. Underlying processes (climate, hydrology, nutrients and pesticides, erosion, channel), land cover/plant, best management practices. Sensitivity and uncertainty analyses. Pr., departmental approval.

**BSEN 7330 SOIL-PLANT-ENVIRONMENTAL SYSTEM DESIGN/PLANT-ENVIRONMENTAL SYSTEM DESIGN (3)** LEC. 3 Study of systems that incorporate plant uptake of nutrients and/or heavy metals for remediation of soil-based contaminants. Design applications of environmental remediation include constructed wetlands, drip irrigation of wastewater effluent, disposal of municipal sludge, and phyto remediation of contaminants in shallow groundwater.

**BSEN 7350 ENGINEERING ANALYSIS OF LAKES AND RESERVOIRS (3)** LEC. 3 Knowledge and understanding of the causes, impacts, and methods of restoring water quality impairments, with emphasis placed on impounded water bodies and perennial streams. Pr., departmental approval.

**BSEN 7900 SPECIAL PROBLEMS IN BIOSYSTEMS ENGINEERING (1-4)** IND. Faculty supervision of individual student investigations of advanced specialized problems in biosystems engineering at the graduate level. Course may be repeated with change in topic. Pr., departmental approval.

**BSEN 7950 SEMINAR (1)** SEM.SU. Reviews and discussions of research techniques, current scientific literature, and recent developments in biosystems engineering. Course may be repeated for a maximum of 12 credit hours.

**BSEN 7970 SPECIAL TOPICS IN BIOSYSTEMS ENGINEERING (1-4)** IND. Individual or small group study of an advanced specialized area in biosystems engineering at the graduate level. Course may be repeated with change in topic. Pr., departmental approval.

**BSEN 7990 RESEARCH AND THESIS (1-10)** RES. Course may be repeated with change in topic.

**Business Administration (BUSI)**

Dr. Gary Water - 844-5841
Dr. Daniel Gropper - 844-2901

**BUSI 1010 CONTEMPORARY ISSUES IN BUSINESS ADMINISTRATION I (1)** LEC. 1 SU. Exposure to various topics relative to business administration. For Business majors, should be taken during student’s second academic year. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

**BUSI 2010 CONTEMP ISSUES IN BUS ADMIN II (1)** LEC. 1 SU. Orientation to business administration. Business majors should take during student’s second academic year. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

**BUSI 2900 DIRECTED STUDY (1-3)** IND. SU. Independent study option for freshmen and sophomores in the College of Business for students who seek general or free elective credit. This course will be taught by the Executive Director of Corporate & Student Services. This person directs undergraduate business programs. Course may be repeated for a maximum of 3 credit hours. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Course may be repeated for a maximum of 3 credit hours.

**BUSI 3010 CONTEMPORARY ISSUES IN BUSINESS III - INTERN/JOB SEARCH (1)** LEC. 1 Preparation for conducting an intern/career position job search. Develop career planning and job search skills. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

**BUSI 3510 INTRODUCTION TO BUSINESS AND ENGINEERING (3)** LEC. 3 Pr.; MATH 2630 Principles of business and engineering management processes. Pr., Admission to the Business Engineering-Technology Program. 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

**BUSI 3520 INTEGRATING BUSINESS AND ENGINEERING THEORIES WITH PRACTICE (3)** LEC. 2, LAB. 3 Cr., BUSI 3530 Case study problems from business and engineering practice. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

**BUSI 3550 CROSSFUNCTIONAL TEAMWORK (1)** LEC. 1 Development of skills needed to perform well in cross-functional teams. Pr., Admission to the B-E-T program. 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

**BUSI 3560 LEADERSHIP (1)** LEC. 1 Overview of leadership concepts and skills. Pr., Admission to the B-E-T program. 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

**BUSI 4010 CONTEMPORARY ISSUES IN BUSINESS IV - SENIOR/New PROFESSIONAL (1)** LEC. 1 Preparation for transition from college student to career professional. Lecture and case discussion format to discuss issues faced as a new professional. Fall, Spring. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

**BUSI 4540 ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4)** LEC. 4 Pr., BUSI 3510 or ENGR 3510 and (BUSI 3520 or ENGR 3520) Develop student skills for starting a new business and making strategic decisions concerning technology. Pr., Admission to the B-E-T program and 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

**BUSI 4920 BUSINESS INTERNSHIP (1-3)** AAB/INT. SU., Pr., Internship option for students to gain work experience who seek general or free elective credit. Pr., Approval of instructor prior to internship, and completion of or current enrollment in two or more of the following: ACCT 2110, ECON 2020/2030, FINC 3610, MGMT 3100, or MKTG 3310. 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

**BUSI 4970 CAPSTONE PROJECT I: DESIGN PROPOSAL (1)** LAB. 3 Cr., BUSI 4540 Processes to develop and present design proposal for cooperating industry. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

**BUSI 4980 PRODUCT/PROCESS DESIGN AND DEVELOPMENT II (3)** LEC. 1, LAB. 6 Pr., BUSI 4970 or ENGR 4970 Cross-functional team design projects for sponsoring industry. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

**BUSI 7110/7116 FINANCIAL ANALYSIS (3)** LEC. 3 Integrated course combining financial accounting and corporate finance for MBA students. Pr., departmental approval.

**BUSI 7120/7126 QUANTITATIVE ANALYSIS FOR BUSINESS DECISIONS (3)** LEC. 3 Integrated course in statistical methods and management science for MBA students. Pr., departmental approval.

**BUSI/7130/7136 STRATEGIC ANALYSIS AND THE COMPETITIVE ENVIRONMENT (3)** LEC. 3 Integrated course covering business strategy and the external environment in a global context. Pr., departmental approval.

**BUSI 7140/7146 ORGANIZATIONAL LEADERSHIP AND CHANGE (3)** LEC. 3 Integrated course covering aspects of individual and group behavior and assessment in organizations, effective team building, and leading organizations through change. Pr., departmental approval.

**BUSI 7210/7216 MARKETING AND CONSUMER THEORY (3)** LEC. 3 Combines elements of the economics of demand theory and marketing management. Includes advanced pricing topics and the competitive environment. Pr., departmental approval.

**BUSI 7220/7226 OPERATIONS AND INFORMATION TECHNOLOGY FOR COMPETITIVE ADVANTAGE (3)** LEC. 3 The structure of business operations and the role that information technology plays in formulating and implementing strategies for competitive advantage. Pr., departmental approval.

**BUSI 7230/7236 COST ANALYSIS AND SYSTEMS (3)** LEC. 3 Integrates production and cost theory from economics with managerial and cost accounting theory and systems for MBA students. Pr., departmental approval.

**BUSI 7920/7926 MBA INTERNSHIP (3-6)** INT. SU. Internship for MBA students in business organizations. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

**BUSI 7970/7976 SPECIAL TOPICS IN BUSINESS ADMINISTRATION (1-3)** LEC. Specialized topics in business administration not otherwise covered in existing courses. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

**BUSI 7980/7986 INTEGRATED BUSINESS PROJECT AND CASE ANALYSIS (3)** LEC. 3 Integrates knowledge gained from MBA classes and applies that knowledge to address actual business problems. Pr., departmental approval.

**Consumer Affairs (CAHS)**

Dr. Carol Warfield - 844-4084

**CAHS 1000 STUDIO I: INTRODUCTION TO INTERIOR DESIGN (3)** LEC. 3, LST. 3 Introduction and application of design theory to interior design and consumer products. Fall, Spring.

**CAHS 1100 STUDIO II: TECHNICAL DESIGN OF INTERIOR DESIGN (4)** LEC. 2, LEC/STU. 6 Space planning and delineation of interior systems for residential, institutional, and other consumer environments. Fall, Spring.

**CAHS 1600 TEXTILE INDUSTRIAL COMPLEX (3)** LEC. 3 Introduction to the composition, characteristics, and products of the network of fiber producers, textile manufacturers, dyers, finishers, apparel manufacturers, and retailers. Fall, Spring.

**CAHS 1750 FUNDAMENTALS OF PRODUCT DEVELOPMENT (4)** LEC. 2, LST. 6 Pr., CAHS 1600 Introduction to apparel planning and production for merchandisers, designers, and production managers. Pr., 2.2 ungauged cumulative GPA; AMDP major.
CAHS 2000 GLOBAL CONSUMER CULTURE (3) LEC. 3 Sustainability and social responsibility provide a framework for the study of cultural, commercial, and aesthetic factors influencing the selection and usage of consumer products and services that create and express social identity. Credit will not be given for both CAHS 2000 and CAHS 2007.

CAHS 2007 HONORS GLOBAL CONSUMER CULTURE (3) LEC. 3 Sustainability and social responsibility provide a framework for the study of cultural, commercial, and aesthetic factors influencing the selection and usage of consumer products and services that create and express social identity. Credit will not be given for both CAHS 2007 and CAHS 2000.

CAHS 2100 STUDIO III: VISUAL PRESENTATION OF INTERIOR DESIGN I (4) LEC. 2, LST. 6 Pr., CAHS 1100 Development of visual communication skills for interior design and consumer products. Fall.

CAHS 2200 STUDIO IV: CAD FOR INTERIOR DESIGN (4) LEC. 2, LST. 6 Pr., CAHS 2100 Application of graphic visualization and computer-aided design techniques to represent interior design. Spring.

CAHS 2300 HISTORY OF THE DECORATIVE ARTS (3) LEC. 3 Pr., CAHS 1000 Historical survey of the interior design and decorative arts from antiquity through present. Pr., Core fine arts.

CAHS 2400 INTERIOR MATERIALS AND COMPONENTS (3) LEC. 3 Pr., CAHS 1000 Survey of finishes, textiles, materials, and components. Introduction to health, safety, and environmental issues that impact consumers. Fall.

CAHS 2500 STUDIO V: VISUAL PRESENTATIONS II (4) LEC. 2, LST. 6 Pr., CAHS 2100 Development of color visual communication skills for interior design ideas and concepts. Spring.

CAHS 2740 AESTHETICS FOR APPAREL DESIGN (4) LEC. 2, LST. 6 Pr., CAHS 1600 Principles of aesthetics applied to apparel product development including computer-aided design and other presentation techniques. Pr., 2.2 untagged cumulative GPA, AMDP major.

CAHS 2750 PRODUCT DEVELOPMENT: TECHNICAL DESIGN (4) LEC. 2, LST. 6 Pr., CAHS 1750 and CAHS 2740 Intermediate pattern development concepts, techniques, and applications. Pr., 2.2 untagged cumulative GPA, AMDP major.

CAHS 2760 VISUAL MERCHANDISING (4) LEC. 2, LST. 6 Pr., CAHS 1600 History, equipment, application, and theory of display techniques in store and non-store settings. Fall. Pr., 2.2 untagged cumulative GPA, AMDP major.

CAHS 2800 APPAREL PRODUCTION MANAGEMENT (4) LEC. 3, LAB. 3 Pr., CAHS 1750 Introduction to apparel industry terminology, technology, production methods, and engineering quality into apparel products. Pr., 2.2 untagged cumulative GPA, AMDP major.

CAHS 3100 STUDIO VI: LIGHTING DESIGN/ENVIRONMENTAL SYSTEMS (4) LEC. 2, LST. 6 Pr., CAHS 2200 and CAHS 2400 and CAHS 2500 Application of principles and processes of lighting, mechanical, and environmental systems to interior design. Fall.

CAHS 3200 STUDIO VII: RESIDENTIAL INTERIORS (4) LEC. 2, LST. 6 Pr., CAHS 2200 and CAHS 2300 and CAHS 2400 and CAHS 2500 Application of human factors and consumer needs to programming and design process of residential interiors.

CAHS 3380 STUDY ABROAD OPPORTUNITY IN HUMAN SCIENCES (1) LEC. 1 Exploration of study abroad opportunities for students interested in the International Minor in Human Sciences.

CAHS 3400 STUDIO VIII: NON-RESIDENTIAL INTERIORS (4) LEC. 2, LST. 6 Pr., CAHS 2200 and CAHS 2300 and CAHS 2400 and CAHS 2500 and CAHS 3100 and CAHS 3200 Application of programming and presentation techniques to non-residential interior design.

CAHS 3500 BUSINESS PRACTICES IN INTERIOR DESIGN (3) LEC. 3 Pr., CAHS 2200 and CAHS 2300 and CAHS 2400 Professional practices in the design business. Orientation to internship experience.

CAHS 3600 TEXTILES (4) LEC. 3, LAB. 3 Pr., CAHS 1600 and CHEM 1020 and CHEM 1021 Organic compounds, polymers, fibers, yarns, fabrics, and chemical finishes for apparel and household textiles with laboratory evaluation. Pr., 2.2 untagged cumulative GPA, AMDP major.

CAHS 3750 PRODUCT DEVELOPMENT: APPAREL DESIGN (4) LEC. 2, LST. 6 Pr., CAHS 2750 and CAHS 2800 Advanced design techniques, including couture production; portfolio and internship planning. Pr., 2.2 untagged cumulative GPA, AMDP major.

CAHS 3800 CONSUMER DECISION MAKING FOR APPAREL AND FASHION PRODUCTS (3) LEC. 3 Pr., CAHS 1750 and CAHS 2000 Analysis of consumer decision making for apparel and fashion products and the factors that impact consumer decisions. Credit will not be given for both CAHS 3800 and MKTG 3410 Pr., 2.2 untagged cumulative grade-point average.

CAHS 3850 MERCHANDISE PLANNING AND CONTROL (3) LEC. 2, LAB. 2 Pr., 2.2 GPA. (ACCT 2110 or ACCT 2910) and CAHS 1600 Application of principles of merchandising management and retail buying to the retailing of consumer goods and services.

CAHS 3900 DIRECTED STUDIES (1-3) AAB/IND. SU. Directed readings and/or individualized research project. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CAHS 3940 STUDY AND TRAVEL IN CONSUMER AFFAIRS (1-3) AAB/FLD. Concentrated study in the U.S. or abroad. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CAHS 3970 SPECIAL TOPICS (1-3) IND. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CAHS 4200 STUDIO IX: PORTFOLIO DEVELOPMENT (4) LEC. 2, LST. 6 Pr., CAHS 3400 and CAHS 3500 Portfolio development, critique, and review. Senior Standing.

CAHS 4300 STUDIO X: INTERIOR DESIGN-COMMERCIAL (4) LEC. 2, LST. 6 Pr., CAHS 3400 and CAHS 3500 Development of a large-scale commercial project with comprehensive programming, schematic design, and thorough design development based on research/programming documentation. Fall. Pr., departmental approval. Senior Standing.

CAHS 4400 STUDIO XI: INTERIOR DESIGN-INSTITUTIONAL (4) LEC. 2, LST. 6 Pr., CAHS 4300 Development of a large-scale institutional project with emphasis on design of a healing environment. Senior Standing.

CAHS 4500 PORTFOLIO DEVELOPMENT FOR DESIGNERS (3) LEC. 2, LAB. 2 Pr., CAHS 3750 Survey of advanced techniques in design presentation including computer-aided design and graphics software. Portfolio development in print, computer slide show, and web formats. Spring or departmental approval. Junior Standing.

CAHS 4600 INTERNSHIP (A) AAB/INT. 8 Supervised 10 week professional internship. Pr., departmental approval. Senior Standing.

CAHS 4800 SPECIAL PROBLEMS (1-3) IND. AAB/INT. Readings in specialized topics. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CAHS 4977 HONORS THESIS (3) IND. SU. Pr., CAHS 4977 Honors Research in specialized topics. Pr., departmental approval.

CAHS 4979 HISTORICAL COSTUME (3) LEC. 3, LAB. 3 Pr., (HIST 1010 and HIST 1020) or (HIST 1017 and HIST 1027) or (HIST 1210 and HIST 1220) or (HIST 1217 and HIST 1227) or (UNIV 2710 and UNIV 2720) or (UNIV 2717 and UNIV 2727) Historical roles of dress in western civilization. Cultural, social, and physical evolution. Credit will not be given for both CAHS 4500 and CAHS 6450. Pr., Core History or departmental approval. 2.2 untagged cumulative GPA, AMDP major. Junior Standing.

CAHS 5000 GLOBAL SOURCING IN TEXTILES AND APPAREL (3) LEC. 3 Pr., (ECON 2020 or ECON 2027) and (ANTH 1000 or GEOG 1010 or PSYC 2010 or PSY210 or SOCY 1000 or SOCY 1007) Departmental approval; 2.2 untagged GPA. The role of fiber, textile, and apparel industries in the international economy. Junior standing. Spring.

CAHS 5610 GLOBAL RETAILING STRATEGIES FOR TEXTILE AND APPAREL PRODUCTS (3) LEC. 3 Pr., CAHS 2000 and CAHS 3850 Strategies for successful global business expansion for textile and apparel retailers. May count one of: CAHS 5610, 6610, MKTG 4330, 4440.

CAHS 5650 TEXTILE AND APPAREL EVALUATION (4) LEC. 2, LAB. 6 Pr., CAHS 3600 Testing procedures for characterization and evaluation of fabrics and sewn products for apparel and interiors. Credit will not be given for both CAHS 5650 and CAHS 6650. Pr., departmental approval, AMDP major. Junior Standing.

CAHS 5700 ENTREPRENEURSHIP IN APPAREL AND INTERIORS (3) LEC. 3 Analyzing business opportunities in textiles, apparel, and interiors; developing marketing concepts and entrepreneurial strategies. Credit will not be given for both CAHS 5700 and CAHS 6700. Junior Standing.

CAHS 5730 HISTORY OF TEXTILES (3) LEC. 3, (HIST 1017 and HIST 1027) or (HIST 1217 and HIST 1227) or (UNIV 2710 and UNIV 2720) or (UNIV 2717 and UNIV 2727) Historical roles of dress in western civilization. Cultural, social, and physical evolution. Credit will not be given for both CAHS 5730 and CAHS 6730. Pr., Core history or departmental approval. Junior Standing.

CAHS 5750 APPAREL LINE DEVELOPMENT (4) LEC. 2, LAB. 6 Pr., CAHS 3750 and CAHS 3850 and CAHS 4800 Team driven design production and market development. Development of apparel lines. Credit will not be given for both CAHS 5750 and CAHS 6750. Spring. Pr., departmental approval, 2.2 untagged cumulative GPA, AMDP major.

CAHS 5780 FASHION ANALYSIS AND FORECASTING (3) LEC. 3 Pr., CAHS 1600 Theories explaining fashion dynamics and techniques for forecasting change, with case applications in textiles, apparel, and retailing. Credit will not be given for both
CAHS 7970 SUPERVISED TEACHING (1) IND. SU. Practical experience teaching in the classroom. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

CAHS 7920 GRADUATE INTERNSHIP (3) INT. Supervised professional experience in the apparel, textile, or consumer industries. Pr., departmental approval.

CAHS 7930 ADVANCED DESIGN PROJECTS (1-6) IND. SU. Independent execution of advanced design work. (A) Apparel; (B) Interiors; (C) Visual Merchandising; (D) Textile Design. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CAHS 7940 STUDY/TRAVEL IN CONSUMER AFFAIRS (1-3) FLD. SU. Concentrated study/travel in the U.S. or internationally. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CAHS 7950 SEMINAR (1) SEM. SU. Research presentations and discussion. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

CAHS 7960 SPECIAL PROBLEMS (1-3) IND. SU. Directed readings in textiles, apparel, interiors and retailing. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CAHS 7970 SPECIAL TOPICS IN DESIGN (1-6) RES. (A) Apparel; (B) Interiors; (C) Visual Merchandising; (D) Textile Design. Independent execution of advanced design work. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CAHS 8970 SPECIAL TOPICS (1-3) LEC/RES. in-depth, integrative research in a particular project related to apparel, textiles, interiors or consumer behavior. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CAHS 9990 RESEARCH AND THESIS (1-10) MST. Pr., departmental approval. Course may be repeated with a change in topic. Course may be repeated with change in topics.

Chemistry (CHEM)

CHEM 1010 SURVEY OF CHEMISTRY I (3) LEC. 3. Science Core. Survey of important topics from general and organic chemistry. Atomic and bonding theory, chemical reactions and stoichiometry, gas laws, solutions, acids and bases, hydrocarbons, alcohols, ethers and amines.

CHEM 1020 SURVEY OF CHEMISTRY II (3) LEC. 3. Pr., CHEM 1010. Critical examination of topics and methodological issues in branding research and application in apparel and interior product and service branding. Pr., or departmental approval.

CHEM 1021 SURVEY OF CHEMISTRY II LAB (1) LEC/RES. 1. Laboratory exercises emphasizing course material in CHEM 1020.

CHEM 1030 SURVEY OF CHEMISTRY I LAB (1) LEC. 1. Pr., CHEM 1010. Workbook exercises emphasizing course material in CHEM 1010.

CHEM 1040 SURVEY OF CHEMISTRY II LAB (1) LEC. 1. Pr., CHEM 1020. Workbook exercises emphasizing course material in CHEM 1020.

CHEM 1050 SURVEY OF CHEMISTRY I (3) LEC. 3. Pr., CHEM 1010. Workbook exercises emphasizing course material in CHEM 1010.

CHEM 1060 SURVEY OF CHEMISTRY II (3) LEC. 3. Pr., CHEM 1020. Workbook exercises emphasizing course material in CHEM 1020.
CHEM 7300 ADVANCED PHYSICAL CHEMISTRY (3) LEC. 3 Review of principles of classical thermodynamics and in-depth treatment of quantum mechanics, with extensions to statistical mechanics.

CHEM 7330 CHEMICAL KINETICS (3) LEC. 3 Theoretical and experimental aspects of reaction rates. The mathematics and characterization of chemically reacting systems.

CHEM 7370 SPECIAL TOPICS IN PHYSICAL CHEMISTRY (1-3) LEC. 3 Pr., CHEM 7300 and departmental approval. Modern topics in advanced physical chemistry. Course may be repeated for a maximum of 3 credit hours.

CHEM 7380 MOLECULAR SPECTROSCOPY (3) LEC. 3 Pr., CHEM 7300 Theory and application of optical and magnetic spectroscopy.

CHEM 7500 ADVANCED ANALYTICAL CHEMISTRY (3) LEC. 3 Analytical principles, applications and methods, mathematical interpretations and current developments.

CHEM 7510 ELECTROANALYTICAL CHEMISTRY (3) LEC. 3 Pr., CHEM 7500 Analytical applications of electrochemistry.

CHEM 7520 SURFACE CHEMISTRY (3) LEC. 3 Pr., CHEM 7500 Basic concepts in surface chemistry and surface analytical methods.

CHEM 7530 ADVANCES IN BIOANALYTICAL CHEMISTRY (3) LEC. 3 Pr., CHEM 7500 Analytical Chemistry of micro fluidic devices and "Lab on a chip." New methods of miniaturization of separations and analysis with emphasis on bioanalytical applications.

CHEM 7750 FORMAL PRESENTATIONS IN MODERN CHEMISTRY (1) LEC. 1 Oral presentations skills will be developed with a focus on the dissemination of new discoveries in the field of Chemistry. Course may be repeated for a maximum of 6 credit hours.

CHEM 7930 DIRECTED INDIVIDUAL STUDY (1-15) IND. Credit to be arranged. Course may be repeated for a maximum of 6 credit hours.

CHEM 7950 SEMINAR (1) SEM. 1 SU. Course may be repeated for a maximum of 6 credit hours.

CHEM 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CHEM 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

LABORATORY TECHNOLOGY (LABT)

LABT 1010 ORIENTATION (1) LEC. 1 Aims, objectives and requirements for careers in medical and laboratory technology.

LABT 4010 HEMATOLOGY (9) LEC. 3, LAB. 6 Pr., CHEM 2070 Origin, maturation, morphology, function of normal blood cells and abnormalities in diseased blood. Routine and specialty hematological laboratory techniques.

LABT 4050 CLINICAL IMMUNOHEMATOLOGY/PARASITOLOGY (5) LEC. 3, LAB. 6 Pr., CHEM 2070 and BIOL 1020 Immunogenetics, clinical significance of blood group antigens and antibodies, theory and techniques of serological study of human blood groups. Human parasites, life cycles and disease processes.

LABT 4250 CLINICAL BIOCHEMISTRY/INSTRUMENTATION (4) LEC. 3, LAB. 3 Pr., BCHE 5180 or BCHE 3200 Biochemistry/physiology of systems in the body of elements in body fluids during the normal and abnormal processes. Theoretical and practical application of Lab techniques, atomic absorption, gas chromatography-FID, HPLC, spectroscopy, spectrophotometry, ion selective electrodes and RIA used in analysis of body fluids.

LABT 4910 CLINICAL PRACTICUM (0) PRA.

LABT 4920 CLINICAL INTERNSHIP (0) PRA, Pr., LABT 4910 Final term of clinical internship.

Chemical Engineering (CHEN)

Dr. Tim Placek - 844-2022

CHEN 2AA0 CHEMICAL ENGINEERING PROGRESS ASSESSMENT I (0) LAB. SU. Progress assessment examination in basic science, general chemistry, physics, basic math principles (geometry, algebra), multivariable calculus, chemical engineering process principles (mass and energy balances).

CHEN 2100 PRINCIPLES OF CHEMICAL ENGINEERING (4) LEC. 3, LAB. 3 Pr., (CHEM 1110 or CHEM 1117 or CHEM 1030) and (MATH 1610 or MATH 1617 or MATH 1710) and (CHEM 1120 or CHEM 1127 or CHEM 1040) and (MATH 1620 or MATH 1627 or MATH 1720) and (PHYS 1600 or PHYS 1607) Application of multi-component material and energy balances to chemical processes involving phase changes and chemical reactions.

CHEN 2610 TRANSPORT I (3) LEC. 3 Pr., (PHYS 1600 or PHYS 1607) and CHEN 2100 and (MATH 2630 or MATH 2637) and ENGR 2010 Introduction to fluid statics and dynamics; dimensional analysis; compressible and incompressible flows; design of flow systems, introduction to fluid solids transport including fluidization, flow through process media and multiphase flows.

CHEN 3AA0 CHEMICAL ENGINEERING PROGRESS ASSESSMENT II (0) LAB. SU. Pr., CHEN 2AA0 Progress assessment examination in thermodynamics, linear differential equations, organic chemistry, transport phenomena (fluid mechanics, heat, mass transfer), phase and reaction equilibria, reaction engineering, design and conduction of experiments, analysis and interpretation of data, professional, ethical, societal and contemporary issues.

CHEN 3090 PULP AND PAPER TECHNOLOGY (3) LEC. 3 Pr., (CHEM 1030 or CHEM 1110) and ENGR 2010 An introductory course on the technology of pulp and paper manufacturing with emphasis on raw materials, pulping, bleaching, paper making, coating and environmental control. For students with no previous formal pulp and paper background.

CHEN 3370 PHASE AND REACTION EQUILIBRIA (3) LEC. 3 Pr., ENGR 2010 and CHEN 2100 Molecular thermodynamics of phase and chemical reaction equilibria including non-ideal thermodynamics and multicomponent applications.

CHEN 3410 CREATIVITY AND CRITICAL THINKING IN ENGINEERING (3) LEC. 3 Application of creativity and critical thinking principles to effectively approach solving engineering problems. Convincing presentation of information to technical audiences.

CHEN 3600 COMPUTER-AIDED CHEMICAL ENGINEERING (3) LEC. 2, LAB. 3 Pr., COMP 1200 and MATH 2650 and CHEN 2610 General and structured programming concepts, numerical methods, and introductory probability and statistics concepts. Application to chemical engineering problems involving material and energy balances and transport process, data validation, and analysis.

CHEN 3620 TRANSPORT II (3) LEC. 3 Pr., (MATH 2630 or MATH 2637) and ENGR 2010 and CHEN 2610 Fundamentals and applications of heat and mass transfer in chemical processes including conduction, convection, and radiation, heat exchange, evaporation, chemical reaction gas absorption, drying and humidification.

CHEN 3650 CHEMICAL ENGINEERING ANALYSIS (3) LEC. 2, LAB. 3 Pr., CHEN 3600 and CHEN 3620 and CHEN 2AA0 Mathematical modeling, analytical, numerical and statistical analysis of chemical processes.

CHEN 3660 CHEMICAL ENGINEERING SEPARATIONS (3) LEC. 3 Pr., CHEN 3370 and CHEN 3620 Separations processes including distillation, extraction, membrane separation, and other separation operations.

CHEN 3700 CHEMICAL REACTION ENGINEERING (3) LEC. 3 Pr., MATH 2650 and CHEN 2610 and ENGR 2010 Design of chemical reactors with homogeneous reaction systems.

CHEN 3820 CHEMICAL ENGINEERING LABORATORY I (2) LEC. 1, LAB. 3 Pr., CHEN 3600 and CHEN 3620 Experimental study of chemical thermodynamics, heat and momentum transfer with analytical, numerical, and statistical analysis.

CHEN 4100 PULP AND PAPER PROCESSING LABORATORY (2) LEC. 2, LAB. 2 Pr., CHEM 2100 and CHEN 3090 and CHEN 3820 Experimental study of pulping and papermaking operations. Pr., departmental approval.

CHEN 4160 PROCESS DYNAMICS AND CONTROL (3) LEC. 2, LAB. 3 Pr., CHEN 3600 and CHEN 3650 Dynamic modeling of chemical processes, feedback systems and analog controller tuning and design, sequential control systems.

CHEN 4170 DIGITAL PROCESS CONTROL (3) LEC. 2, LAB. 3 Pr., CHEN 3650 Analysis of open loop and closed loop process control systems. Introduction to digital control systems including operator/machine interface design and operation. Application of process dynamics and digital control systems in experimental control laboratory.

CHEN 4180 ADVANCED DIGITAL PROCESS CONTROL (3) LEC. 2, LAB. 3 Pr., CHEN 4170 Application of sequential, closed loop and open loop process control principles to actual industrial and experimental control laboratory processes.

CHEN 4450 PROCESS ECONOMICS AND SAFETY (3) LEC. 2, LAB. 3 Pr., CHEM 2080 and CHEN 3370 and CHEN 3650 and CHEN 3700 Fundamentals and applications of process economics and design, computer-aided cost estimation, profitability analysis and process improvement. Application of chemical process safety, risk assessment and management, hazard and operability analysis, and chemical engineering principles for risk reduction.

CHEN 4460 PROCESS SIMULATION SYNTHESIS AND OPTIMIZATION (2) LEC. 1, LAB. 3 Pr., CHEM 2080 and CHEN 3370 and CHEN 3650 and CHEN 3700 Fundamentals of computer-aided simulation and synthesis. Process integration and optimization principles including their applications in design, retrofitting and operation of chemical processes.

CHEN 4470 PROCESS DESIGN PRACTICE (3) LEC. 2, LAB. 3 Pr., CHEN 3AA0 and CHEN 4450 and CHEN 4460 Flow sheet simulation and techno-economic analysis applied to complex, open-ended chemical processes. Screening of alternatives and economic optimizations. Capstone design course.

CHEN 4560 PULP AND PAPER PROCESS SIMULATION (2) LEC. 1, LAB. 3 Pr., CHEM 2080 and CHEN 3090 and CHEN 3370 and CHEN 3650 and CHEN 3660 and CHEN 3700 and CHEN 4100 and CHEN 5110 Fundamentals of microcomputer process simulation with applications to the pulp and paper industry. Design of pulp and paper unit operations and small scale processes using commercial simulation software.

CHEN 4570 PULP AND PAPER PROCESS DESIGN (3) LEC. 2, LAB. 3 Pr., CHEN 3AA0 and CHEN 4450 and CHEN 4560 Application of process simulation and process economics to complex, open-ended design, retrofitting and operation prob-
lems in pulp and paper. Design of pulp and paper unit operations and processes. Screening of alternatives and economic optimization.

CHEN 4860 CHEMICAL ENGINEERING LABORATORY II (2) LEC. 1, LAB. 3 Pr., CHEN 3660 and CHEN 3820 and CHEN 3700 Experimental study of mass transfer, separations and reaction engineering. Emphasis is on open-ended laboratory projects with electronic instrumentation; experimental design with numerical and statistical analysis.

CHEN 4890 PULP AND PAPER ENGINEERING LABORATORY (3) LAB. 9 Pr., CHEN 4110 and CHEN 5110 Comprehensive open-ended projects on pulp and paper topics.

CHEN 4930 DIRECTED STUDIES (1) LEC. 1 Supervised study in specialized areas of chemical engineering. Topic must be arranged with instructor during preregistration. Project report.

CHEN 4970 SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-10) LEC. Topical courses in special areas. Topic must be arranged with instructor during pre-registration. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

CHEN 4980 UNDERGRADUATE RESEARCH (1-3) IND. Pr., 3 GPA. Individual and small group projects. Topic must be arranged with instructor during preregistration. Research Report. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval; GPA of 3.0 or higher. Course may be repeated for a maximum of 3 credit hours.

CHEN 4997 HONORS THESIS (1-6) IND. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

CHEN 5110 PULP AND PAPER ENGINEERING (3) LEC. 3 Pr., CHEN 3090 and CHEN 3620 and CHEN 3700 and CHEN 4450 Chemical and engineering principles in the manufacturing of pulp and paper.

CHEN 5120 SURFACE AND COLLOID SCIENCE (3) LEC. 3 Pr., CHEN 3620 and CHEN 4110 Fundamentals of surface and colloid science with applications in pulp- and papermaking, including sizing, retention and drainage, charge measurements, dry/wet strength additives, fillers, colorants, foams, pitch and deposits.

CHEN 5400 MOLECULAR ENGINEERING (3) LEC. 3 Pr., CHEN 2080 and CHEN 3370 Introduction to how molecular structure and long range microstructure affect the properties of chemical engineering products and how this knowledge can be used to design chemical engineering products for specific applications.

CHEN 5410 MACROMOLECULAR SCIENCE AND ENGINEERING (3) LEC. 3 Pr., CHEM 2080 and CHEN 3370 Statistical mechanics of chain molecules; thermodynamics of polymer solutions; dilute, semi-dilute, and concentrated solutions and gels; polymer physics; scaling concepts in polymer physics; reputation theory (deGennes, Doi, Edwards) and molecular dynamics; phase separations; crystallization of polymers; rubber elasticity theory; mechanical analysis; viscoelasticity; diffusion theory of polymers; surface properties of polymers.

CHEN 5420 POLYMER CHEMICAL ENGINEERING (3) LEC. 2, LAB. 3 Pr., CHEM 2070 and CHEN 3620 and CHEN 5410 Polymer rheology, transport phenomena, thermodynamics, membranes, conducting polymers, surfaces, interfaces and processes.

CHEN 5430 BUSINESS ASPECTS OF CHEMICAL ENGINEERING (3) LEC. 3 The procession of activities required to successfully commercialize and market new chemical-engineering-based technologies to the consumer and process industries. Pr., departmental approval.

CHEN 5440 ELECTROCHEMICAL ENGINEERING (3) LEC. 3 Thermodynamics, electrode kinetics and transport phenomena of electrochemical systems, current and potential distributions, double layer theory, electrochemical processes, power sources, synthesis and purification.

CHEN 5810 BIOMEDICAL ENGINEERING (3) LEC. 3 Pr., CHEM 2080 and CHEN 3620 and CHEN 3700 Application of chemical engineering principles to the study of medical physiology. Human biochemistry, anatomy and physiology, rheological properties of blood and synovial fluid, rheology of cell membranes. Biomedical fluid mechanics and heat and mass transfer.

CHEN 5820 ADVANCED TOPICS IN ENVIRONMENTAL BIOTECHNOLOGY (3) LEC. 3 Application of biotechnology to environmental process treatment, bioremediation and bioreactor development.

CHEN 5970 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) LEC. Topical courses in areas for advanced undergraduate and graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 24 hours. Pr., departmental approval. Course may be repeated for a maximum of 24 credit hours.

CHEN 6110 PULP AND PAPER ENGINEERING (3) LEC. 3 Chemical and engineering principles in the manufacturing of pulp and paper. Pr., departmental approval.

CHEN 6120/6126 SURFACE AND COLLOID SCIENCE (3) LEC. 3 Fundamentals of surface and colloid science with applications in pulping and papermaking, including sizing, retention and drainage, charge measurements, dry/wet strength additives, fillers, colorants, foams, pitch and deposits.

CHEN 6400/6406 MOLECULAR ENGINEERING (3) LEC. 3 Introduction to how molecular structure and long range microstructure affect the properties of chemical engineering products and how this knowledge can be used to design chemical engineering products for specific applications. Pr., departmental approval.

CHEN 6410/6416 MACROMOLECULAR SCIENCE AND ENGINEERING (3) LEC. 3 Statistical mechanics of chain molecules; thermodynamics of polymer solutions; dilute, semi-dilute, and concentrated solutions and gels; polymer physics; scaling concepts in polymer physics; reputation theory (deGennes, Doi, Edwards) and molecular dynamics; phase separations; crystallization of polymers; rubber elasticity theory; mechanical analysis; viscoelasticity; diffusion theory of polymers; surface properties of polymers.

CHEN 6420/6426 POLYMER CHEMICAL ENGINEERING (3) LEC. 3 Polymer rheology, transport phenomena, thermodynamics, membranes, conducting polymers, surfaces, interfaces and processes. Pr., departmental approval.

CHEN 6430/6436 BUSINESS ASPECTS OF CHEMICAL ENGINEERING (3) LEC. 3 The procession of activities required to successfully commercialize and market new chemical-engineering-based technologies to the consumer and process industries. Pr., departmental approval.

CHEN 6440/6446 ELECTROCHEMICAL ENGINEERING (3) LEC. 3 Thermodynamics, electrode kinetics and transport phenomena of electrochemical systems, current and potential distributions, double layer theory, electrochemical processes, power sources, synthesis, corrosion. Pr., departmental approval.

CHEN 6650/6656 HAZARDOUS MATERIALS MANAGEMENT AND ENGINEERING (3) LEC. 3 Fundamental principles and regulatory information related to hazardous material and process safety management and engineering, dispersion of chemicals, hazard and operability analysis, chemical engineering, principles for risk education. Pr., departmental approval.

CHEN 6670/6676 POLLUTION PREVENTION ENGINEERING (3) LEC. 3 Chemical and engineering principles applied to pollution prevention. Theory and practice of flotation, coalescence, micro- and ultra-filtration, de-emulsification, polymer coagulation and other methods. Case studies. Pr., departmental approval.

CHEN 6700/6706 ADVANCED SEPARATION PROCESSES (3) LEC. 3 Advanced treatment of modern chemical engineering separation processes. Theory and practice of staged multi-component mass transfer operations, non-ideal multi-phase separations and continuous recycle processes. Pr., departmental approval.

CHEN 6800/6806 BIOCHEMICAL ENGINEERING (3) LEC. 3 Bioreactor design. Analysis of enzyme and microbial processes. Pr., departmental approval.

CHEN 6810/6816 BIOMEDICAL ENGINEERING (3) LEC. 3 Application of chemical engineering principles to the study of medical physiology. Human biochemistry, anatomy and physiology, rheological properties of blood and synovial fluid, rheology of cell membranes. Biomedical fluid mechanics and heat and mass transfer. Pr., departmental approval.

CHEN 6820/6826 ADVANCED TOPICS IN ENVIRONMENTAL BIOTECHNOLOGY (3) LEC. 3 Application of biotechnology to environmental process treatment, bioremediation and bioreactor development. Pr., departmental approval.

CHEN 6970/6976 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) LEC. Topical courses in areas for advanced undergraduate and graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 24 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 24 credit hours.

CHEN 7020/7026 INTERFACIAL PHENOMENA (3) LEC. 3 Pr., CHEM 7200 or CHEN 7206 Fundamental analyses of interfacial phenomena at liquid/gas, liquid/liquid, liquid/solid and solid/solid interfaces. Pr., departmental approval.

CHEN 7110/7116 CHEMICAL ENGINEERING ANALYSIS AND ADVANCED TRANSPORT PHENOMENA (3) LEC. 3 Pr., CHEN 7100 or CHEN 7106 Analytical solutions of ordinary and partial differential equations pertaining to transport phenomena and other areas of chemical engineering.

CHEN 7120/7126 ADVANCED TOPICS IN PAPER PROCESSING OPERATIONS (3) LEC. 3 Pr., CHEN 6120 or CHEN 6126 Surface and colloidal interactions in the wet end of paper manufacturing. Colloidal stability theory, absorption of macromolecules, flocculation and retention of particles. Wet-end chemistry process control.

CHEN 7130/7136 ADVANCED PULP AND PAPER ENGINEERING (3) LEC. 3 Topics in pulping, chemical recovery and papermaking.

CHEN 7200/7206 CHEMICAL ENGINEERING THERMODYNAMICS (3) LEC. 3 Chemical reaction and phase equilibrium applied to chemical engineering problems. Properties of multicomponent real gases, liquids, and solids and property relationships. Criteria for thermodynamic equilibrium and stability, molecular thermodynamics.

CHEN 7250/7256 CHEMICAL REACTION ENGINEERING (3) LEC. 3 Cr., CHEN 7100 Analysis and design of homogeneous and heterogeneous chemical reactors. Physicochemical factors and analysis of non-ideal chemical reactor behavior.

CHEN 7600/7606 ENVIRONMENTAL TRANSPORT (3) LEC. 3 Pr., CHEN 7100 or CHEN 7108) and (CHEN 7200 or CHEN 7206) Cr., CHEN 7110 Environmental chemodynamics, interphase equilibrium, reactions, boundary layers, transport mechanisms and models or movement of substances across natural interfaces (air-water-sediment-soil).

CHEN 7710 INTRODUCTION TO RESEARCH SEMINAR (1) LEC. 1 SU. Cr., CHEN 7100 Introductory graduate research seminars for entering graduate students.

CHEN 7720 ADVANCE PROCESS DESIGN SEMINAR (1) LEC. 1 Cr., CHEN 7100 and CHEN 7200 Fundamentals of advanced process design including process synthesis, simulation, analysis, optimization and integration. Systematic process synthesis tools for screening potential flow sheets.

CHEN 7900/7906 INDEPENDENT STUDY (1-10) IND. SU. Supervised study in specialized areas of chemical engineering. Topic must be arranged with instructor during pre-registration. Course may be repeated for a maximum of 20 credit hours. Pr., departmental approval.

CHEN 7950 GRADUATE SEMINAR (1) SEM. 1 SU. Seminar. Course may be repeated for a maximum of 12 credit hours.

CHEN 7970/7976 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) IND. SU. Topical courses for graduate students. Topics must be arranged with instructor during pre-registration. Course may be repeated for a maximum of 12 credits. Pr., departmental approval.

CHEN 7990 RESEARCH AND DISSERTATION (1-20) DSR. Credit hours to be arranged.

CHEN 8000/8006 GRADUATE CHEMICAL ENGINEERING ANALYSIS (2) LEC. 2 Pr., CHEN 7100 Applications of advanced numerical methods to the analysis of complex chemical engineering problems.

CHEN 8010 ADVANCED CHEMICAL ENGINEERING NUMERICAL ANALYSIS (2) LEC. 2 Pr., CHEN 7100 or CHEN 7106 Advanced numerical methods for the analysis of chemical engineering problems. Computer applications.

CHEN 8020 ADVANCED TOPICS IN THE CHARACTERIZATION OF SURFACE PROPERTIES OF MATERIALS (3) LEC. 3 Pr., CHEN 7200 or CHEN 7206 Nature of surface and interfacial forces. Surface chemical characterization of solid surfaces. Adhesion and the role of chemical, physical and mechanical properties of solid surfaces. Modern characterization techniques including scanning probe microscopy, thermodynamic and spectroscopic methods.

CHEN 8100 ADVANCED TOPICS IN CHEMICAL ENGINEERING PROCESSES (3) LEC. 3 Pr., CHEN 7110 or CHEN 7116 Advanced concepts in fluid dynamics with special emphasis on applications to chemical engineering, creeping flow, multiphase instabilities, computational fluid mechanics and turbulence.

CHEN 8110 ADVANCED TOPICS IN HEAT AND MASS TRANSFER (3) LEC. 3 Pr., CHEN 7100 or CHEN 7116 Application of transport operations to chemical engineering problems containing physical and chemical rate processes. Chemically reacting boundary layers, heat and mass transfer, eddy diffusion, phase change and separation processes.

CHEN 8210 ADVANCED CHEMICAL ENGINEERING THERMODYNAMICS (3) LEC. 3 Pr., CHEN 7200 or CHEN 7206 Application of advanced thermodynamics to complex chemical engineering problems including advanced models for electrolyte solutions, critical and supercritical phenomena, high pressure equilibrium, non-equilibrium and surface thermodynamics and molecular modeling.

CHEN 8220 POLYMER THERMODYNAMICS (3) LEC. 3 Pr., CHEN 7200 or CHEN 7206 Fundamentals and applications of macromolecular thermodynamics to industrial polymer processes.

CHEN 8230 CHEMICAL ENGINEERING STATISTICAL THERMODYNAMICS (3) LEC. 3 Pr., CHEN 7200 or CHEN 7206 Applications of molecular theory and models to the properties of non-ideal gases and liquids using advanced statistical mechan-ics and chemical thermodynamics.

CHEN 8270 HETEROGENEOUS CATALYSIS (3) LEC. 3 Pr., CHEN 7200 or CHEN 7206 Advanced concepts, techniques, applications and principles for the use of heterogeneous catalysts in chemical and environmental processes. Pr., Departmental approval.

CHEN 8280 SURFACE CHARACTERIZATION/SOLIDS (3) LEC. 3 Pr., CHEN 7200 or CHEN 7206 Advanced concepts and techniques in the physical and chemical characterization of solid surfaces by microscopic, spectroscopic and chemical methods including various photos and/or electron spectroscopies, thermal desorption.

CHEN 8300 PROCESS DYNAMICS AND CONTROL (3) LEC. 3 Pr., CHEN 7100 or CHEN 7106 Advanced linear and nonlinear chemical process dynamics and control systems.

CHEN 8310 PROCESS DYNAMICS AND CONTROL II (2) LEC. 2 Advanced chemical process dynamics and control.

CHEN 8320 ADVANCED TOPICS IN CHEMICAL PROCESS COMPUTER CONTROL SYSTEMS (3) LEC. 2, LAB. 3 Pr., (CHEN 7100 or CHEN 7106) Application of design of advanced digital control systems for chemical processes. Introduction to computer communications through dynamic data exchange and peripheral linkage. Experimental application of advanced digital control algorithms to chemical processes.

CHEN 8340/8346 PROCESS MODELING AND SIMULATION (3) LEC. 2, LAB. 3 Advances in computer-aided process synthesis, simulation, analysis and optimization including systematic process integration tools for developing and screening potential flow sheets using advanced process simulators.

Civil Engineering (CIVL)

Civil Engineering (CIVL) Dr. Robert Vecellio - 644-6286

CIVL 2010 SURVEYING (3) LEC. 2, LAB. 3 Pr., ENGR 1110 and (MATH 1610 or MATH 1617) and COMP 1200 Civil engineering surveying theory and practice including history of land surveys and U.S. datums; field measurements, office calculations and graphical/digital presentation of spatial data.

CIVL 3010 CIVIL ENGINEERING ANALYSIS (4) LEC. 3, LAB. 3 Pr., MATH 2650 and COMP 1200 Applications of calculus and ordinary differential equations, numerical methods, vector algebra, and linear algebraic expressions to practical civil engineering problems. Heavy emphasis on computerized and civil engineering software.

CIVL 3110 HYDRAULICS (4) LEC. 3, LAB. 3 Pr., ENGR 2200 or ENGR 2010 and MATH 2650 Coreq, CIVL 3101 and ENGR 2350 Fluid properties, hydrostatics, kinematics, mass conservation, energy and momentum equations, pipe flow, open channel flow, and dimensional analysis.

CIVL 3220 WATER AND WASTE TREATMENT (4) LEC. 3, LAB. 3 Pr., CHEM 1040 and BIOL 3200 Fundamentals of potable water treatment and wastewater treatment and disposal. Treatment systems; operation/ process physics, chemistry, and biology; operation and maintenance issues; regulatory requirements. Credit will not be allowed to students majoring in Civil Engineering.

CIVL 3230 INTRODUCTION TO ENVIRONMENTAL ENGINEERING (4) LEC. 3, LAB. 3 Pr., CHEM 1040 and MATH 2650 Coreq, CIVL 3010 Fundamental principles of environmental engineering, including basic environmental chemistry and microbiology; materials and energy balances; diffusion; chemical equilibrium; kinetics; and chemical reaction engineering, applications of thermodynamics, vector algebra, and linear algebraic expressions to practical civil engineering problems. Heavy emphasis on computerized and civil engineering software.

CIVL 3310 GEOTECHNICAL ENGINEERING I (4) LEC. 3, LAB. 3 Pr., CHEM 1040 and ENGR 2070 Soil-forming processes, physical properties of soils, subsurface investigations, clay mineralogy, soil classification, permeability, effective stress, consolidation theory, time-settlement analysis, compaction, shear strength, geo-synthetic.

CIVL 3410 CONSTRUCTION ENGINEERING (3) LEC. 3 Pr., ENGR 2070 Basic concepts of the construction industry, contractual methods, estimating and scheduling.

CIVL 3510 TRANSPORTATION ENGINEERING (4) LEC. 4 Pr., CIVL 2010 Introduction to transportation engineering with emphasis on highway facility design, traffic operations, and applications of engineering economics in civil engineering.

CIVL 3610 STRUCTURAL ANALYSIS (4) LEC. 3, LAB. 3 Pr., ENGR 2070 Coreq, CIVL 3010 Basic structural analysis of determinate and indeterminate structures, deflections by moment-area and virtual work, influence lines, force method and moment-distribution methods of analysis.

CIVL 3610 CIVIL ENGINEERING MATERIALS (4) LEC. 3, LAB. 3 Pr., CIVL 3110 Introduction to common materials used in construction of civil facilities including highways: soil, aggregate, concrete, asphalt, wood, and steel.

CIVL 4110 HYDRAULIC ENGINEERING (3) LEC. 3 Pr., CIVL 3110 Applications of hydraulics to civil engineering systems: Introductory hydrology, groundwater, open channel flow, closed conduit flow, dams and reservoirs, hydraulic structures, hydraulic machinery and flood damage reduction.

CIVL 4120 HYDROLOGY (3) LEC. 3 Pr., STAT 3010 and CIVL 3110 Hydrologic cycle, probability concepts and frequency analysis, precipitation, infiltration, runoff, hydrographs, flood routing, evaporation, subsurface hydrology.
CIVL 5810 PAVEMENT DESIGN AND CONSTRUCTION (3) LEC. 3 Pr., CIVL 3810 and CIVL 3310 and CIVL 3510 General concepts, traffic factors, material characterization, layer thickness selection, earthwork, base and sub-base construction, surface course construction, quality control/acceptance.

CIVL 5970 CIVIL ENGINEERING SPECIAL TOPICS (3) LEC. 3 Special topics of an advanced undergraduate nature pertinent to civil engineering. Specific prerequisites will be announced for each course offering. Course may be repeated for maximum of 6 credit hours. Credit will not be given for both CIVL 5970 and CIVL 6970.

CIVL 6110/6116 OPEN CHANNEL HYDRAULICS (3) LEC. 3 Pr., CIVL 3110 Application of continuity, energy, and momentum analyses to problems of open channel flow. Topics include rapidly and gradually varied flow, unsteady flow, flood routing, computer modeling, device concepts and applications.

CIVL 6150/6156 GROUNDWATER HYDRAULICS (3) LEC. 3 Pr., CIVL 3110 Mechanics of groundwater flow, definitions, conservation of mass, Darcy's law, confined and unconfined flow, steady and transient flow, groundwater transport.

CIVL 6210/6216 CHEMICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3 Pr., CIVL 3230 Fundamentals of aquatic chemistry as applied to environmental engineering: chemical thermodynamics, acid/base equilibrium, solution/disposal chemistry, redox equilibrium, and chemical kinetics. Pr., departmental approval.

CIVL 6220 ENVIRONMENTAL ENGINEERING PROCESSES LABORATORY (1) LAB. 3 Pr., CIVL 3230 Laboratory exploration of the fundamentals and applications of aquatic chemistry, physical-chemical processes and biological processes, as employed in water and wastewater treatment. ADDITIONAL PREREQUISITES: Or departmental approval.

CIVL 6230/6236 ENVIRONMENTAL HEALTH ENGINEERING (3) LEC. 3 Application of environmental methodology in environmental health; communicable disease control, insect and rodent control, solid and hazardous wastes, noise, radiological health, legal and administrative considerations, etc. Pr., departmental approval.

CIVL 6240/6246 AIR POLLUTION (3) LEC. 3 Nature, sources and effects of air pollutants; effects of atmospheric conditions on dispersion; dispersion modeling theory and design of control devices; legal/administrative control. Pr., departmental approval.

CIVL 6250/6256 BIOLOGICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3 Pr., CIVL 3230 Fundamentals of aquatic biology and microbiology as applied to environmental engineering: microbial growth, microbial metabolism, microbial population dynamics, wastewater treatment microbiology, environmental impacts, toxicity testing, and biomonitoring. Pr., departmental approval.

CIVL 6330/6336 LANDFILLS (3) LEC. 3 Pr., CIVL 3310 Landfill siting design, construction and operation practices; regulations, terminology, closure regulations and procedures.

CIVL 6340/6346 GEOSYNTHETICS AND SOIL IMPROVEMENT (3) LEC. 3 Pr., CIVL 3310 Use of geosynthetics in civil engineering design: reinforcement, retaining walls, filtration, slopes, roads and erosion control. Evaluation and testing of geosynthetics. Improvement of soil properties for civil engineering design: principles and practice of densification, grouting, reinforcement, stone columns, soil nailing.

CIVL 6410 GEOGRAPHIC INFORMATION SYSTEMS IN CIVIL ENGINEERING (3) LEC. 3 Pr., CIVL 2010 Basic principles and the development of geographic information systems and practical experiences in the field of civil engineering. Credit will not be given for both CIVL 5410 and CIVL 6410. ADDITIONAL PREREQUISITES: Or departmental approval.

CIVL 6430/6436 CONSTRUCTION SAFETY (3) LEC. 3 Pr., CIVL 3410 Various causes of construction accidents and adopted strategies preventing worksite injuries and illnesses are investigated. Emphasis on OSHA standards, insurance, and health and safety hazards. Credit will not be given for both CIVL 5430 and CIVL 6430/6436. Pr., departmental approval.

CIVL 6440/6446 CONSTRUCTION EQUIPMENT AND METHODS (3) LEC. 3 Pr., CIVL 3410 and CIVL 3310 and CIVL 3510 Selection of equipment for heavy construction operations, production rates, owning and operating costs, fleet management.

CIVL 6460 PROJECT ESTIMATING (3) LEC. 3 Pr., CIVL 3410 Conceptual and definitive estimates, overhead and profit determination; claim change order pricing.

CIVL 6480/6486 LEGAL ASPECTS OF CIVIL ENGINEERING PRACTICE (3) LEC. 3 Pr., CIVL 3410 Covered is the law of contracts, agency, association, property, and labor law, studied generally and in the context that the practicing civil engineer encounters them. Pr., or departmental approval.

CIVL 6500/6506 TRAFFIC ENGINEERING ANALYSIS (3) LEC. 3 Pr., CIVL 3510 Capacity analysis of rural and suburban highways, 2-lane highways, freeways, weaving sections, ramps and intersections.

CIVL 6510/6516 TRAFFIC CONTROL SYSTEM DESIGN (3) LEC. 3 Pr., CIVL 3510 and STAT 3010 Fundamental design concepts for highway traffic control systems. Control requirements and warrants: hardware operation and equipment selection; development and implementation of timing plans for isolated intersections and intersection networks.

CIVL 6560/6566 TRANSPORTATION PLANNING (3) LEC. 3 Pr., CIVL 3510 and STAT 3010 The planning process for urban and regional transportation development. Topics include planning objectives and data requirements; planning inventory, modeling of trip-making behavior, development and evaluation of alternate plans; multimodal applications, including railway operations. Pr., departmental approval.

CIVL 6560/6568 INTELLIGENT TRANSPORTATION (3) LEC. 3 Pr., CIVL 3510 Introduction to intelligent transportation systems, covering applications of information and communications technologies to transportation, with emphasis on operations of traffic management and traveler information systems. Pr., departmental approval.

CIVL 6600/6606 ADVANCED REINFORCED CONCRETE DESIGN (3) LEC. 3 Pr., CIVL 4600 Analysis and design of continuous beams and one-way slabs, bond and development length, torsion, slenderness effects in columns, two-way slabs, footings, and retaining walls.

CIVL 6620/6626 PRE-STRESSED CONCRETE DESIGN (3) LEC. 3 Pr., CIVL 4600 Properties and behavior of pre-stressed concrete, pre-stressing systems and end anchorages, analysis and design of beams for flexure and shear, camber and deflection, cable layout, pre-stressed concrete slabs.

CIVL 6650/6656 ADVANCED CONCRETE MATERIALS (3) LEC. 3 Pr., CIVL 3810 Comprehensive coverage of concrete materials. Topics include cement and aggregate properties; concrete microstructure; mechanical properties; supplementary cementing materials, chemical admixtures; durability issues; special concretes.

CIVL 6650/6656 ADVANCED STEEL DESIGN (3) LEC. 3 Pr., CIVL 4650 Composite construction, open web joists, plate girders, plastic analysis and design, highway bridges, computer applications.

CIVL 6670/6676 ADVANCED STRUCTURAL ANALYSIS (3) LEC. 3 Pr., CIVL 3510 Analysis of continuous beams and frames by slope-deflection method. Analysis of beams, trusses, grids, and frames by direct stiffness method. Buckling of planar frames. Use of structural analysis software.

CIVL 6690/6696 TIMBER DESIGN (3) LEC. 3 Pr., CIVL 3610 Properties and behavior of timber and plywood; design of timber beams, columns, floor and wall assemblies and wood floor systems; timber trusses and laminated arches.

CIVL 6700/6706 DESIGN FOR LATERAL LOADS (3) LEC. 3 Pr., CIVL 3610 and (CIVL 4600 or CIVL 4850) Wind meteorology and loadings, effects of wind loadings, building code wind pressures and load provisions, fundamentals of structural vibrations, earthquake characteristics and loadings, building code earthquake provisions, building lateral load resisting systems.

CIVL 6810/6816 PAVEMENT DESIGN AND CONSTRUCTION (3) LEC. 3 Pr., CIVL 3810 and CIVL 3310 and CIVL 3510 General concepts, traffic factors, material characteristics, layer thickness selection, earthenwork, base and sub-base construction, surface course construction quality control/assurance.

CIVL 6970 CIVIL ENGINEERING SPECIAL TOPICS (3) LEC. 3 Special topics of an advanced nature pertinent to civil engineering. Specific prerequisites will be announced for each course offering. Credit will not be given for both CIVL 5970 and CIVL 6970. Course may be repeated for maximum of 6 credit hours. Pr., departmental approval.

CIVL 7120/7126 HYDROLOGIC MODELING (3) LEC. 3 Pr., CIVL 6110 or CIVL 6116 and CIVL 4120 Principles and practice of hydrologic modeling, introduction to hydrologic information systems, computer modeling of storm run-off, floodplain hydraulics and bridge hydraulics. Computer applications.

CIVL 7170/7176 NUMERICAL METHODS IN HYDRAULICS AND HYDROLOGY (3) LEC. 3 Pr., CIVL 3230 Numerical approximations of ordinary and partial differential equations representing problems common to civil engineering including groundwater flow, soil consolidation, and mass transport. The formulation and computational solution of diffusion and equilibrium problems are emphasized. Computer programming is required.

CIVL 7210/7216 METHODS OF POLLUTANT ANALYSIS IN ENVIRONMENTAL ENGINEERING (3) LEC. 2, LAB. 3 Pr., CIVL 6210 or CIVL 6216 Fundamentals of identifying and quantifying environmental pollutants: review of pollutant chemistry, quantity and quality of pollutants, statistical basis of sampling, environmental sampling techniques, analytical techniques, and data analysis.

CIVL 7220/7226 WATER AND WASTEWATER OPERATIONS AND PROCESSES I (3) LEC. 3 Pr., CIVL 3320 Cr., CIVL 6210 Physical and chemical principles applied to water and wastewater treatment. Advanced mathematical and modeling concepts. Pr., departmental approval.

CIVL 7230/7236 WATER AND WASTEWATER OPERATIONS AND PROCESSES II (3) LEC. 3 Pr., CIVL 7220 or CIVL 7226 Rigorous analysis of unit operations and treatment processes used in modern water and wastewater treatment systems. Mixing, coagulation, sedimentation, filtration, and chemical precipitation. Pr., departmental approval.

CIVL 7240/7246 WATER AND WASTEWATER OPERATIONS AND PROCESSES III (3) LEC. 3 Pr., CIVL 7220 or CIVL 7226 Design and analysis of unit operations and processes used in modern water and wastewater treatment systems are rigorously examined: adsorption, ion exchange, membrane filtration, reverse osmosis, gas transfer, corrosion, and treatment residuals processing. Pr., departmental approval.
CIVL 7250/7256 BIOLOGICAL WASTEWATER TREATMENT (3) LEC. 3 Pr., CIVL 6250 or CIVL 6256 Development and application of the theories of biological waste treatment. Pr., departmental approval.

CIVL 7260/7266 ENVIRONMENTAL NUTRIENT CONTROL PROCESSES (3) LEC. 3 Pr., CIVL 7250 or CIVL 7256 The nature sources and impacts of aquatic nutrients in the environment: microbial nutrient cycles, biological nutrient removal processes, chemical nutrient control processes, natural systems for nutrient removal.

CIVL 7270/7276 ADVANCED NUMERICAL METHODS FOR SOLVING ENVIRONMENTAL ENGINEERING PROBLEMS (3) LEC. 3 Pr., CIVL 3010 Basic concepts of finite element (FE) analysis. Development of FE computer codes for solving environmental engineering problems. FE grid generation and visualization methods. Pr., departmental approval.

CIVL 7280/7286 SURFACE WATER QUALITY MODELING (3) LEC. 3 Pr., CIVL 3230 Physical, chemical, biological and hydrological consideration relating to the degradation and self-purification of streams, lakes, and estuaries. Water uses and water quality goals, objectives and criteria. Principles of water quality modeling and waste load allocation. Pr., departmental approval.

CIVL 7310/7316 FOUNDATION ENGINEERING (3) LEC. 3 Pr., CIVL 3310 and CIVL 4600 Analysis, design and construction of shallow and deep foundation systems.

CIVL 7330/7336 SOIL PROPERTIES (3) LEC. 3 Pr., CIVL 3310 Soil behavior, shear strength, compressibility, hydraulic conductivity, and measurement of soil properties.

CIVL 7340/7346 SOIL DYNAMICS (3) LEC. 3 Pr., CIVL 3310 Soil behavior during dynamic loads, wave propagation, dynamically loaded foundations, geotechnical earthquake engineering.

CIVL 7360 EARTH SLOPES AND DAMS (3) LEC. 3 Pr., CIVL 3310 Engineering design of earth slopes, slope stability, cut slopes, embankments, settlement. Dam siting, stability, flow nets, seepage analysis. Pr., departmental approval.

CIVL 7390 IN SITU TESTING OF SOILS (3) LEC. 3 Pr., CIVL 4310 In situ tests used in geotechnical engineering: testing procedures, interpretation of results, and designing from in situ geotechnical data.

CIVL 7410/7416 TEMPORARY STRUCTURES AND FACILITIES (3) LEC. 3 Pr., STAT 3010 and CIVL 3310 and CIVL 3610 Construction loads, applicable codes and standards, and design principles for temporary structures; planning and implementation of construction facilities; economic analysis of alternatives.

CIVL 7500/7506 TRAFFIC FLOW THEORY (3) LEC. 3 Pr., CIVL 6500 or CIVL 6506 Basic phenomena underlying traffic stream movement and individual vehicle behavior; traffic flow parameters and relationships; microscopic and macroscopic flow models; equations of motion and state; single and multi-regime flow models. Departmental approval.

CIVL 7520/7526 PUBLIC TRANSPORTATION (3) LEC. 3 Pr., CIVL 3510 Technology and characteristics of public transportation; transportation demand analysis; transit users; innovative technologies. Pr., departmental approval.

CIVL 7540/7546 TRANSPORTATION SAFETY (3) LEC. 3 Pr., CIVL 6500 or CIVL 6506 Transportation safety programs and the engineer's role in developing and administering safety programs. Topics include hazardous location identification; analysis of accident data; development and evaluation of accident countermeasures and safety programs. Pr., departmental approval.

CIVL 7550/7556 ROADSIDE DESIGN (3) LEC. 3 Pr., CIVL 6500 or CIVL 6506 Concepts of roadside design that can prevent or reduce crash severity. Topics include design, selection, placement and construction of longitudinal barriers, crash cushions, bridge rails, transitions, and terminals, sign posts, and other roadside features. Pr., departmental approval.


CIVL 7620/7626 STRUCTURAL DYNAMICS II (3) LEC. 3 Pr., CIVL 7610 or CIVL 7616 Analysis of MDOF systems by direct numerical integration, continuous systems, response, earthquake response of structures.

CIVL 7630/7636 ADVANCED STRESS ANALYSIS (3) LEC. 3 Pr., CIVL 3610 Hookes 1-D, 2-D, 3-D stress-strain relations and applications, stress and strain transformations and Mohrs circle, material properties and failure theories, biaxial bending, unsymmetrical bending, composite material members, shear center, torsional stress, stress concentrations, beams on elastic foundations.

CIVL 7640/7646 STABILITY OF STRUCTURES (3) LEC. 3 Cr., CIVL 6670 Introduction to stability and failure of compression members, rigid bar buckling, elastic and inelastic buckling of columns, approximate methods of buckling analysis, beam-columns, buckling of frames, torsional buckling, lateral torsional buckling of beams.

CIVL 7650/7656 ADVANCED ANALYSIS OF FRAMED STRUCTURES (3) LEC. 3 Pr., CIVL 6670 or CIVL 6676 Matrix analysis of framed structures, elastic supports, specified displacements, member and releases, principle of minimum potential energy, non-linear, frame stability, substructures.

CIVL 7660/7666 FINITE ELEMENT METHODS IN STRUCTURAL MECHANICS (3) LEC. 3 Pr., CIVL 6670 or CIVL 6676 Introduction to finite element analysis; variation principles, 1D, 2D and 3D element formulation; nonlinear (geometric and constitutive) formulations and solutions; Eigen value problems. Pr., departmental approval.

CIVL 7670/7676 NUMERICAL TECHNIQUES IN STRUCTURAL ANALYSIS (3) LEC. 3 Basic concepts of non-linear analyses, formulation of the continuum mechanics incremental equations, total and updated Lagrangian formulations, finite elements for non-linear analyses, non-linear solution strategies.

CIVL 7680/7686 FATIGUE AND FRAC TURE MECHANICS (3) LEC. 3 Pr., CIVL 4650 Linear-elastic and elastic-plastic fracture mechanics, fatigue, yield criteria, applications to highway structures. Pr., departmental approval.

CIVL 7690/7696 ANALYSIS OF PLATE AND SHELL SYSTEMS (3) LEC. 3 Pr., CIVL 6670 or CIVL 6676 Analysis of isotropic and anisotropic plates with various shapes and boundary conditions due to lateral and in-plane loads; large deflection considerations; numerical techniques; bending and membrane behavior of isotropic shells. Pr., departmental approval.

CIVL 7710/7716 APPLIED ELASTICITY (3) LEC. 3 Pr., CIVL 6670 or CIVL 6676 Analysis of stress strain; generalized stress-strain relationships; solution of elasticity problem by potentials; thick cylinders, disks and spheres; energy principles and introduction of variation methods. Pr., departmental approval.

CIVL 7770/7776 VARIATIONAL METHODS IN STRUCTURAL MECHANICS (3) LEC. 3 Pr., CIVL 6670 or CIVL 6676 Calculus of variations; derivation of Euler's equations and boundary conditions; applications of energy principles to structures; variation approaches to finite element methods. Pr., departmental approval.

CIVL 7810/7816 ADVANCED CONSTRUCTION MATERIALS (4) LEC. 3, LAB. 3 Pr., CIVL 8810 or CIVL 8816 Evaluate soils, unbound and stabilized materials, hot mix asphalt, and cement concrete products; stress-strain relationships; thermal expansion; design and testing of non-traditional construction products. Pr., departmental approval.

CIVL 7820/7826 ADVANCED PAVEMENT DESIGN AND REHABILITATION (3) LEC. 3 Pr., CIVL 7810 or CIVL 7816 Pavement management concepts, life cycle costs analysis, design and rehabilitation alternatives, serviceability concepts, empirical thickness selection models, reliability.

CIVL 7830 ASPHALT CONCRETE MIX DESIGN (3) LEC. 2, LAB. 3 Marshall and Superpave mix design methods and QC/QA for asphalt concrete are covered. Topics include aggregate, asphalt and mix properties, laboratory testing and proportion optimization.

CIVL 7840/7846 PAVEMENT MANAGEMENT AND REHABILITATION (3) LEC. 3 Pr., CIVL 3810 Topics include: network and project level management, pavement distress surveys, non-destructive testing for condition measurements, flexible and rigid pavement maintenance and rehabilitation practices. Pr., departmental approval.

CIVL 7950 GRADUATE SEMINAR (1) SEM. 1SU. Course may be repeated for a maximum of 6 credit hours.

CIVL 7970/7976 SPECIAL TOPICS IN CIVIL ENGINEERING (1-3) LEC. Individual student or group endeavor under direct faculty supervision involving special topics of an advanced nature in civil engineering. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

CIVL 7980/7986 ENGINEERING PROJECT (1-10) LEC. Credit to be arranged. Course may be repeated with a change in topic. Pr., departmental approval.

CIVL 7990 RESEARCH AND THESIS (1-10) MST. Credit to be arranged. Pr., departmental approval.

CIVL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Credit to be arranged. Pr., departmental approval.

Cell and Molecular Biology (CMBL)

Dr. James Barbaree - 844-1647

CMBL/BIOL 4150 HUMAN GENETICS (3) LEC. 3, Pr., BIOL 3000 and BIOL 4100 and CHEM 2080 Study of the biological interaction of genes, effects of mutation and changes in gene frequency in human populations. Emphasis on molecular approach to study evolutionary changes in human gene pools.

CMBL/BIOL 5190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3 Pr., BIOL 3000 and BIOL 4100 and CHEM 2080 The study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic and biochemical approaches.

CMBL/BIOI 5500 IMMUNOLOGY (3) LEC. 3, Pr., BIOL 3200 and BIOL 3000 The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effect or mechanisms and medical immunology.

CMBL/BIOI 5501 IMMUNOLOGY LAB (2) LEC. 4 Coreq., BIOL 5500 Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions and antibody production.

CMBL/BIOI L 6190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3, Pr., BIOL 3000 and BIOL 4100 and BIOL 4050 and CHEM 2080 Study of cellular communication and regulation with emphasis on integration between cellular,
CMDS 4997 HONORS THESIS (1-3) LEC. Course may be repeated for a maximum of 8 credit hours.

CMDS 5100 HEARING SCIENCE (3) LEC. 3 Pr., CMDS 4600 and CMDS 4620 Introduction to instrumentation and calibration of audiological equipment. Auditory perception in normal-hearing and hearing-impaired listeners. Pr., departmental approval.

CMDS 5110 AUDITORY PHYSIOLOGY (3) LEC. 3 Pr., CMDS 4400 Detailed study of the anatomy and physiology of the human auditory system. Fall. Pr., departmental approval.

CMDS 5120 AUDIOLOGY CLINICAL METHODS (2) LEC. 2, LAB. 0 Use of audiometric equipment, administering of audiological tests, recording test results, and interpretation of test findings.

CMDS 5200 DIAGNOSTIC AUDIOLOGY (3) LEC. 3 Pr., CMDS 4600 and CMDS 4650 Basic and advanced audiometric techniques to assess the site of lesion in the auditory system. Spring.

CMDS 5210 MEDICAL ASPECTS OF HEARING DISORDERS (3) LEC. 3 Pr., CMDS 4600 and CMDS 4620 Study of the disorders of hearing and their evaluation and treatment. Pr., departmental approval.

CMDS 5220 AMPLIFICATION I (3) LEC. 3 Pr., CMDS 4600 and CMDS 4620 Background and development of hearing aids and other amplification systems; performance standards and measurement techniques; selection, fitting and dispensing procedures. Pr., departmental approval.

CMDS 5230 CLINICAL LEVEL I (2) LEC. 2 Pr., CMDS 4650 Didactic and practical training for performing audiological testing and patient management at clinical level I. Spring. Pr., departmental approval.

CMDS 5300 CENTRAL AUDITORY PROCESSING (3) LEC. 3 Pr., CMDS 4600 and CMDS 4620 Selected clinical procedures in audiology, including acoustic reflex measures and behavioral test of central auditory function. Pr., departmental approval.

CMDS 5310 AURAL REHABILITATION (3) LEC. 3 Pr., CMDS 4600 and CMDS 4620 Psychosocial aspects on hearing loss; clinical and therapeutic management of older persons with hearing disorders including counseling of the hearing-impaired and their families. Pr., departmental approval.

CMDS 5320 CLINICAL LEVEL II (2) LEC. 2 Pr., CMDS 5230 Didactic and practical training for performing audiological testing and patient management at Clinical Level II. Summer.

CMDS 5400 PEDIATRIC AUDIOLOGY (3) LEC. 3 Pr., CMDS 4600 and CMDS 4620 Etologic factors, screening, audiologic assessment, differential diagnosis and clinical management of infants and children with hearing disorders. Pr., departmental approval.

CMDS 5410 AURAL HABILITATION (3) LEC. 3 Pr., CMDS 4600 and CMDS 4620 The parameters involved in the management of hearing-impaired school-aged children. Pr., departmental approval.

CMDS 5420 AMPLIFICATION II (3) LEC. 3 Pr., CMDS 5220 Review of recent trends in hearing aid technology including digital and Programmable instruments.

CMDS 5430 CLINICAL LEVEL III (2) LEC. 2 Pr., CMDS 5230 and CMDS 5320 Didactic and practical training for performing audiological testing and patient management at Clinical Level III. Spring.

CMDS 5500 ELECTROPHYSIOLOGICAL PROCEDURES IN AUDIOLOGY (3) LEC. 3 Pr., CMDS 4600 and CMDS 4620 Selected neurophysiological clinical procedures in audiology, including electronystagmography and auditory evoked potentials. Departmental approval.

CMDS 5510 CLINICAL LEVEL IV (2) LEC. 2 Pr., CMDS 5230 and CMDS 5320 and CMDS 5430 Didactic and practical training for performing audiological testing and patient management at Clinical Level IV. Spring.

CMDS 5520 HEARING CONSERVATION (3) LEC. 3 Pr., CMDS 5100 A study of the effects of noise on the auditory system and implementation of hearing conservation programs in industry, schools and the military. Spring.

CMDS 5570 EVALUATION OF RESEARCH IN SPEECH PATHOLOGY & AUDIOLOGY (3) LEC. 3 Survey of experimental designs and statistical procedures used in speech-language pathology/audiology literature for consumers of research. Pr., departmental approval.

CMDS 5600 BALANCE DISORDERS (3) LEC. 3 Detailed coverage of the assessment and treatment of patients with balance disorders using nystagmography and other techniques. Summer.

CMDS 5610 IMPLANT TECHNOLOGY (3) LEC. 3 Detailed study of the assessment and treatment of patients with cochlear implants. Summer.

CMDS 5620 OUTCOME MEASURES IN AUDIOLOGY (3) LEC. 3 Pr., CMDS 5120 Application of research methodology to demonstrate efficacy in clinical service delivery in all areas of audologic practice. Summer.

CMDS 5630 COUNSELING IN AUDIOLOGY (3) LEC. 3 Advanced course in the counseling component of rehabilitative audiology.

CMDS 5700 PROFESSIONAL ISSUES (3) LEC. 3 Legal and ethical issues in clinical audiology. Fall

CMDS 5800 THE NEUROLOGICAL BASES OF COMMUNICATION DISORDERS (3) LEC. 3 Anatomy and physiology of the central nervous system as it relates to speech, language and hearing function and disorders. Pr., departmental approval.

CMDS 5810 PRIVATE PRACTICE (3) LEC. 3 Concepts and strategies for private practice in the areas of clinical and industrial audiology.

CMDS 5910 CLINICAL PROBLEMS IN HEARING (2) LEC. 2 Pr., CMDS 4650 and CMDS 4620 Class is a clinical practicum. Departmental approval.

CMDS 5920 CLINICAL INTERNSHIP (5) INT. 5 SU. Pr., CMDS 5510 Intensive clinical experience at off-campus setting up to 20 hours per week of supervised practicum.

CMDS 5940 CLINICAL RESIDENCY (6) LEC. 6 SU. Pr., CMDS 5920 A full time, supervised, nine month residency at an off-campus facility that provides audiological services. Fall, Spring. Course may be repeated for a maximum of 20 credit hours. Course may be audited for a maximum of 18 credit hours.

CMDS 5950 AUDIOLOGY GRAND ROUNDS SEMINAR (3) LEC. 3 Discussion/ Seminar in timely clinical issues in audiology, clinical problem solving and case studies in contemporary audiological service delivery. Summer.

CMDS 5980 CAPSTONE PROJECT (1) LEC. 1 A third year project involving applied clinical research or development of an innovative clinical procedure. Course may be repeated for a maximum of 3 credit hours.

CMDS 7500 CLINICAL PROBLEMS IN SPEECH (2) LEC. 2 Pr., CMDS 4580 and CMDS 4910 Methods, techniques and clinical management of the disorders of speech. Clinical practice required. Course may be repeated for a maximum of 12 credit hours.

CMDS 7510 ADVANCED ARTICULATION DISORDERS (3) LEC. 3 Pr., CMDS 4510 Empirical and theoretical bases for articulatory pathologies.

CMDS 7520 CLINICAL STRATEGIES IN CHILD AND ADOLESCENT LANGUAGE DISORDERS (3) LEC. 3 Pr., CMDS 4520 Empirical and theoretical bases for evaluation and treatment of child/adolescent language disorders. Pr., departmental approval.

CMDS 7530 ADVANCED FLUENCY DISORDERS (3) LEC. 3 Pr., CMDS 4530 Empirical and theoretical bases for dysfluency disorders, diagnoses and therapies. Pr., departmental approval.

CMDS 7540 ADVANCED VOICE DISORDERS (3) LEC. 3 Pr., CMDS 4540 Empirical and theoretical bases for voice pathologies, diagnoses and therapies. Pr., departmental approval.

CMDS 7550 LANGUAGE AND SPEECH DISORDERS (3) LEC. 3 Pr., CMDS 4520 Empirical and theoretical bases for speech-language disorders associated with CNS pathologies, diagnoses and therapies. Pr., departmental approval.

CMDS 7560 CLEFT PALATE (3) LEC. 3 Pr., CMDS 4510 Empirical and theoretical bases for speech/language disorders associated with cleft palate, diagnoses and therapies. Pr., departmental approval.

CMDS 7570 EVALUATION OF RESEARCH IN SPEECH PATHOLOGY AND AUDIOLOGY (3) LEC. 3 Survey of experimental designs and statistical procedures used in speech-language pathology/audiology literature for consumers of research. Pr., departmental approval.

CMDS 7580 CLINICAL PROBLEMS IN HEARING (2) LEC. 2 Pr., CMDS 4650 and CMDS 4680 and CMDS 4620 Course may be repeated for a maximum of 12 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 12 credit hours.

CMDS 7800 THE NEUROLOGICAL BASES OF COMMUNICATION DISORDERS (3) LEC. 3 Anatomy and physiology of the central nervous system as it relates to speech, language and hearing function and disorders. Pr., departmental approval.

CMDS 7810 MOTOR SPEECH DISORDERS (3) LEC. 3 Pr., CMDS 7800 Empirical and theoretical bases for motor speech disorders, diagnoses and therapies. Pr., departmental approval.

CMDS 7820 SWALLOWING DISORDERS AND MEDICAL ASPECTS OF SPEECH-LANGUAGE PATHOLOGY (3) LEC. 3 Pr., CMDS 7800 Overview of the role of speech language pathology in settings with specific emphasis on terminology and procedures used to assess and treat dysphagia, dementia, traumatic brain injury and right hemisphere damage in adult population. Fall. Pr., departmental approval.

CMDS 7840 AUGMENTATIVE AND ALTERNATIVE COMMUNICATION (3) LEC. 3 Process and specific equipment involved in assessment, prescription and intervention with adults and children who are unable to use traditional communication modes.

CMDS 7860 EXPERIMENTAL PHONETICS (3) LEC. 3 Pr., CMDS 3550 Orientation to acoustic and physiologic instrumentation used in the study of normal and disordered speech. Pr., departmental approval.

CMDS 7920 INTERNSHIP (5) LEC. 5 SU. Full-time assignment in a facility, such as University Speech and Hearing Clinic, hospital, public school and various community agencies. Course may be repeated for a maximum of 10 credit hours. Course may be repeated for a maximum of 10 credit hours.
COMM 7930 DIRECTED STUDIES (1-3) IND. Conferences, readings, research or reports in a specialized area of communication disorders. Course may be repeated for a maximum of 3 credit hours.

COMM 7970 SPECIAL TOPICS SEMINAR (1-3) SEM. Advanced treatment of contemporary topics and trends, as well as current research aspects of audiology and speech-language pathology. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 3 credit hours.

COMM 7990 RESEARCH AND THESIS (1-5) MST. Course may be repeated with a change in topic. Course may be repeated with change in topics.

Communication (COMM)

Dr. Margaret Fitch-Hauser - 844-2727

COMM 1000 PUBLIC SPEAKING (3) LEC. 3 Oral communication theory and practice in a public speaking setting with emphasis on content, organization, delivery, and adaptation to the audience.

COMM 2010 MESSAGE PREPARATION AND ANALYSIS (3) LEC. 3 Pr., COMM 1000 Theory underlying the construction of rhetorical messages as well as critical perspectives for the analysis of public discourse.

COMM 2400 COMMUNICATION IN ORGANIZATIONS (3) LEC. 3 Communication in modern organizations emphasizing practice in areas such as interviewing, meeting management, and professional presentations.

COMM 2410 SMALL GROUP COMMUNICATION (3) LEC. 3 Theory and practice of competent communication in task-oriented small group settings such as committees. Topics include roles, leadership, decision making, problem solving, and conflict management.

COMM 2910 COMMUNICATION PRACTICUM (1-3) PRA. SU. Pr., 2.3 GPA. Practical experiences in potential career fields gained while working in professional settings. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

COMM 3100 SPEAKING BEFORE AUDIENCES (3) LEC. 3 Pr., 2.3 GPA. COMM 1000 Refining the knowledge and skills necessary for communicating clearly and effectively in oral presentations. Recommended for COMM majors only.

COMM 3110/3113/3114 PERSUASIVE DISCOURSE (3) LEC. 3 Pr., 2.3 GPA. Understanding and analyzing persuasive messages. Survey of theoretical approaches to attitude formation and change. Developing skills as a critical evaluation of persuasive messages. Sophomore standing.

COMM 3450 INTERCULTURAL COMMUNICATION (3) LEC. 3 Different types of problems encountered when communicating with different cultures. Sophomore standing.

COMM 3500 FOUNDATIONS OF HUMAN COMMUNICATION (3) LEC. 3 Pr., 2.3 GPA. Theories examining the nature of human communication. Sophomore standing.

COMM 3600 FOUNDATIONS OF RHETORIC AND SOCIAL INFLUENCE (3) LEC. 3 Pr., 2.3 GPA. Rhetorical theory from its classical roots to contemporary thinkers. Relates rhetorical theory and analysis to understanding persuasive discourse in our society. Sophomore standing.

COMM 3700 ARGUMENTATIVE DISCOURSE (3) LEC. 3 Pr., 2.3 GPA. Examination of the critical tools necessary to evaluate arguments in current public discourse. Sophomore standing.

COMM 3970 SPECIAL TOPICS IN COMMUNICATION (3-6) LEC. Pr., 2.3 GPA. Topics that range beyond what is covered in other courses within the current curriculum. The specific subject matter is left up to the individual instructor. Course may be repeated for a maximum of 6 credit hours. Sophomore standing.

COMM 4100 COMMUNICATION STRATEGIES OF SOCIAL MOVEMENTS (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Examinations of social movements in task-oriented small groups to attract members, solidify support, and effect social change. Declared major in AGCO, COMM, JRNL, PUBR, RTVF, or departmental approval.

COMM 4400 GENDER COMMUNICATION (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Examination of the ways in which gender is communicated interpersonally, through small groups and organizations, and through the mass media. Declared major in AGCO, COMM, JRNL, PUBR, RTVF, or departmental approval.

COMM 4410 THEORIES OF LEADERSHIP (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Examination of theory and research in leadership as a communication variable and behavioral practice in small group and organizational settings. Declared major in AGCO, COMM, JRNL, PUBR, RTVF, or departmental approval.

COMM 4470 HEALTH COMMUNICATION (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 The history, functions, and concepts central to the practice of health communication. Declared major in AGCO, COMM, JRNL, PUBR, RTVF, or departmental approval.

COMM 4500 MESSAGE STRUCTURES AND INFORMATION PROCESSING (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Relationship between message structures and information processing in both cognitive and affective domains during speaking and listening. Declared major in AGCO, COMM, JRNL, PUBR, RTVF, or departmental approval.

COMM 4600 POLITICAL COMMUNICATION (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Critical analysis and evaluation of political communication. Declared major in AGCO, COMM, JRNL, PUBR, RTVF, or departmental approval.

COMM 4700 LEGAL COMMUNICATION (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Examination of the trial process including jury selection, opening statement, direct examination, cross examination, and closing arguments. Declared major in AGCO, COMM, JRNL, PUBR, RTVF, or departmental approval.

COMM 4800 INTERPERSONAL COMMUNICATION (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 The relationship between communication and the formation of self identity and maintenance of relationships. Declared major in AGCO, COMM, JRNL, PUBR, RTVF, or departmental approval.

COMM 4810 NONVERBAL COMMUNICATION (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Focuses on the theory of non-language based communication and the impact of these messages on the overall communication process. Declared major in AGCO, COMM, JRNL, PUBR, RTVF, or departmental approval.

COMM 4820 INTERNSHIP (3-6) AAB/INTF. 3 SU. Pr., 2.3 GPA. Opportunity to apply classroom experience in a job setting. Course may be repeated for a maximum of 6 credit hours. Pr., admission to Internship program. Course may be repeated for a maximum of 6 credit hours. Declared major in AGCO, COMM, JRNL, PUBR, RTVF, or departmental approval.

COMM 4930 DIRECTED STUDIES IN COMMUNICATION (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Independent study on a specific topic of interest not already addressed in any regular Communication course. May repeat with a change of topic. Repeat with a change of topic. Declared major in AGCO, COMM, JRNL, PUBR, RTVF, or departmental approval.

COMM 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Course may be repeated for a maximum of 3 credit hours. Membership in Honors College senior standing. Declared major in AGCO, COMM, JRNL, PUBR, RTVF, or departmental approval.

COMM 4970 SPECIAL TOPICS IN COMMUNICATION (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Topics in communication. May repeat with a change in topic. Declared major in AGCO, COMM, JRNL, PUBR, RTVF, or departmental approval.

COMM 4997 HONORS THESIS (1-3) IND. Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Course may be repeated for a maximum of 3 credit hours. Pr., 2.3 GPA. Course may be repeated for a maximum of 3 credit hours. Membership in Honors College senior standing. Declared major in AGCO, COMM, JRNL, PUBR, RTVF, or departmental approval.

COMM 5000 COMMUNICATION THEORY (3) LEC. 3 Pr., 2.3 GPA. Examination of the trial process including jury selection, opening statement, direct examination, cross examination, and closing arguments. Declared major in AGCO, COMM, JRNL, PUBR, RTVF, or departmental approval.

COMM 5100 HISTORICAL, DESCRIPTIVE, AND CRITICAL APPROACHES TO COMMUNICATION RESEARCH (3) LEC. 3 Consideration of the scope and nature of these types of research and their contribution to understanding human communication.

COMM 5700 COMMUNICATION THEORY (3) LEC. 3 A critical examination of contemporary theories in the field of communication.

COMM 7010 HISTORICAL, DESCRIPTIVE, AND CRITICAL APPROACHES TO COMMUNICATION RESEARCH (3) LEC. 3 Consideration of the scope and nature of these types of research and their contribution to understanding human communication.

COMM 7020 EMPIRICAL APPROACH TO COMMUNICATION RESEARCH (3) LEC. 3 Quantitative research in communication; emphasis on understanding and doing empirical research.

COMM 7230 RHETORICAL CRITICISM (3) LEC. 3 Advanced methods in rhetorical criticism including tools for the analysis of persuasive messages.

COMM 7300 APPROACHES TO STUDYING LANGUAGE AND SOCIAL INTERACTION (3) LEC. 3 Major approaches to studying language and social interaction that collectively make up a substantive area of inquiry known as discourse analysis.

COMM 7410 DEVELOPMENT OF RHETORICAL THEORY (3) LEC. 3 Historical survey of rhetorical theory from ancient to contemporary era; special attention to the role of rhetoric in shaping attitudes towards persuasion.

COMM 7420 SEMINAR IN PERSUASION AND ATTITUDE CHANGE (3) LEC. 3 A critical examination of current theory and research in the area of the persuasive act and its effects.

COMM 7430 SEMINAR IN AMERICAN PUBLIC ADDRESS (3) LEC. 3 Investigates key issues and debates that have emerged in post-WWII America.

COMM 7440 SEMINAR IN ARGUMENTATION AND DEBATE (3) SEM. 3 The fundamental theories of argumentation will be analyzed.

COMM 7450 SEMINAR IN INTRAPERSOINAL PROCESSES COMMUNICATION (3) SEM. 3 Theories of cognitive and affective processing of information during speaking and listening.
COMM 7460 SEMINAR IN INTERPERSONAL COMMUNICATION (3) SEM. 3
Theories of the structure and function of interpersonal (dyadic) communication focusing on conversational behavior, traits, relationships, and persuasion.

COMM 7470 SEMINAR IN SMALL GROUP COMMUNICATION (3) SEM. 3
Advanced study of the principles of communication as they apply to the small group setting.

COMM 7480 SEMINAR IN ORGANIZATIONAL COMMUNICATION (3) SEM. 3
An in-depth approach to the study of communication processes within the setting of modern organizations.

COMM 7490 HEALTH COMMUNICATION (3) LEC. 3
Examination and application of social science research approaches to the study of health communication.

COMM 7500 GENDER COMMUNICATION (3) LEC. 3
Explores current theories and research on the relationship between communication and gender.

COMM 7600 MASS COMMUNICATION THEORY (3) LEC. 3
Explores major areas of concern to the theoretical study of mass communication and the social impact of mediated messages.

COMM 7610 STUDIES IN POPULAR CULTURE AND MASS COMMUNICATION (3) LEC. 3
Critical approaches to identifying, interpreting and experiencing popular culture texts within historical, cultural and communication contexts.

COMM 7620 BROADCAST PROGRAMMING AND CRITICISM (3) LEC. 3
Explores critical, theoretical, and organizational issues relevant to programming and the production of culture within mass media environments.

COMM 7630 MEDIA MANAGEMENT (3) LEC. 3
In-depth analysis of current management issues specific to media managers in a multi-cultural world.

COMM 7640 SEMINAR IN FILM THEORY AND CRITICISM (3) SEM. 3
Explores classical and contemporary film theories and criticism.

COMM 7650 THE MASS MEDIA AND AMERICAN POLITICS (3) LEC. 3
Examination of the role of the mass communication system in the American political system.

COMM 7660 CULTURAL STUDIES IN MASS MEDIA (3) LEC. 3
Examination of communication research approaches to the study of culture and media.

COMM 7670 CONTEMPORARY ISSUES IN FIRST AMENDMENT LAW (3) LEC. 3
Exploration of controversial issues and cases in First Amendment Law that have been recently decided, are currently before courts, and have shaped the constitutional landscape in the United States.

COMM 7680 SPORTS, MEDIA, AND CULTURE (3) LEC. 3
Cultural implications of the relationship between sports and media.

COMM 7810 PUBLIC RELATIONS THEORY (3) LEC. 3
Current areas of concern in the theoretical study of public relations.

COMM 7820 PUBLIC RELATIONS CAMPAIGNS (3) LEC. 3
Focuses on the application of Public Relations and communication concepts to real campaign challenges.

COMM 7830 PUBLIC RELATIONS CASE STUDIES (3) LEC. 3
Examination of research on Public Relations case studies to provide a theoretical basis for analyzing real-life Public Relations situations.

COMM 7840 COMMUNICATION TRAINING AND CONSULTING (3) LEC. 3
The theory, concepts and skills needed to be an effective communications trainer or consultant.

COMM 7930 DIRECTED STUDIES (1-3) IND. Conferences, readings, research, and reports in one of the fields listed: a) general communication, b) mass communication, or c) public relations. Course may be repeated for a maximum of 3 credit hours.

COMM 7970 SPECIAL TOPICS IN COMMUNICATION (3) SEM. 3
Advanced treatment of contemporary topics, trends, current research findings and opportunities. May be repeated for credit with change in topic.

COMM 7980 NON-THESIS PROJECT IN COMMUNICATION (3-6) LEC. SU. Pr., COMM 7000 and COMM 7010 and COMM 7020 Minimum 27 graduate hours including COMM 7000, COMM 7010, COMM 7020. Professional experience in communication area of interest. Must include managerial experience. Only 3 hours will apply to the degree.

COMM 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated with a change in topic. Course may be repeated with change in topics.

JOURNALISM (JRNL)

JRNL 1100 NEWSPAPER FUNDAMENTALS (3) LEC. 3
Emphasis on Associated Press Stylebook, word selection in newspaper writing and spelling.

JRNL 2210 NEWSWRITING (3) LEC. 3 Pr., 2.3 GPA. JRNL 1100 Introduction to newswriting techniques, with emphasis on learning news values, recognizing parts of a story and writing stories that meet standards of accuracy, grammar, style, spelling, law and ethics. Pr., 2.3 GPA.

JRNL 2310 REPORTING (3) LEC. 3 Pr., 2.3 GPA. JRNL 1100 and JRNL 2210 Traditional and electronic methods of gathering news; the writing of clear, accurate and meaningful news stories, and codes of ethical journalistic behavior. Includes coverage of speeches and meetings outside of class.

JRNL 2320 ADVISING STUDENT PUBLICATIONS (3) LEC. 3
Primarily for non-journalism and non-communication majors. Role and responsibilities of the publication adviser in high school and college.

JRNL 2910 PRACTICUM IN JOURNALISM (1) LEC. 1 SU. Pr., 2.3 GPA. JRNL 1100 Required for all Journalism majors. Working a minimum of 45 hours for The Auburn Plainsman in reporting, feature writing, editing and design or departmental approval.

JRNL 3220 FEATURE WRITING (3) LEC. 3 Pr., 2.3 GPA. JRNL 1100 and JRNL 2210 Various techniques of writing and selling features, both short and long pieces, for newspapers and magazine markets.

JRNL 3410 PHOTOJOURNALISM (3) LEC. 3 Pr., 2.3 GPA. Uses, techniques and processes of digital photography for the newspaper, magazine, and web-based industries. Operations of digital cameras, 35-mm cameras, and photographic image storage/retrieval for publication are covered.

JRNL 3470 NEWSPAPER EDITING AND DESIGN (3) LEC. 3 Pr., 2.3 GPA. JRNL 1100 and JRNL 2210 The basics of newspaper copy editing and design; with emphasis on hands-on techniques.

JRNL 4230 ADVANCED REPORTING (3) LEC. 3 Pr., 2.3 GPA. JRNL 2310 and JRNL 3220 and JRNL 3470 Developing and writing news stories under deadline pressure; investigative and interpretative reporting.

JRNL 4230 NEWSPAPER MANAGEMENT (3) LEC. 3 Pr., 2.3 GPA. JRNL 1100 All aspects of newspaper operation, with particular emphasis on problems and opportunities facing print-media management.

JRNL 4410 JOURNALISM HISTORY (3) LEC. 3 Pr., 2.3 GPA. Issues facing the American press, from colonial times to the present, with emphasis on regional and state issues.

JRNL 4417 HONORS JOURNALISM HISTORY (3) LEC. 3 Pr., 2.3 GPA. Issues facing the American press, from colonial times to the present, with emphasis on regional and state issues. Credit will not be given for both JRNL 4410 and JRNL 4417.

JRNL 4460 PRESS LAW AND ETHICS (3) LEC. 3 Pr., 2.3 GPA. Professional ethics and principal legal headings of press law with emphasis on libel, invasion of privacy, access to information and advertising law.

JRNL 4470 ADVANCED FEATURE WRITING (3) LEC. 3 Pr., 2.3 GPA. JRNL 2310 and JRNL 3220 and JRNL 3470 Feature writing skills and magazine and freelance writing.

JRNL 4480 ADVANCED PUBLICATION DESIGN (3) LEC. 3 Pr., 2.3 GPA. JRNL 3470 Desktop publishing knowledge required to produce print publications, including brochures and newsletters, and with exposure to web page, advertising and magazine design.

JRNL 4490 LITERARY JOURNALISM (3) LEC. 3 Pr., 2.3 GPA. JRNL 1100 Creative writing techniques for newspaper and magazine articles, through the study of notable examples of the genre of literary journalism.

JRNL 4920 JOURNALISM INTERNSHIP (3-6) INT. Pr., 2.3 GPA. JRNL 2310 and JRNL 2910 and JRNL 3220 and JRNL 3470 Supervised, closely monitored work experience, Pr., departmental approval.

JRNL 4930 DIRECTED STUDIES (1-4) IND. Research and analysis of specific areas of journalism. Course may be repeated for a maximum of 6 credit hours. Pr., 2.3 GPA. Course may be repeated for a maximum of 6 credit hours.

PUBLIC RELATIONS (PRCM)

PRCM 3040 FOUNDATIONS OF PUBLIC RELATIONS (3) LEC. 3 Pr., 2.3 GPA. Overview of public relations looking at communication skills and technologies necessary for successful public relations.

PRCM 3050 CASE STUDIES AND ETHICS IN PUBLIC RELATIONS (3) LEC. 3 Pr., 2.3 GPA. JRNL 1100 and PRCM 3040 Investigation and analysis of public relations problems through case studies.

PRCM 3060 INTERNATIONAL PUBLIC RELATIONS (3) LEC. 3 Pr., 2.3 GPA and PRCM 3040 Exploration of public relations theory, research, and practice in an international context.

PRCM 3090 - PUBLIC RELATIONS IN POLITICAL PROCESS (3) LEC. 3 Pr., 2.3 GPA Surveys the intersection of politics and public relations, offering students an opportunity get familiar with theoretical and practical principles in political processes.

PRCM 3280 STRATEGIC COMMUNICATION IN PUBLIC RELATIONS (3) LEC. 3 Pr., 2.3 GPA. PRCM 3040 Framework for the strategy and integration of messages within public relations.

PRCM 3270 PUBLIC RELATIONS IN THE NOT FOR PROFIT ARENA (3) LEC. 3 Pr., PRCM 3040, 2.3 GPA. Course focuses on nonprofit organization foundations and the role of public relations within those organizations.

PRCM 3280 SOCIAL MEDIA AND PUBLIC RELATIONS (3) LEC. 3 Pr., PRCM 3040, 2.3 GPA. Course examines how new social media impact PR strategies.
PRCM 4020 STYLE AND DESIGN IN PUBLIC RELATIONS MESSAGES (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and PRCM 3040 and RTVF 3300 Introduction to the use of style and design in public relations messages. Sophomore standing , PUBR major or departmental approval.

PRCM 4080 WRITING FOR PUBLIC RELATIONS (3) LEC. 3 Pr., 2.3 GPA. JRNL 1100, PRCM 3040, COMM 3500, COMM 3600, RTVF 3300, sophomore standing, PUBR major or departmental approval. Writing skills necessary for the practice of public relations.

PRCM 4090 PUBLIC RELATIONS CAMPAIGNS (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and JRNL 1100, PRCM 3040, and PRCM 4080 and PRCM 4510 and RTVF 3300 and RTVF 3300 (PRCM 4040 or PRCM 3050). Sophomore standing, PUBR major, departmental approval. Capstone course designed to apply Public Relations and Communication principles to a campaign situation.

PRCM 4510 SURVEY RESEARCH METHODS (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Basic research principles and survey research as it is used by mass media and public relations. Declared major in AGCO COMM, JRNL, PUBR, RTVF or departmental approval.

PRCM 4920 INTERNSHIP (3-6) INT. 3 SU., Pr., 2.3 GPA. Opportunity to apply classroom experience to real job setting. Course may be repeated for a maximum of 6 credit hours. Senior standing, admission in to internship program.

PRCM 4930 DIRECTED STUDIES IN PUBLIC RELATIONS (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and PRCM 3040 and RTVF 3300 Independent Study on a specific topic of interest not already addressed in any regular Public Relations course.

PRCM 4970 SPECIAL TOPICS IN PUBLIC RELATIONS (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and PRCM 3040 and RTVF 3300 This course focuses on narrowly-defined Public Relations topics not already covered in the current PRCM curriculum.

RADIO/TV/FILM (RTVF)

RTVF 2330 LIVE EVENT VIDEO PRODUCTION (3) LEC. 3 Pr., 2.3 GPA. Development and production of live video events.

RTVF 2350/2353/2354 INTRODUCTION TO FILM STUDIES (3) LEC, 2, LAB. 2 Pr., 2.3 GPA. Introduction to film analysis, modes of film practice and critical approaches to the study of cinema.

RTVF 2370 ELECTRONIC FIELD PRODUCTION (3) LEC. 2, LAB. 2 Pr., 2.3 GPA. The principles and techniques of video tape production with emphasis on portable equipment, including production of electronic news gathering projects and short creative field-produced programs.

RTVF 2800 MULTIMEDIA PRODUCTION (3) LEC. 3 Pr., 2.3 GPA. Introduction to basic multimedia production, with emphasis on radio and web-based audio/visual production.

RTVF 3210 SOUNDRACKS MUSIC MASS MEDIA (3) LEC. 3 Pr., 2.3 GPA. Historical, artistic and economic contexts of music and the mass media.

RTVF 3300 FOUNDATION OF MASS COMMUNICATION (3) LEC. 3 Pr., 2.3 GPA. Historical and theoretical bases of mass communication in the U.S., emphasizing social, cultural, regulatory and economic aspects.

RTVF 3350 WRITING FOR RADIO, TELEVISION AND FILM (3) LEC. 3 Pr., 2.3 GPA. Radio, practice, and development of writing skills and techniques for radio, television, and film, including commercials, features, PSAs, and dramatic scripts.

RTVF 3380 BROADCAST NEWSWRITING (3) LEC. 3 Pr., 2.3 GPA. Writing and editing news stories for broadcast.

RTVF 3420 INTRODUCTION TO FILMMAKING (3) STU. 3 Pr., 2.3 GPA. Developing conceptual and technical skills for communicating ideas through digital film.

RTVF 3580 REPRODUCING POPULAR CULTURE (3) LEC. 3 Pr., 2.3 GPA. Postmodern study on the widespread recycling of media culture artifacts.

RTVF 3590 SPECIAL TOPICS IN MEDIA (3) LEC. 3 Pr., 2.3 GPA. Special topics concentration on production, distribution, and exhibition of mass communication. Course may be repeated for a maximum of 6 credit hours.

RTVF 4200 HISTORY OF AMERICAN BROADCASTING (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 The social, economic and technological evolution of radio and television in the United States.

RTVF 4210 POPULAR CULTURE AND MASS COMMUNICATION (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Examines myths, icons, rituals, heroes, celebrities, genres, narratives, stereotypes as experienced and presented within communication processes.

RTVF 4230 ADAPTATION FOR THE SHORT FILM (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 A survey of ways film can be adapted from pre-existing sources to create new works that stand on their own.

RTVF 4240 WOMEN AND MASS MEDIA (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Analysis of the relationship between media messages of women and sociocultural definitions of women.

RTVF 4260 MEDIA AND REALITY (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Analysis of the representation of “reality” in the mass media.

RTVF 4300 DIVERSITY ISSUES MASS MEDIA (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Analysis of the relationship between media messages of minorities and sociocultural definitions of minorities.

RTVF 4300 BROADCAST PROGRAMMING AND CRITICISM (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Introduces critical, theoretical, and organizational concepts, strategies, processes, and frameworks for programming for mass media systems.

RTVF 4310 MEDIA AND SOCIETY (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Examination of the relationship between the mass communication industry and a mass society.

RTVF 4320 BROADCAST MANAGEMENT (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Investigates principles and practices of managing broadcast stations and cable operations.

RTVF 4330 MEDIA LAW AND REGULATION (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Legal, professional and ethical constraints on the mass media.

RTVF 4340 TV AND THE FAMILY (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Examination of the relationship between television and the American Family.

RTVF 4350 MEDIA RELATIONS (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Major concepts and theories of media relations management with special emphasis on electronic media.

RTVF 4360 HISTORY OF INTERNATIONAL CINEMA (3) LEC. 2, LAB. 2 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 History of international cinema, including national cinemas, film movements, directors, and style.

RTVF 4370 MEDIA AND RELIGION (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Representations and influences of religions in the mass media.

RTVF 4380/4383/4384 HISTORY OF THE AMERICAN FILM INDUSTRY (3) LEC. 2, LAB. 2 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 History of the film industry and its relationship to U.S. society.

RTVF 4410 BROADCAST NEWS PRODUCTION (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Theoretical applications with practical experience in broadcast news program production. Emphasis on individual and team production skills and techniques.

RTVF 4580 FAME, CELEBRITY, AND MEDIA CULTURE (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Examination of celebrity and fame as distinguishing cultural phenomena.

RTVF 4920 INTERNSHIP (3-6) AAB/INT. 3 SU., Pr., 2.3 GPA. Opportunity to apply classroom experience to real job setting. Pr. Admission to internship program. Course may be repeated for a maximum of 6 credit hours.

RTVF 4930 DIRECTED STUDIES IN RADIO/TELEVISION/FILM (3) IND. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Independent study on a specific topic of interest not already addressed in any regular Radio/Television/Film courses. May be repeated with a change in topic for a maximum of 6 credit hours. Course may be repeated for a maximum of 6 credit hours.

RTVF 4970 SPECIAL TOPICS IN RADIO/TELEVISION/FILM (3) LEC. 3 Pr., 2.3 GPA. COMM 3500 and COMM 3600 and RTVF 3300 Study of narrowly-defined RTVF topics not already covered in the current RTVF curriculum. May be repeated with a change in topic.

Computer Science and Engineering (COMP)

Dr. Dean Hendrix - 844-6305

COMP 1000/1003/1004 PERSONAL COMPUTER APPLICATIONS (2) LEC. 2 Introduction to personal computers and software applications, including word processing, spreadsheets, databases, and presentation graphics; generation and retrieval of information with the Internet; integration of data among applications. Credit for the major will not be given to CSCI and SWEN and WIRS majors.

COMP 1200 INTRODUCTION TO COMPUTING FOR ENGINEERS AND SCIENTISTS (2) LEC. 2 Computer programming in a high-level language, with emphasis on use of the computer as a tool for engineering or science.

COMP 1201 INTRODUCTION TO COMPUTING LABORATORY (1) LAB. 2 Cr., COMP 1200 Laboratory activities focused on computer programming in a high-level language.

COMP 1210 FUNDAMENTALS OF COMPUTING I (3) LEC. 2, LAB. 3 Introduction to the fundamental concepts of programming from an object-oriented perspective. Emphasis on good software engineering principles and development of the fundamental programming skills in the context of a language that supports the object-oriented paradigm.

COMP 1217 HONORS FUNDAMENTALS OF COMPUTING I (3) LEC. 2, LAB. 3 Introduction to the fundamental concepts of programming from an object-oriented perspective. Emphasis on good software engineering principles and development
of the fundamental programming skills in the context of a language that supports the object-oriented paradigm.

COMP 1AA0 COMPUTER COMPETENCY TEST (0) TST.SU. A comprehensive test of all material covered in COMP 1000 and COMP 1003.

COMP 2000 NETWORK PROGRAMMING WITH HTML AND JAVA (3) LEC. 3 Pr., COMP 1000 or ENGR 1110 Introduction to network programming using HTML and Java to build web pages and web-based applications; presentation of network functions for retrieving information from the Internet; integration of data among applications. Credit for the major will not be given to CSCI, SWEN, and WIRS majors. Fall, Spring.

COMP 2200 FUNDAMENTALS OF COMPUTER SCIENCE I (4) LEC. 3, LAB. 3 Pr., COMP 1200 Introduction to programming methodology including project technology. Emphasis is on problem-solving strategies for developing and documenting software.

COMP 2210 FUNDAMENTALS OF COMPUTER SCIENCE II (4) LEC. 3, LAB. 3 Pr., COMP 1210 Continuation of COMP 1210 with emphasis on data structures such as lists, trees, graphs and hash tables.

COMP 2710 SOFTWARE CONSTRUCTION (3) LEC. 3 Pr., COMP 2210 Intensive experience in software construction, to include topics such as testing, debugging, and associated tools; configuration management; low-level file and device I/O; system call implementation.

COMP 3000 OBJECT-ORIENTED PROGRAMMING FOR ENGINEERS AND SCIENTISTS (3) LEC. 3 Fundamentals of object-oriented design and programming principles; data abstraction, identifying objects, problem decomposition, design and implementation of classes. Credit for the major will not be given to CSCI and SWEN, and WIRS majors. Pr., departmental approval.

COMP 3220 PRINCIPLES OF PROGRAMMING LANGUAGES (3) LEC. 2, LAB. 3 Design and implementation of applications such as simulations, spreadsheet front-ends for modeling, interfaces to databases, and multimedia applications.

COMP 3220 DISCRETE STRUCTURES (3) LEC. 3 Pr., COMP 1210 Characterization of computer science data structures and algorithms in terms of sets and relations, functions, recurrence relations. Use of propositional and predicate calculus to describe algorithms. Proving correctness and running time bounds for algorithms by induction and structural induction.

COMP 3270 INTRODUCTION TO ALGORITHMS (3) LEC. 3 Pr., COMP 3240 and COMP 2210 Algorithms for standard computational problems and techniques for analyzing their efficiency; designing efficient algorithms and experimentally evaluating their performance.

COMP 3350 COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE PROGRAMMING (3) LEC. 3 Pr., ELEC 2200 or ELEC 2210 Stored Program Computers, hardware and software components; data representation, instruction sets, addressing modes; assembly language programming; linkers, loader, and operating systems.

COMP 3500 INTRODUCTION TO OPERATING SYSTEMS (3) LEC. 3 Pr., COMP 2710 and (COMP 3350 or ELEC 2220) Structure and functions of operating systems; processes and process scheduling; synchronization and mutual exclusion; memory management; auxiliary storage management; resource allocation and deadlock; security, privacy, and ethical concerns; design tradeoffs.

COMP 3510 EMBEDDED SYSTEMS DEVELOPMENT (3) LEC. 3 Pr., COMP 2710 and (COMP 3350 or ELEC 2220) Operating system design and analysis for embedded systems: Real-time issues, resource management, scheduling, exception handling, device driver development, kernel development, synchronization, network support.

COMP 3700 SOFTWARE MODELING AND DESIGN (3) LEC. 3 Pr., COMP 2710 Current processes, methods, and tools related to modeling and designing software systems.

COMP 3710 WIRELESS SOFTWARE ENGINEERING (3) LEC. 3 Pr., COMP 2710 Software engineering for wireless applications: specification, process, testing, and performance evaluation. Design and development of wireless application layer software, including current protocols.

COMP 4000 SYSTEMS ADMINISTRATION FOR INFORMATION TECHNOLOGY (3) LEC. 3 Pr., COMP 2000 Principles and techniques of systems administration, including configuration of mail, file servers, print servers, databases systems, and networks. Credit for the major will not be given to majors in CSCI, SWEN, and WIRS. Pr., departmental approval.

COMP 4200 FORMAL LANGUAGES (3) LEC. 3 Pr., COMP 3240 Fundamentals of formal methods and mathematical models of regular sets, context-free languages and Turing machines; deterministic and non-deterministic models.

COMP 4270 ADVANCED ALGORITHMS (3) LEC. 3 Pr., COMP 3270 Fundamentals of designing and analyzing advanced algorithms. Algorithm design theory; computational complexity; relationship of data structures to algorithm design; study of design strategies including divide-and-conquer, the greedy method, and dynamic programming.

COMP 4300 COMPUTER ARCHITECTURE (3) LEC. 3 Pr., COMP 3350 Comparison of computer architectures, emphasizing the relationships between system software and hardware. Includes processor control and data path organization, memory subsystem design, instruction set design, processor simulation, and quantitative analysis of computer performance.

COMP 4320 INTRODUCTION TO COMPUTER NETWORKS (3) LEC. 3 Pr., COMP 3500 or COMP 3510 Fundamentals of computer networks, OSI model, LAN, WAN, packet transmission, interworking, Internet Protocol, WWW and Java technology.

COMP 4640 INTELLIGENT AND INTERACTIVE SYSTEMS (3) LEC. 3 Pr., COMP 3270 Theory and design of intelligent and interactive software; basic treatments of intelligent agents and human-computer interaction.

COMP 4650 INTERFACE DESIGN FOR WIRELESS APPLICATIONS (3) LEC. 3 Pr., COMP 3270 Principles of user interface design, usability, for wireless devices: Consequences of low bandwidth network connections for interface design; consequences of battery power, small screen, other limited resources on interface design; case studies; design project using technology such as WAP.

COMP 4710 SENIOR DESIGN PROJECT (3) LEC. 3 Pr., COMP 3700 or COMP 3710 Development of requirement definitions, architectural design specification, detailed design specification, testing plan and documentation for the software and/or hardware components of a comprehensive project.

COMP 4730 COMPUTER ETHICS (1) LEC. 1 Pr., PHIL 1020 or PHIL 1040 Application of ethical principles to computing-related topics, including privacy, property rights, autonomy, access, and diversity.

COMP 4960 SPECIAL PROBLEMS (1-4) IND. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

COMP 4970 SPECIAL TOPICS (3-4) LEC. Investigation of current topics in computer science and software engineering. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

COMP 4997 HONORS THESIS (3-6) IND. Individual student endeavor consisting of directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

COMP 5000 WEB APPLICATION DEVELOPMENT (3) LEC. 3 Design and implementation of web sites and associated applications. Emphasis on user interface design and information organization and presentation. Pr., departmental approval.

COMP 5010 INTERACTIVE APPLICATIONS IN VISUAL BASIC (3) LEC. 3 Pr., COMP 5000 Design and implementation of applications like simulations, front-ends to Excel for modeling, interfaces to databases and multimedia applications. Pr., departmental approval.

COMP 5020 ADVANCED WEB APPLICATION DEVELOPMENT (3) LEC. 3 Pr., COMP 5000 Design and implementation of interactive web applications in Java as applets and servlets. Use of concepts like security, internationalization, multi-threading and server/client architectures. Pr., departmental approval.

COMP 5030 OBJECT-ORIENTED TECHNOLOGIES (3) LEC. 3 Pr., COMP 5000 Object-oriented design and implementation of a variety of applications including databases and intelligent agents with one or more object-oriented programming language. Pr., departmental approval.

COMP 5120 DATABASE SYSTEMS I (3) LEC. 3 Pr., COMP 3270 Theoretical and applied issues related to the analysis, design, and implementation of relational database systems.

COMP 5200 THEORETICAL COMPUTER SCIENCE (3) LEC. 3 Pr., COMP 4200 The nature of the recursive sets and recursively enumerable sets. Decidability. Context-sensitive grammars and linear-bounded automata, including closure properties; oracles; reduction; the arithmetic hierarchy; the analytic hierarchy. Pr., departmental approval.

COMP 5210 COMPILER CONSTRUCTION (3) LEC. 3 Pr., COMP 4200 and COMP 3220 Compiler organization; lexical analysis; parsing; syntax- direction translation; symbol tables; basic dependence analysis; intermediate forms; interpreters vs. compilers; run-time storage management; code generation; error detection and recovery.

COMP 5220 ADVANCED TOPICS IN PROGRAMMING LANGUAGES (3) LEC. 3 Pr., COMP 3220 Advanced topics in programming language concepts, design, and implementation.

COMP 5230 DECLARATIVE PROGRAMMING LANGUAGES AND PRINCIPLES (3) LEC. 3 Pr., COMP 3220 Functional and logic programming theoretical foundations, models and implementation issues; example language studies.

COMP 5280 OBJECT ORIENTED PROGRAMMING LANGUAGES AND PRINCIPLES (3) LEC. 3 Pr., COMP 3220 Object oriented language principles and study of the language support for these principles. Example languages and distributed object programming principles.

COMP 5320 DESIGN AND ANALYSIS OF COMPUTER NETWORKS (3) LEC. 3 Pr., COMP 4320 Computer networks design, including multiplexing, switching, routing, internetworking, transport protocols, congestion control, and performance evaluation. Pr., departmental approval.
COMP 5330 PARALLEL AND DISTRIBUTED COMPUTING (3) LEC. 3 Pr., COMP 3500 or COMP 3510 Overview of hardware and software issues in parallel systems: fundamental parallel architectures, programming languages, tools and algorithms, parallel algorithms. Departmental approval.

COMP 5340 NETWORK QUALITY ASSURANCE AND SIMULATION (3) LEC. 3 Pr., COMP 4320 or ELEC 5220 Theoretical and practical aspects of network simulation and quality assurance.

COMP 5360 WIRELESS AND MOBILE NETWORKS (3) LEC. 3 Pr., COMP 4320 Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP personal communication systems, and GSM. Pr., departmental approval.


COMP 5380 PERSONAL AREA NETWORKS (3) LEC. 3 Pr., COMP 4320 or ELEC 5110 Exploration of technology types, design issues for handset and network systems, economics. Exploration of standards such as CT2, CT3, IS-91A. Future challenges for 4G.

COMP 5400 FUNDAMENTALS OF COMPUTER GRAPHICS (3) LEC. 3 Pr., COMP 2710 and MATH 2660 Graphics hardware and software components, coordinate systems, 2-D and 3-D transformations, 3-D viewing and projection, clipping and windowing, scan conversion and algorithms, visibility determination and shadowing, and software projects using a graphics software package.

COMP 5500 DISTRIBUTED OPERATING SYSTEMS (3) LEC. 3 Pr., COMP 4320 Basic concepts of distributed systems. Concurrent process communication and synchronization mechanisms, distributed process scheduling, distributed file systems, distributed shared memory, distributed system security and case studies.

COMP 5510 NETWORKED MULTIMEDIA SYSTEMS (3) LEC. 3 Pr., COMP 4320 Basic concepts, architecture and design of networked multimedia systems. Pr., departmental approval.

COMP 5520 NETWORK AND OPERATING SYSTEM ADMINISTRATION (3) LEC. 3 Pr., COMP 4320 Studies of the installation, configuration and management of traditional, distributed and networked system software. Network integration of different systems. Performance monitoring, safety and security issues together with policies, politics and the laws regarding system software management.

COMP 5600 ARTIFICIAL INTELLIGENCE (3) LEC. 3 Pr., COMP 3270 and COMP 4640 Introduction to intelligent agents, search knowledge representation and reasoning, machine learning. Pr., departmental approval.

COMP 5610 ARTIFICIAL INTELLIGENCE PROGRAM (3) LEC. 3 Pr., COMP 5600 Design and implementation of advanced artificial intelligence techniques including expert systems, planning, logic and constraint programming, knowledge representation and heuristic search methods. Pr., departmental approval.

COMP 5620 USER INTERFACE DESIGN AND EVALUATION (3) LEC. 3 Pr., COMP 4640 Theory and practice of designing interfaces for interactive systems, usability engineering techniques; implementing and evaluating interfaces. Pr., departmental approval.

COMP 5700 SOFTWARE PROCESS (3) LEC. 3 Pr., COMP 3700 or COMP 3710 Process models of the software life cycle as well as methods and tools for software development. Pr., departmental approval.

COMP 5710 SOFTWARE QUALITY ASSURANCE (3) LEC. 3 Pr., COMP 3700 or COMP 3710 Processes, methods, and tools associated with the production of robust, high-quality software. Pr., departmental approval.

COMP 5720 REAL TIME AND EMBEDDED SYSTEMS (3) LEC. 3 Pr., COMP 3500 or COMP 3510 Concepts of real-time and embedded computer systems. Studies of real-time algorithm issues such as timeliness, time-constrained scheduling and communication. Embedded system issues such as limited memory, low power, and high latency communication.

COMP 6000/6006 WEB APPLICATION DEVELOPMENT (3) LEC. 3 Design and implementation of web sites and associated applications. Emphasis on user interface design and information organization and presentation. Fall, Spring. Pr., departmental approval.

COMP 6010/6016 INTERACTIVE APPLICATIONS IN VISUAL BASIC (3) LEC. 3 Pr., COMP 6000 Design and implementation of applications like simulations, front-ends to Excel for modeling, interfaces to databases and multimedia applications. Departmental approval.

COMP 6020/6026 ADVANCED WEB APPLICATION DEVELOPMENT (3) LEC. 3 Pr., COMP 6000 Design and implementation of interactive web applications in Java as applets and servlets. Use of concepts like security, internationalization, multi-threading and server/client architectures. Fall, Spring. Pr., departmental approval.

COMP 6030/6036 OBJECT-ORIENTED TECHNOLOGIES (3) LEC. 3 Pr., COMP 6000 Object-oriented design and implementation of a variety of applications including databases and intelligent agents with one or more object-oriented programming language. Pr., departmental approval.

COMP 6120/6126 DATABASE SYSTEMS I (3) LEC. 3 Theoretical and applied issues related to the analysis, design, and implementation of relational database systems. Pr., departmental approval.

COMP 6200/6206 THEORETICAL COMPUTER SCIENCE (3) LEC. 3 The nature of the recursive sets and recursively enumerable sets. decidability, Context-sensitive grammars, and linear-bounded automata, including closure properties; oracles; reduction; the arithmetic hierarchy; the analytic hierarchy. ADDITIONAL PREREQUISITES: Or departmental approval.

COMP 6210/6216 COMPILER CONSTRUCTION (3) LEC. 3 Compiler organization; lexical analysis; parsing; syntax- direction translation; symbol tables; basic dependence analysis; intermediate forms; interpreters vs. compilers; run-time storage management; code generation; error detection and recovery. Pr., departmental approval.

COMP 6220/6226 ADVANCED TOPICS IN PROGRAMMING LANGUAGES (3) LEC. 3 Advanced topics in programming language concepts, design, and implementation. Pr., departmental approval.

COMP 6230/6236 DECLARATIVE PROGRAMMING LANGUAGES AND PRINCIPLES (3) LEC. 3 Functional and logic programming theoretical foundations, models and implementation issues; example language studies. Pr., departmental approval.

COMP 6280/6286 OBJECT ORIENTED PROGRAMMING LANGUAGES AND PRINCIPLES (3) LEC. 3 Object oriented language principles and study of the language support for these principles. Example languages distributed object programming principles. Pr., departmental approval.

COMP 6320/6326 DESIGN AND ANALYSIS OF COMPUTER NETWORKS (3) LEC. 3 Computer networks design, including multiplexing, switching, routing, inter-networking, transport protocols, congestion control, and performance evaluation. Pr., departmental approval.

COMP 6330/6336 PARALLEL AND DISTRIBUTED COMPUTING (3) LEC. 3 Overview of hardware and software issues in parallel systems: fundamental parallel architectures, programming languages, tools and algorithms, parallel applications. Pr., departmental approval.

COMP 6340 NETWORK QUALITY ASSURANCE AND SIMULATION (3) LEC. 3 Theoretical and practical aspects of network simulation and quality assurance. Pr., departmental approval.

COMP 6360/6366 WIRELESS AND MOBILE NETWORKS (3) LEC. 3 Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP personal communication systems, and GSM. Pr., departmental approval.


COMP 6380/6386 PERSONAL AREA NETWORKS (3) LEC. 3 Fundamentals of very low power, short-range high-bandwidth personal network technologies such as Bluetooth and direct diffusion. Departmental approval.

COMP 6390/6396 3G AND 4G WIRELESS (3) LEC. 3 Pr., COMP 6360 or COMP 6366 or ELEC 6110 or ELEC 6116 Exploration of technology types, design issues for handset and network systems, economics. Exploration of standards such as CT2, CT3, IS-91A. Future challenges for 4G. Pr., departmental approval.

COMP 6400/6406 FUNDAMENTALS OF COMPUTER GRAPHICS (3) LEC. 3 Graphics hardware and software components, coordinate systems, 2-D and 3-D transformations, 3-D viewing and projection, clipping and windowing, scan conversion and algorithms, visibility determination and shadowing, and software projects using a graphics software package. Pr., departmental approval.

COMP 6500/6506 DISTRIBUTED OPERATING SYSTEMS (3) LEC. 3 Basic concepts of distributed systems. Concurrent process communication and synchronization mechanisms, distributed process scheduling, distributed file systems, distributed shared memory, distributed system security and case studies. Pr., departmental approval.

COMP 6510/6516 NETWORKED MULTIMEDIA SYSTEMS (3) LEC. 3 Basic concepts, architecture and design of networked multimedia systems. Pr., departmental approval.

COMP 6520/6526 NETWORK AND OPERATING SYSTEM ADMINISTRATION (3) LEC. 3 Studies of the installation, configuration and management of traditional, distributed and networked system software. Network integration of different systems. Concurrent process communication and synchronization mechanisms, distributed process scheduling, distributed file systems, distributed shared memory, distributed system security and case studies. Pr., departmental approval.

COMP 6550/6556 ARTIFICIAL INTELLIGENCE (3) LEC. 3 Introduction to intelligent agents, search knowledge representation and reasoning, machine learning. Pr., departmental approval.

COMP 6610/6616 ARTIFICIAL INTELLIGENCE PROGRAMMING (3) LEC. 3 Pr., COMP 6600 Design and implementation of advanced artificial intelligence techniques including expert systems, planning, logic and constraint programming, knowledge representation and heuristic search methods. Pr., departmental approval.

COMP 6620/6626 DATABASE SYSTEMS II (3) LEC. 3 Theoretical and applied issues related to the analysis, design, and implementation of relational database systems. Pr., departmental approval.

COMP 6630/6636 THEORETICAL COMPUTER SCIENCE (3) LEC. 3 The nature of the recursive sets and recursively enumerable sets. decidability, Context-sensitive grammars, and linear-bounded automata, including closure properties; oracles; reduction; the arithmetic hierarchy; the analytic hierarchy. ADDITIONAL PREREQUISITES: Or departmental approval.

COMP 6640/6646 DATABASE SYSTEMS II (3) LEC. 3 Pr., COMP 6600 Professional database technologies such as Microsoft SQL Server. Core topics include data modeling, database design, normalization, query languages, data manipulation and recovery, transaction management, database security, and access controls. Pr., departmental approval.

COMP 6650/6656 DATABASE SYSTEMS III (3) LEC. 3 The use of databases in complex and critical applications. Advanced topics include data warehousing, data mining, and data integration. Pr., departmental approval.

COMP 6660/6666 ARTIFICIAL INTELLIGENCE (3) LEC. 3 Introduction to intelligent agents, search knowledge representation and reasoning, machine learning. Pr., departmental approval.
COMP 6620/6626 USER INTERFACE DESIGN AND EVALUATION (3) LEC. 3 Theory and practice of designing interfaces for interactive systems, usability engineering techniques; implementing and evaluating interfaces. Pr., departmental approval.

COMP 6700/6706 SOFTWARE PROCESS (3) LEC. 3 Process models of the software life cycle as well as methods and tools for software development. Pr., departmental approval.

COMP 6710/6716 SOFTWARE QUALITY ASSURANCE (3) LEC. 3 Processes, methods, and tools associated with the production of robust, high-quality software. Pr., departmental approval.

COMP 6720/6726 REAL TIME AND EMBEDDED SYSTEMS 125 (3) LEC. 3 Concepts of real-time and embedded computer systems. Studies of real-time algorithm issues such as timeliness, time-constrained scheduling and communication. Embedded system issues such as limited memory, low power, and high latency communication. Fall, Spring, Pr., departmental approval.

COMP 7120/7126 DATABASE SYSTEMS II (3) LEC. 3 Pr., COMP 6120 or COMP 6126 Theoretical and applied issues related to the analysis, design, and implementation of object-oriented database systems. Pr., departmental approval.

COMP 7210/7216 ADVANCED COMPILER DESIGN (3) LEC. 3 Pr., COMP 6210 or COMP 6216 Optimizing compilers, dependency analysis, parallelizing compilers. Compilation for non-imperative languages. Compiling object-oriented languages. Pr., departmental approval.


COMP 7270/7276 ADVANCED TOPICS IN ALGORITHMS (3) LEC. 3 In-depth study of advanced topics in algorithms. Pr., departmental approval.


COMP 7300/7306 ADVANCED COMPUTER ARCHITECTURE (3) LEC. 3 Modern instruction level parallel computer design, including superscalar and very-long instruction word processor design. Pr., departmental approval.

COMP 7310/7316 VLSI CAD TOOL DESIGN (3) LEC. 3 Pr., COMP 6210 Design of CAD tools for VLSI design, including high-level synthesis and hardware-software co-design, logic synthesis, floor planning, optimization, placement and routing. Software development of a CAD tool as a comprehensive project. Pr., departmental approval.

COMP 7320/7326 ADVANCED COMPUTER NETWORKS (3) LEC. 3 Pr., COMP 6320 or COMP 6326 Advanced network topics, including ISDN, ATM, active networks, security, Internet, wireless and mobile networks, and network management. Pr., departmental approval.

COMP 7330/7336 TOPICS IN PARALLEL AND DISTRIBUTED COMPUTING (3) LEC. 3 Pr., COMP 6330 or COMP 6336 Parallel programming languages, environments and tools, parallel algorithms performance issues, distributed memory systems, group communication, fault tolerance. Pr., departmental approval.

COMP 7340/7346 HIGH SPEED NETWORKS (3) LEC. 3 Pr., COMP 6320 or COMP 6326 High-speed network design, including IAM and gigabit Ethernet, quality of service, ATM traffic, congestion control ATM switching, and signaling. Pr., departmental approval.

COMP 7350/7356 MULTIMEDIA NETWORKING (3) LEC. 3 Pr., COMP 6320 or COMP 6326 Multimedia network protocols, coding, compression, multicast, traffic shaping, and analysis techniques, viruses and other malware, operating system vulnerabilities and safeguards. Pr., departmental approval.

COMP 7360/7366 WIRELESS AND MOBILE NETWORKS (3) LEC. 3 Pr., COMP 6320 or COMP 6326 Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP, personal communication systems, and GSM. Pr., departmental approval.

COMP 7370 ADVANCED COMPUTER AND NETWORK SECURITY (3) LEC. 3 Pr., COMP 6370 or COMP 6376 Advanced, research-based examination of computer network attack and defense techniques, viruses and other malware, operating system vulnerabilities and safeguards. Pr., departmental approval.

COMP 7400/7406 ADVANCED COMPUTER GRAPHICS (3) LEC. 3 Pr., COMP 6400 or COMP 6406 Advanced 3-D topics including visual realism issues, visible surface determination algorithms, illumination and shading models, surface and solid modeling, advanced rendering techniques, precision graphics architectures, and animation. Software projects will be assigned. Pr., departmental approval.

COMP 7440 SIMULATION OF COMPUTER NETWORKS (3) LEC. 3 Research-based examination of network simulation, including TCP/IP networks, wireless networks and verification and validation of a network simulation. Pr., departmental approval.

COMP 7500/7506 ADVANCED TOPICS IN OPERATING SYSTEMS (3) LEC. 3 Pr., COMP 6500 or COMP 6506 Advanced topics in operating system concepts, design and implementation. Pr., departmental approval.

COMP 7600/7606 COMPUTATIONAL INTELLIGENCE (3) LEC. 3 Pr., COMP 6600 or COMP 6606 A study of computational intelligence with emphasis on the design and implementation of neural, genetic and fuzzy computing techniques. Pr., departmental approval.

COMP 7610/7616 COMPUTATIONAL COGNITION (3) LEC. 3 Pr., COMP 6600 or COMP 6606 Computational models of cognition, including knowledge representations and process mechanisms like means-ends analysis, semantic networks, frames, Pr., departmental approval.

COMP 7620/7626 HUMAN-COMPUTER INTERACTION (3) LEC. 3 Cr., COMP 6620 Theoretical principles and practical aspects of interaction between humans and computers, design and evaluation of interactive systems. Pr., departmental approval.

COMP 7700/7706 SOFTWARE ARCHITECTURE (3) LEC. 3 Pr., COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716) Methods and tools related to the analysis, specification and design of software architecture. Pr., departmental approval.

COMP 7710/7716 SOFTWARE ENVIRONMENTS (3) LEC. 3 Pr., COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716) Issues associated with the design, implementation, and use of software engineering environments. Pr., departmental approval.

COMP 7720/7726 SOFTWARE RE-ENGINEERING (3) LEC. 3 Pr., COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716) Process, methods and tools associated with re-engineering software systems. Pr., departmental approval.

COMP 7730/7736 FORMAL METHODS FOR SOFTWARE (3) LEC. 3 Pr., (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716) Precise, abstract models for characterizing and reasoning about properties of software systems. Pr., departmental approval.

COMP 7740 AGENT-DIRECTED SIMULATION (3) LEC. 3 Pr., COMP 6700 or COMP 6706 Covers entire simulation software development life cycle including problem formulation, system and objectives definition, conceptual modeling, model design, implementation, analysis of simulation data, and credibility assessment including verification and validation. Special emphasis is given to modeling aspects using agent-directed simulation methodology. Pr., departmental approval.

COMP 7930 DIRECTED STUDY (1-3) IND. Course may be repeated with a change in topic. Pr., departmental approval. Course may be repeated with change in topics.

COMP 7950/7956 INTRODUCTION TO GRADUATE STUDY IN COMPUTER SCIENCE AND SOFTWARE ENGINEERING (1) LEC. 1SU. Introduction to graduate research and study topics in computer science and software engineering.

COMP 7970/7976 SPECIAL TOPICS (1-3) LEC. Course may be repeated with a change in topic. Course may be repeated with change in topics.

COMP 7980/7986 MASTER OF SOFTWARE ENGINEERING DESIGN PROJECT (1-15) IND.SU. Planning, implementation, and completion of a design project. Project culminates in both a written report and an oral presentation. Course may be repeated with a change in topic. Course may be repeated with change in topics.

COMP 7990 RESEARCH AND THESIS (1-15) MST. Course may be repeated with a change in topic. Course may be repeated with change in topics.

COMP 8120 CURRENT TOPICS IN DATABASE SYSTEMS (3) LEC. 3 Pr., COMP 6120 or COMP 6126 Theoretical and applied research issues related to database systems. Topics will reflect current research in the field. Pr., departmental approval.

COMP 8220 RESEARCH TOPICS IN PROGRAMMING LANGUAGES (3) LEC. 3 Pr., COMP 7220 or COMP 7226 Topics of current research in the area of programming languages, their design, and implementation. Pr., departmental approval.

COMP 8320/8326 RESEARCH COMPUTERS IN NETWORK COMPUTERS (3) LEC. 3 Pr., COMP 6320 or COMP 6326 Current research in wireless and mobile networks, high-speed networks, active networks, WDM networks, and performance modeling. Pr., departmental approval.

COMP 8330 ADVANCED TOPICS IN PARALLEL AND DISTRIBUTED COMPUTING (3) LEC. 3 Pr., COMP 6330 or COMP 6336 Parallelizing compiler, theory of concurrency, advanced parallel algorithms, load balancing, migration, performance evaluation, distributed architectures. Pr., departmental approval.

COMP 8400 CURRENT TOPICS IN COMPUTER GRAPHICS (3) LEC. 3 Pr., COMP 7400 or COMP 7406 In-depth study of current research topics in computer graphics. Topics may include theoretical, performance implementation, and system internal issues. Extensive literature survey, issue identification, performance comparison, and future research trends will be discussed. Pr., departmental approval.
COMP 8500 RESEARCH TOPICS IN OPERATING SYSTEMS (3) LEC. 3 Pr., COMP 7500 or COMP 7506 Topics of current research in the area of operating systems design, and implementation. Departmental approval.

COMP 8600 ADVANCED TOPICS IN ARTIFICIAL INTELLIGENCE (3) LEC. 3 Pr., COMP 6610 or COMP 6616 e.g., evaluation and assessment methods, multi-modal interfaces, educational technology. Pr., departmental approval.

COMP 8620 ADVANCED TOPICS IN HUMAN-COMPUTER INTERACTION (3) LEC. 3 Pr., COMP 7620 or COMP 7626 In-depth study of current research topics in Human-Computer Interaction, e.g., reasoning mechanisms, heuristic search methods, cognitive modeling. Pr., departmental approval.

COMP 8700/8706 CURRENT TOPICS IN SOFTWARE ENGINEERING (3) LEC. 3 Pr., (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716) Current theoretical and applied research issues in software engineering. Pr., departmental approval.

COMP 8930 DIRECTED STUDY (1-3) IND. Course may be repeated for a maximum of 6 credit hours.

COMP 8970 SPECIAL TOPICS (1-3) IND. Course may be repeated with change in topic.

COMP 8990 SPECIAL RESEARCH AND DISSESSATION (1-15) DSR. Course may be repeated with a change in topic. Course may be repeated with change in topics.

Cooperative Education (COOP)
Dr. Kim M. Durbin - 844-5410

COOP 4920 COOPERATIVE WORK EXPERIENCE (0) PRA. A practical, professional, full-time, curriculum-related work experience in industry, business, or government. Under joint supervision of employer and university.

Curriculum and Teaching (CTCH)
Dr. Nancy Barry - 844-4434

CAREER AND TECHNICAL EDUCATION
Dr. Bonnie White - 844-6884

CTCT 1200 KEYBOARDING AND FORMATTING (3) LEC. 1, LAB. 4 Mastery of alphanumeric keyboard with basic keyboarding and formatting applications of business documents. (Students with previous keyboarding/typewriting instruction consult with Business/Marketing Education faculty for placement). Pr., departmental approval.

CTCT 2100 POWER EQUIPMENT TECHNOLOGY (3) LEC. 2, LAB. 3 Repair and maintenance of small air-cooled engines and power equipment in Agriculture. Credit will not be given for both CTCT 2100 and CTCT 3100.

CTCT 2200/2203 DOCUMENT PROCESSING (3) LEC. 1, LAB. 4 Pr., CTCT 1200 Advanced formatting, processing, and evaluation of business correspondence, as well as administrative and employment documents. (Students with previous keyboarding/typewriting instruction consult with Business/Marketing Education faculty for placement). Pr., departmental approval.

CTCT 3000/3003 LEADERSHIP SKILLS FOR PERSONAL AND ORGANIZATIONAL DEVELOPMENT (3) LEC. 3 Organizational and leadership skills needed to become successful professionals in work or community activities; skills and strategies for conducting efficient meetings. Pr., departmental approval.

CTCT 3200/3203 RECORDS MANAGEMENT (2) LEC. 2 Integrated records management systems, records management functions, classification systems, micrographics, electronic records, and records management careers. Pr., departmental approval.

CTCT 3240/3243 INFORMATION PROCESSING I (3) LEC. 2, LAB. 2 Pr., CTCT 2200 or CTCT 2203 Exploration of organizational needs for text-based information processing. Functions and capabilities of text-based information processing components. Pr., departmental approval.

CTCT 3250/3253 INFORMATION PROCESSING II (3) LEC. 2, LAB. 2 Pr., CTCT 3240 or CTCT 3243 Decision-making and business problem solving using microcomputer software applications including spreadsheets, database management programs, and operating systems. Pr., departmental approval.

CTCT 4000/4003 CLASSROOM/LABORATORY MANAGEMENT, ORGANIZATION AND EVALUATION IN CAREER AND TECHNICAL EDUCATION (2) LEC. 2 Pr., Admission to Teacher Education. Organization, objectives, principles, management, and evaluation of career and technical education classrooms, laboratories, and programs.

CTCT 4030 CAREER AND TECHNICAL STUDENT ORGANIZATIONS (3) LEC. 3 Survey of career and technical student organizations; procedures involved in developing and implementing informal and co-curricular educational programs for students and preparing students for state and national competitions.

CTCT 4140 AGRICULTURAL STRUCTURE AND METAL FABRICATION TECHNOLOGY (3) LEC. 2, LAB. 3 Materials selection and construction procedures for carpentry, concrete, masonry, electricity, plumbing, and metal fabrication.

CTCT 4160 SUPERVISED AGRICULTURAL EXPERIENCE PROGRAMS (2) LEC. 2 Responsibility for SAEP planning, supervision, and evaluation of entrepreneurship, placement, exploratory, analytical, and experimental SAEPs and record books; completing award applications.

CTCT 4200/4203 MANAGING OFFICE SYSTEMS (3) LEC. 2, LAB. 2 Pr., CTCT 3250 or CTCT 3253 Capstone course with emphasis on integration of information processing procedures, administrative support, and management functions. Pr., departmental approval.

CTCT 4900 DIRECTED STUDIES (1-6) IND. SU. The student’s learning efforts are guided toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTCT 4910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Provides experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTCT 4920 INTERNSHIP (10) INT. SU. Pr., Admission to Teacher Education. Supervised internship experiences in a school or other appropriate setting. Evaluation and analysis of the internship experience. Pr., Admission to internship.

CTCT 4940/4943 DIRECTED FIELD EXPERIENCE IN AREA OF SPECIALIZATION (1-3) FLD. SU. Supervised occupational work experience in an approved specialization of area of occupation. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

CTCT 4970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) LEC. Current or special topics within area of specialization. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

CTCT 5050/5053 METHODS OF TEACHING IN AREA OF SPECIALIZATION (3) LEC. 2, LAB. 2 Pr., Admission to Teacher Education. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within area of specialization. Credit will not be allowed for both CTCT 5050/5053 and CTCT 6050/6056.

CTCT 5070/5073 COORDINATION AND SUPERVISION OF WORK-BASED LEARNING (3) LEC. 2, Lab. 3 Pr., Admission to Teacher Education. Coordination, placement, and supervision of students in work-experience programs; development of employability skills and habits in students.

CTCT 6050/6056 METHODS OF TEACHING IN AREA OF SPECIALIZATION (3) LEC. 2, LAB. 2 Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within the area of specialization. Credit will not be allowed for both CTCT 6050/6053 and CTCT 6050/6056. Pr., Admission to alternative master’s program.

CTCT 6060/6066 PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3 Introduction to principles and practices involved in designing educational programs in the area of specialization. Credit will not be given for both CTCT 6050 and CTCT 6050/6066.

CTCT 6080/6086 COORDINATION AND SUPERVISION OF WORK-BASED LEARNING (3) LEC. 3 Coordination, placement, and supervision of students in work-experience programs; development of employability skills and habits in students. Pr., departmental approval.

CTCT 7000/7006 FOUNDATIONS OF CAREER AND TECHNICAL EDUCATION (3) LEC. 3 Philosophical, historical, economic, and sociological perspectives of vocational education in relation to the organization of vocational education programs.

CTCT 7010/7016 YOUTH PROGRAM DEVELOPMENT (3) LEC. 3 Developing, managing, and evaluating informal and formal youth education programs; training volunteers for youth development programs; securing and developing supporting resources. Pr., departmental approval.

CTCT 7100 TEACHING MECHANICAL TECHNOLOGY (3) LEC. 2, LAB. 2 Theory and practice of managing agricultural mechanics laboratories, theories of machine operation, and maintaining laboratory equipment.

CTCT 7120 COURSES OF STUDY IN AGRICULTURE EDUCATION (3) LEC. 3 Pr., CTCT 5060 or CTCT 6060 or CTCT 5063 or CTCT 6066 Emerging technologies in agriscience education; principles and procedures of curriculum construction applied to courses of study in agriscience education. Pr., departmental approval.

CTCT 7200/7206 CAREER AND OCCUPATIONAL INFORMATION (3) LEC. 3 Trends and issues in occupational structure, job qualifications and requirements, and sources of occupational information for new and emerging occupations; analysis of career education models for students. Pr., departmental approval.

CTCT 7240/7243 ADMINISTRATIVE MANAGEMENT (3) LEC. 3 Pr., CTCT 4200 or CTCT 4203 Management of office systems, information and personnel. Managing and controlling administrative services. Pr., departmental approval.

CTCT 7300/7306 LEARNING RESOURCES IN AREA OF SPECIALIZATION (3) LEC. 3 Pr., CTCT 5050 or CTCT 6050 or CTCT 5053 or CTCT 6056 Selecting, devel-
opining, utilizing, and evaluating instructional resources and technology for teaching. Pr., departmental approval.

CTCT 7710/7716 ADVANCED TEACHING METHODS (3) LEC. 3 Pr., (CTCT 5050 or CTCT 5053) or (CTCT 6050 or CTCT 6068) Analysis of research in theories of teaching and learning, effective teacher characteristics, learning styles, teaching methodologies, and diversity in teaching. Pr., departmental approval.

CTCT 7720/7726 ADVANCED PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3 Pr., CTCT 5060 or CTCT 6060 or CTCT 5063 or CTCT 6066 Issues affecting the development and management of educational programs; strategies for improving educational programs. Pr., departmental approval.

CTCT 7730/7736 PROGRAM EVALUATION (3) LEC. 3 Pr., (CTCT 7720 or CTCT 7726) Principles and procedures used in evaluating academic-related programs. Alternative approaches to evaluation and practical guidelines for conducting evaluations. Pr., departmental approval.

CTCT 7750/7756 ADMINISTRATION OF CAREER AND TECHNICAL EDUCATION (3) LEC. 2, LAB. 2 Introduction to concepts, theories and practices related to administration, organizational behavior, and leadership in secondary and post-secondary vocational education programs. Pr., departmental approval.

CTCT 7760/7766 COMPREHENSIVE PLANNING IN CAREER AND TECHNICAL EDUCATION (3) LEC. 2, LAB. 2, Pr., (CTCT 7750 or CTCT 7756) Processes of comprehensive planning for vocational education programs at high school and secondary school levels using local, state, and regional data. Pr., departmental approval.

CTCT 7770/7776 CLINICAL SUPERVISION (3) LEC. 3 Pr., (CTCT 7710 or CTCT 7716) Theories, concepts, models, and techniques of student teacher and beginning teacher supervision by administrators, school district personnel, and university supervisors. Recommended for individuals who supervise or plan to supervise student teachers. Pr., departmental approval.

CTCT 7780/7786 RESEARCH IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3 Review, analysis and interpretation of research procedures and data with emphasis on designing new research in vocational and adult education. Pr., departmental approval.

CTCT 7810 SUPERVISED COLLEGE TEACHING (1) LEC. 1 SU. Practical experience in the classroom under the supervision of a faculty mentor. Course may be repeated for a maximum of 2 credit hours. Pr., departmental approval.

CTCT 7900/7906 DIRECTED STUDIES (1-3) IND. SU. Independent learning effort directed toward desired objectives. Includes evaluation at regular intervals by student and professor. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

CTCT 7910/7916 PRACTICUM IN AREA OF SPECIALIZATION (1-3) PRA. SU. Experiences closely relating theory and practice. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

CTCT 7920/7926 INTERNSHIP (1-10) INT. SU. Pr., CTCT 6050 or CTCT 6056 Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 10 credit hours.

CTCT 7950 SEMINAR IN AREA OF SPECIALIZATION (1-3) SEM. SU. Presentation by graduate students of research projects and/or findings. Analysis of procedures and findings. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

CTCT 7960/7966 SPECIAL PROBLEMS (1-3) IND. SU. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

CTCT 7970/7976 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) LEC. Current or advanced topics within area of specialization. Course may be repeated with a maximum of 6 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

CTCT 7990 RESEARCH AND THESIS (1-10) MIST. SU. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

CTCT 8730 CURRICULUM DEVELOPMENT IN VOCATIONAL EDUCATION (3) LEC. 3 Pr., (CTCT 7730 or CTCT 7736) Principles involved in vocational education curriculum planning, identification of educational needs of students, selecting technical content, designing curricula, and evaluating materials. Pr., departmental approval.

CTCT 8770 SUPERVISION OF INSTRUCTION (3) LEC. 3 Pr., CTCT 7770 or CTCT 7776 Theories and models to become effective supervisors of vocational and adult education programs; philosophies and styles of supervision used to improve and execute an appropriate field experience. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTCT 8800/8806 TEACHER EDUCATION (3) LEC. 3 Emphasis on beliefs, philosophy, issues, research, roles, student selection, curriculum, methodology, internships, organization, and administration of teacher education programs. Pr., departmental approval.

CTCT 8810 SUPERVISED COLLEGE TEACHING (1-10) LEC. 3 Practical experience in the classroom under the supervision of a faculty mentor. Course may be repeated for a maximum of 10 credit hours. Course may be repeated for a maximum of 10 credit hours.
CTEC 7210 ORIGINS OF THOUGHT (3) LEC. 3 Piaget’s theories of how thought develops in young children. Comparison of the social and biological roots of thought.

CTEC 7250 PLAY AND EARLY CHILDHOOD EDUCATION (3) LEC. 3 Examination of children’s play from a constructivist theoretical perspective and translation of theory into early childhood educational practice.

CTEC 7270 THEORY-BASED PROBLEMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3 In-depth exploration of a problem related to the thought, writing and research that form the theoretical foundations of constructivist approaches in early childhood education. Course may be repeated for a maximum of 9 credit hours.

CTEC 7510 RESEARCH STUDIES IN EARLY CHILDHOOD EDUCATION (3) LEC. 3 How to read, review, analyze and interpret significant research studies in early childhood education. Course may be repeated for a maximum of 9 credit hours.

CTEC 7520 CURRICULUM AND TEACHING IN EARLY CHILDHOOD EDUCATION (3) LEC. 3 Reappraisal of experiences and content for children by focusing on the nature of the learner and the nature of the knowledge to be learned.

CTEC 7530 ORGANIZATION OF PROGRAM IN EARLY CHILDHOOD EDUCATION (3) LEC. 3 Organization, administration, and supervision of early childhood programs.

CTEC 7540 EVALUATION OF PROGRAMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3 Assessment and evaluation of all program components from a constructivist perspective.

CTEC 7900 DIRECTED STUDIES (1-6) IND. SU. Independent learning objectives related to the student’s area of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTEC 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Provides experiences and content for children by focusing on the nature of the learner and the nature of the knowledge to be learned.

CTEE 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) LEC. 3 Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTEE 7920 INTERNSHIP (1-9) INT. SU. Supervised on-the-job experiences in a school, college or other appropriate setting, accompanied by regularly scheduled, on-campus discussion periods. Course may be repeated for a maximum of 9 credit hours. Departmental approval. Course may be repeated for a maximum of 9 credit hours.

CTEE 7970 SPECIAL TOPICS (3-9) LEC. Cooperative pursuit of selected concepts and theories, normally in small groups. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

CTEE 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with a change in topic. Course may be repeated with change in topics.

CTEE 8240 RESEARCH IN EARLY CHILDHOOD EDUCATION (3) LEC. 3 Review, analysis and interpretation of available research with emphasis on designing new research to meet the needs of young children. Pr., master’s degree.

CTEE 8270 THEORY-BASED PROBLEMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3 In-depth exploration of problems related to the thought, writings, and research that form the theoretical foundations of constructivist approaches to early childhood education. Course may be repeated for a maximum of 6 credit hours. Pr., master’s degree.

CTEE 8720 DESIGNING EARLY CHILDHOOD CURRICULUM (3) LEC. 3 Application of early childhood history, philosophy, program analysis and constructivist theory to the design of early childhood curriculum. Pr., master’s degree.

CTEE 8850 CONSTRUCTIVIST INVESTIGATIONS IN EARLY CHILDHOOD SETTINGS (3) LEC. 3 Analysis and interpretation of the design of constructivist investigation. Pr., master’s degree.

CTEE 8950 ALTERNATIVE RESIDENCE SEMINAR (2-4) SEM. 2 SU. Must complete this two semester sequence during the fall and spring semesters. Credit does not count toward minimum requirements for the doctoral program. Pr., enrollment in Alternative Residence Program.

CTEE 8970 SPECIAL TOPICS (3-9) LEC. Cooperative pursuit of selected concepts and theories, normally in small groups. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

CTEE 8980 FIELD PROJECT (1-3) FLD. SU. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 3 credit hours.

CTEE 8990 RESEARCH AND DISSERTATION (1-10) DSIR. Course may be repeated with a change in topic. Course may be repeated with change in topics.

ELEMENTARY EDUCATION (CTEE)
Dr. Theresa McCormick - 844-6795

CTEE 4010 CURRICULUM: SOCIAL SCIENCE (3) LEC. 2, LAB. 3 Pr., Admission to Teacher Education. Exploration and pedagogy for age-appropriate instruction to children in kindergarten through grade six in order to develop rational and participatory citizens.

CTEE 4020 CURRICULUM: LANGUAGE ARTS (3) LEC. 2, LAB. 3 Pr., Admission to Teacher Education. Content and methodology of teaching language arts (reading, writing, listening, speaking, and viewing) in kindergarten through grade six in order to develop communicative competence.

CTEE 4030 CURRICULUM: NATURAL SCIENCE (3) LEC. 2, LAB. 3 Pr., Admission to Teacher Education. Or, CTEE 4040 Current trends, practices and methods in teaching science in the elementary school.

CTEE 4040 CURRICULUM: MATHEMATICS (3) LEC. 2, LAB. 3 Pr., Admission to Teacher Education. Or, CTEE 4030 Principles, current thinking and approaches to the teaching of elementary school mathematics.

CTEE 4190 EFFECTIVE CLASSROOM MANAGEMENT IN THE ELEMENTARY SCHOOL (3) LEC. 2. LAB. 2. Pr., Admission to Teacher Education. Through exploration, discussion, reflection, and analysis students will study issues pertaining to inclusive/multicultural K-6 classrooms. Issues related to classroom management (e.g. behavior and time management), students with special needs, parent/community relations, legal mandates, technology, planning, and professionalism.

CTEE 4990 DIRECTED STUDIES (1-6) IND. SU. Reading, research, or other work undertaken by a student focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTEE 4991 PRACTICUM (1-6) PRA. SU. Students and faculty cooperatively select an appropriate field experience. Course may be repeated for a maximum of 6 credit hours.

CTEE 4992 INTERNSHIP (10) AAB/INT. 10 SU. Pr., Admission to Teacher Education. Supervised teaching in a public elementary school accompanied by scheduled discussions to analyze and evaluate the intern’s experience. Pr., Admission to internship.

CTEE 4995 PROFESSIONAL DEVELOPMENT SEMINAR (1-4) AAB/SEM. 1 SU. Pr., Admission to Teacher Education. Reflection, exploration, and study of elementary education practices in kindergarten through grade six. Course may be repeated for a maximum of 4 credit hours.

CTEE 4997 HONORS SPECIAL PROBLEMS (1-3) IND. Individual readings program. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

CTEE 4998 SPECIAL TOPICS (1-6) LEC. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 6 credit hours. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

CTEE 4999 HONORS THESIS (1-3) IND. The student thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

CTEE 7010 APPROACHES TO TEACHING (3) LEC. 3 Organizational patterns, planning and approaches to instruction in the elementary school.

CTEE 7410 CURRICULUM AND TEACHING IN SOCIAL SCIENCE (GRADES K-6) (3) LEC. 3 Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) social science education.

CTEE 7420 CURRICULUM AND TEACHING IN LANGUAGE ARTS (GRADES K-6) (3) LEC. 3 Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) language arts education.

CTEE 7430 CURRICULUM AND TEACHING IN NATURAL SCIENCE (GRADES K-6) (3) LEC. 3 Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) natural science education.

CTEE 7440 CURRICULUM AND TEACHING IN MATH (GRADES K-6) (3) LEC. 3 Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) mathematics education.

CTEE 7490 THE ELEMENTARY SCHOOL PROGRAM (3) LEC. 3 Major curriculum areas and teaching practices in the modern elementary school. Implications of research and theory for the total elementary school program.

CTEE 7510 RESEARCH STUDIES IN EDUCATION IN AREAS OF SPECIALIZATION (3) LEC. 3 A review, analysis and interpretation of data with emphasis on designing research to meet the changing needs of the school.

CTEE 7530 ORGANIZATION OF PROGRAMS IN ELEMENTARY EDUCATION (3) LEC. 3 Organization and development of basic and supplementary materials for guiding teachers and school systems in improvement of curriculum and teaching practices.

CTEE 7540 EVALUATION OF PROGRAMS IN AREAS OF SPECIALIZATION (3) LEC. 3 Evaluation methods and exploration of evaluation literature in areas of specialization.

CTEE 7900 DIRECTED STUDIES (1-6) IND. SU. Independent study related to student’s respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTEE 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Provides individual students with experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.
CTEE 7920 INTERNSHIP (1-9) INT. SU. Supervised on-the-job experiences in a school, college or other appropriate setting, accompanied by regularly scheduled, on-campus discussion periods. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

CTEE 7970 SPECIAL TOPICS (1-6) LEC. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTEE 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 10 credit hours. Course may be repeated for a maximum of 10 credit hours.

CTE 8950 ALTERNATIVE RESIDENCE SEMINAR (2) LEC. 2 SU. Students must complete this two semester sequence during the fall and spring semesters. Credit does not count toward minimum requirements for the doctoral program. Pr., Enrollment in Alternative Residence Program.

CTE 8970 SPECIAL TOPICS (1-6) LEC. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTE 8980 FIELD PROJECT (1-10) FLD. SU. Course may be repeated for a maximum of 10 credit hours. Course may be repeated for a maximum of 10 credit hours.

CTE 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

ENGLISH FOR SPEAKERS OF OTHER LANGUAGES (CTES)
Dr. Robert Leier - 844-6882

CTES 5410 LANGUAGE MINORITY STUDENTS K-12 (3) LEC. 3 Non-major course to prepare elementary and secondary teachers to work effectively with English language learners (ELLs). Topics include instructional models for teaching ELLs.

CTES 6410 LANGUAGE MINORITY STUDENTS K-12 (3) LEC. 3 Non-major course to prepare elementary and secondary teachers to work effectively with English language learners (ELLs). Topics include instructional models for teaching ELLs.

CTES 7400 TECHNOLOGY AND MEDIA IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES EDUCATION (ESOL) (3) LEC. 3 Application of instructional technology in second language instruction, authentic materials in the ESL classroom.

CTES 7420/7426 APPLIED LINGUISTICS IN SECOND LANGUAGE ACQUISITION (3) LEC. 3. Provides basic knowledge of phonetics, morphology, syntax, semantics, pragmatics, psycholinguistics, sociolinguistics and language variation to teach English language learners. Credit will not be given for both CTES 7420 and CTES 7426.

CTES 7460/7466 TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES IN P-12 (3) LEC. 3. Teaching practices and curriculum selection in P-12 ESOL. Credit will not be given for both CTES 7460 and CTES 7466.

CTES 7470/7476 ISSUES IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES EDUCATION (ESOL) (3) LEC. 3. Examination of central issues in the teaching and learning of ESOL including language policy, language diversity and multiculturalism. Credit will not be given for both CTES 7470 and CTES 7476.

CTES 7480 ASSESSMENT IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES (ESOL) (3) LEC. 3. Theoretical perspectives on assessment of English Language Learners. Developing, administering and analyzing assessment instruments. Credit will not be given for both CTES 7480 and CTES 7486.

CTES 7920 INTERNSHIP (3-9) INT. SU. Supervised teaching in a K-12 public school accompanied by scheduled discussions to analyze and evaluate the intern’s experience.

MIDDLING SCHOOL EDUCATION (CTMD)
Dr. Nancy Barry - 844-4434

CTMD 4010 TEACHING MATHEMATICS: MIDDLE SCHOOL (4) LEC. 2, LAB. 4 Pr., Admission to Teacher Education. Specific teaching strategies for a comprehensive middle school program grades 4-8.

CTMD 4190 CURRICULUM AND TEACHING IN THE MIDDLE SCHOOL (3) LEC. 2, LAB. 2 Pr., Admission to Teacher Education. To introduce and prepare undergraduate education students for middle school student, middle school teaching, and middle level philosophy while incorporating reflective decision making.

CTMD 4900 DIRECTED STUDIES (1-6) IND. SU. Independent study directed at desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTMD 4910 PRACTICUM IN MIDDLE SCHOOL EDUCATION (1-6) PRA. SU. Provides experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTMD 4920 INTERNSHIP (10) INT. 10 SU. Supervised teaching in a public middle or secondary school, accompanied by scheduled discussions to analyze and evaluate the intern’s experience. Pr., Admission to Internship.

CTMD 4970 SPECIAL TOPICS (1-4) LEC. Course may be repeated for a maximum of 4 credit hours.

CTMD 7900 DIRECTED STUDIES (1-6) IND. SU. Independent study directed toward desired objectives related to the respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTMD 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTMD 7970 SPECIAL TOPICS (1-6) LEC. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

MUSIC EDUCATION (CTMU)
Dr. Kimberly Walls - 844-6892

CTMU 3040 MUSIC AND RELATED ARTS (4) LEC. 2, LAB. 4 Pr., Admission to Teacher Education. Interdisciplinary instruction appropriate for students’ developmental characteristics which synthesize the content, professional resources, curriculum goals and instructional strategies of music.

CTMU 4900 DIRECTED STUDIES (1-6) IND. SU. Independent reading, research or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTMU 4910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Pr., Admission to Teacher Education. Cooperatively selected field experience. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTMU 4970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) LEC. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTMU 4997 HONORS THESIS (1-3) IND. The student’s thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.

CTMU 5940 ELEMENTARY/MIDDLE SCHOOL MUSIC METHODS (3) LEC. 3 Pr., Admission to Teacher Education. Methodology, materials, organization and activities for elementary and middle school music programs. Includes professional field experiences in public school music programs.

CTMU 5960 SECONDARY MUSIC METHODS (3) LEC. 3 Pr., Admission to Teacher Education. Methodology, materials, organization and activities for secondary music programs. Includes professional field experiences in public school music programs.

CTMU 6940 ELEMENTARY/MIDDLE SCHOOL MUSIC METHODS (3) LEC. 3 Methodology, materials, organization and activities for elementary and middle school music programs. Includes professional field experiences in public school music programs. Pr., Admission to Alternative Master’s Certification Program.

CTMU 6960 SECONDARY MUSIC METHODS (3) LEC. 3 Methodology, materials, organization and activities for secondary music programs. Includes professional field experiences in public school music programs. Pr., Admission to Alternative Master’s Certification Program.

CTMU 7510/7516 RESEARCH STUDIES IN MUSIC EDUCATION (3) RES. 3 Review, analysis and interpretation of available research with emphasis on designing new research to meet the changing needs of school musicians.

CTMU 7520/7526 CURRICULUM AND TEACHING IN MUSIC EDUCATION (3) LEC. 3 Teaching practices and evaluation of experiences and content for curriculum improvements. Students develop recommendations for music curriculum.

CTMU 7530/7536 ORGANIZATION OF PROGRAM IN MUSIC EDUCATION (3) LEC. 3 Program, organization and development of basic and supplementary materials for guiding teachers, facilities and school systems in continuous improvement of curriculum and teaching practices in music education.

CTMU 7540/7546 EVALUATION OF PROGRAM IN MUSIC EDUCATION (3) LEC. 3 Evaluation and investigation of teaching effectiveness including the utilization of human and material resources and the coordination of areas of specialization and issues in evaluation which are unique to music education settings.

CTMU 7550/7556 APPLICATIONS OF TECHNOLOGY IN MUSIC EDUCATION (3) LEC. 3 An overview of applications of current technology in music classroom, studios, and offices.

CTMU 7560/7566 DIGITAL MEDIA PRODUCTION FOR MUSIC EDUCATION (3) LEC. 3 Current tools, skills, and concepts for creating aural and visual interactive applications.

CTMU 7570 MUSIC INSTRUCTION MULTIMEDIA RESEARCH AND DEVELOPMENT (3) LEC. 3 Pr., CTMU 7550 or CTMU 7556 Current research

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music instructional technology, design of interactive applications. Pr., departmental approval.

CTMU 7900/7906 DIRECTED STUDIES (1-6) IND. SU. Independent study directed toward desired objectives related to student’s respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTMU 7910/7916 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTMU 7920/7926 INTERNSHIP (1-10) INT. SU. Pr., CTSE 4200 or CTSE 4203 Supervised on-the-job experiences in a school, college or other appropriate setting, accompanied by regularly scheduled, on-campus discussion periods. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

CTMU 7970/7976 SPECIAL TOPICS (1-9) LEC. Provides an opportunity for graduate students and professors to pursue cooperatively selected topics. Pr., departmental approval. Course may be repeated for a maximum of 9 credit hours.

CTMU 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

CTMU 8950 ALTERNATIVE RESIDENCE SEMINAR (2) SEM. 2 SU. Students must complete this two semester sequence during the fall and spring semesters. Credit does not count toward minimum requirements for the doctoral program. Pr., Enrollment in Alternative Residence Program.

CTMU 8980/8986 FIELD PROJECT (1-3) FLD. SU. Course may be repeated for a maximum of 3 credit hours.

CTMU 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topic.

READING EDUCATION (CTRD)
Dr. Bruce Murray - 844-6934

CTRD 1000 CRITICAL READING (2) LEC. 2. Strategies for reading expository text, with emphasis on vocabulary learning and text structures, toward goal of critical evaluation of evidence for authors’ main-idea claims.

CTRD 3700 FUNDAMENTALS OF LANGUAGE AND LITERACY INSTRUCTION I (3) LEC. 2, LAB. 2 Pr., Admission to Teacher Education. Theoretical foundations of language and literacy development of children and implications for teaching. Clinical experiences with children.

CTRD 3710 FUNDAMENTALS OF LANGUAGE AND LITERACY INSTRUCTION II (3) LEC. 2, LAB. 2 Pr., CTRD 3700 Admission to Teacher Education. Research-based theory and teaching strategies to meet the language and literacy needs of all children, especially those at risk of reading difficulties. Includes laboratory teaching experience.

CTRD 4900 DIRECTED STUDIES (1-6) IND. SU. Independent reading, research, or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CAMEO 5030 THE READING OF ADOLESCENTS (3) LEC. 3 Reading patterns of adolescents and uses of young adult literature in reading and English language arts programs, grades 6-12.

CAMEO 5700 DEVELOPMENTAL READING K-12 (3) LEC. 3 Pr., Admission to Teacher Education. Theoretical and research foundations for a balanced approach to reading assessment and instruction, K-12.

CAMEO 5710 LITERACY AND INQUIRY IN THE CONTENT AREAS: GRADES 6-12 (3) LEC. 3 Pr., Admission to Teacher Education. Strategies to enhance literacy and inquiry for student’s content-area learning in the middle and secondary school.

CAMEO 6030 THE READING OF ADOLESCENTS (3) LEC. 3 Reading patterns of adolescents and uses of young adult literature in reading and English language arts programs, grades 6-12.

CAMEO 6700/6706 DEVELOPMENTAL READING K-12 (3) LEC. 3 Theoretical and research foundations for a balanced approach to reading assessment and instruction, K-12. Pr., Admission to Alternative Master’s Certification Program.

CAMEO 6710/6716 LITERACY AND INQUIRY IN THE CONTENT AREAS: GRADES 6-12 (3) LEC. 3 Strategies to enhance literacy and inquiry for student’s content-area learning in the middle and secondary school.

CAMEO 7400 ASSESSMENT AND INSTRUCTION FOR READING INTERVENTION (3) LEC. 3 Research-based analysis of causal factors in reading difficulties, assessment strategies, and effective teaching with delayed readers. Includes practicum.

CAMEO 7510 RESEARCH STUDIES IN READING EDUCATION (3) RES. 3 Review, analysis, and interpretation of available research with emphasis on designing new research to meet the changing needs of the school.

CAMEO 7520 CURRICULUM AND TEACHING IN READING EDUCATION (3) LEC. 3 Teaching practices and reappraisal of selecting experiences and content for curriculum improvement.

CAMEO 7530 ORGANIZATION OF PROGRAM IN READING EDUCATION (3) LEC. 3 Program, organization and development of basic and supplementary materials for guiding teachers, faculties and school systems in the continuous improvement of curriculum and teaching practices.

CAMEO 7540 EVALUATION OF PROGRAM IN READING EDUCATION (3) LEC. 3 Evaluation and investigation of teaching effectiveness with attention also given to the utilization of human and material resources and the coordination of areas of specialization.

CAMEO 7900 DIRECTED STUDIES (1-6) IND. SU. Independent study directed toward desired objectives related to respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CAMEO 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CAMEO 7920 INTERNSHIP (1-9) INT. SU. Supervised on-the-job experiences in a school, college or other appropriate setting, accompanied by regularly scheduled, on-campus discussion periods. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

CAMEO 7970/7976 SPECIAL TOPICS (1-6) LEC. Provides an opportunity for graduate students and professors to pursue cooperatively selected topics. Pr., departmental approval.

CAMEO 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

SECONDARY EDUCATION (CTSE)
Dr. Nancy Barry - 844-4434

CTSE 1020 DEVELOPMENTAL STUDIES: MATHEMATICS (2) LEC. 1, LAB. 2 Develops mathematics skills conducive to successful college study. Credit counted toward enrollment, but not graduation. Pr., departmental approval.

CTSE 1030 DEVELOPMENTAL STUDIES: ENGLISH LANGUAGE ARTS (2) LEC. 1, LAB. 2 SU. Develops reading/study and composition skills conducive to successful college study. Credit not counted toward graduation. Course may be repeated for a maximum of 4 credit hours. Pr., departmental approval.

CTSE 4000 TECHNOLOGY IN SCIENCE EDUCATION (2) LEC. 2 Introduction and application of current and emerging instructional and communication technologies for integration in the secondary science program.

CTSE 4030 CURRICULUM AND TEACHING I: MATHEMATICS (4) LEC. 2, LAB. 4 Pr., Admission to Teacher Education. Strategies for teaching and evaluating high school mathematics.

CTSE 4050 CURRICULUM AND TEACHING I: SOCIAL SCIENCE (4) LEC. 2, LAB. 4 Pr., CTSE 4050/CTSE 4051 Admission to Teacher Education. Application of current educational research and instructional strategies to the design of meaningful social studies instruction and assessment.

CTSE 4060 CURRICULUM AND TEACHING II: SOCIAL SCIENCE (4) LEC. 2, LAB. 4 Pr., CTSE 4060 and CTSE 4210 Admission to Teacher Education. Curriculum decision making and planning for instruction, evaluation, and classroom management.

CTSE 4070/4073 CURRICULUM AND TEACHING I: FOREIGN LANGUAGE (4) LEC. 2, LAB. 4 Pr., Admission to Teacher Education. Strategies for teaching foreign language students with a special emphasis on developing good instruction for comprehensible input and emerging speech tasks.

CTSE 4080/4083 CURRICULUM AND TEACHING II: FOREIGN LANGUAGE (4) LEC. 2, LAB. 4 Pr., CTSE 4070 or CTSE 4073 Admission to Teacher Education. Teaching strategies based on language acquisition theories that are appropriate for teaching foreign language students.

CTSE 4090 CURRICULUM AND TEACHING I: SCIENCE (4) LEC. 2, LAB. 4 Pr., Admission to Teacher Education. Planning, teaching strategies, evaluation techniques and classroom management procedures needed to be a successful science teacher.

CTSE 4100 CURRICULUM AND TEACHING II: SCIENCE (4) LEC. 2, LAB. 4 Pr., CTSE 4090 Admission to Teacher Education. Higher-order reasoning and process skills using state and national standards as guides. Theoretical and applied approaches.

CTSE 4150 CURRICULUM AND TEACHING I: ENGLISH LANGUAGE ARTS (4) LEC. 2, LAB. 4 Pr., CTSE 5010 and CTSE 5020/CTSE 5010 Admission to Teacher Education. Teaching the expressive English language arts, writing and speaking, in middle and high school classrooms.
CTSE 4160 CURRICULUM AND TEACHING II: ENGLISH LANGUAGE ARTS (4) LEC. 2, LAB. 4 Pr., CTRD 5030 and CTRD 5710 Admission to Teacher Education. Teaching the receptive English language arts; reading, listening, and viewing; in middle and high school classrooms.

CTSE 4200/4203 MANAGING MIDDLE AND HIGH SCHOOL CLASSROOMS (2) LEC. 2 Pr., CTSE 7920 or CTSE 7926 or CTMU 7920 or CTMU 7926 or CTMU 4920 or CTSE 4920 Admission to Teacher Education. The role of the teacher in classroom management. Methods for developing a positive learning environment.

CTSE 4210 SOCIAL SCIENCE CONCEPTS AND METHODS (3) LEC. 3 Pr., Admission to Teacher Education. For pre-service teachers. Organizing social science disciplinary knowledge into an integrated framework that is meaningful, useful, and relevant to high school students. Pr., 15 hours in social sciences (2000 level or above).

CTSE 4900 DIRECTED STUDIES (1-6) IND. SU. Independent reading, research, or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTSE 4910 PRACTICUM (1-6) PRA. SU., Admission to Teacher Education. Cooperatively selected field experience. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTSE 4920 INTERNSHIP (10) AAB/INT. 10 SU. Pr., CTSE 4200 or CTSE 4003 Admission to Teacher Education. Supervised teaching in a public secondary school, accompanied by scheduled discussions to analyze and evaluate the intern's experience. Pr., Admission to internship.

CTSE 4967 HONORS SPECIAL PROBLEMS (1-3) IND. SU. Individual readings program. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

CTSE 4970 SPECIAL TOPICS (1-4) LEC. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 4 credit hours. Pr., departmental approval.

CTSE 4997 HONORS THESIS (1-3) IND. SU. The student thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.

CTSE 5010 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3 Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. Pr., departmental approval.

CTSE 5020 RHETORIC AND COMPOSITION FOR TEACHERS (3) LEC. 3 Theories of rhetoric and composition applicable to middle and high school classrooms; implications for planning writing curricula, instruction, and assessment/evaluation.

CTSE 5040 TECHNOLOGY AND APPLICATIONS IN SECONDARY MATHEMATICS EDUCATION (4) LEC. 2, LAB. 4 Pr., MATH 2660 Admission to Teacher Education. Use of technological tools to enhance mathematics teaching and learning. Credit will not be given for both CTSE 5040 and CTSE 6040.00

CTSE 5710 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3 Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. Pr., departmental approval.

CTSE 6010 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3 Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. Pr., departmental approval.

CTSE 6020 RHETORIC AND COMPOSITION FOR TEACHERS (3) LEC. 3 Theories of rhetoric and composition applicable to middle and high school classrooms; implications for planning writing curricula, instruction, and assessment/evaluation.

CTSE 6040 TECHNOLOGY AND APPLICATIONS IN SECONDARY MATHEMATICS EDUCATION (4) LEC. 2, LAB. 4 Use of technological tools to enhance mathematics teaching and learning. Credit will not be given for both CTSE 5040 and CTSE 6040.

CTSE 6710 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3 Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics.

CTSE 7000 INQUIRY METHODS OF SCIENCE TEACHING (4) LEC. 4 Study and practice of various inquiry based methods for teaching science as new teachers, including demonstration, laboratory, and inquiry projects. Pr., departmental approval.

CTSE 7490 THE SECONDARY SCHOOL PROGRAM (3) LEC. 3 Implications of research and theory for the total secondary school program. Pr., departmental approval.

CTSE 7510 RESEARCH STUDIES IN AREA OF SPECIALIZATION (3) LEC. 3 Research methodology, landmark studies, critique and application of research in the area of specialization.

CTSE 7520/7526 CURRICULUM AND TEACHING IN AREA OF SPECIALIZATION (3) LEC. 3 An in-depth study of the theory and instructional practices that the foreign language profession would like to see as organizing principles for the study of culture through language. Use of the tools of ethnography to study cultural perspectives in the native and target cultures. Credit will not be given for both CTSE 7520 and CTSE 7526.

CTSE 7530/7536 ORGANIZATION OF PROGRAM IN AREA OF SPECIALIZATION (3) LEC. 3 Program models, components, and standards in the area of specialization. Credit will not be given for both CTSE 7530 and CTSE 7536.

CTSE 7540/7546 EVALUATION OF PROGRAM IN AREA OF SPECIALIZATION (3) LEC. 3 Theoretical perspectives of evaluation and methods of evaluating learners, teachers, and curricula. Credit will not be given for both CTSE 7540 and CTSE 7546.

CTSE 7900/7906 DIRECTED STUDIES (1-6) IND. SU. Independent study directed toward desired objectives related to their respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTSE 7910/7916 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

CTSE 7920/7926 INTERNSHIP (1-10) INT. SU. Pr., CTSE 4200 Supervised teaching in a public secondary school, accompanied by scheduled discussions to analyze and evaluate the intern's experience. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

CTSE 7970 SPECIAL TOPICS (1-6) LEC. Provides an opportunity for the graduate student and professor to pursue selected topics in-depth. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

CTSE 7990 RESEARCH AND THESIS (1-10) DSR. Course may be repeated with change in topic.

CTSE 8950 ALTERNATIVE RESIDENCE SEMINAR (2) SEM. SU. Required of students in alternative residence plan. These students must complete this two semester sequence during the fall and spring semesters. Credit does not count toward minimum requirements for the doctoral program. Pr., Enrolled in Alternative Residence Program.

CTSE 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topic.

Economics (ECON)

Dr. Michael Stern - 844-4910

ECON 2020 PRINCIPLES OF MICROECONOMICS (3) LEC. 3 Social Science II Core. Economic principles emphasizing scarcity/choice, consumer behavior, supply/demand, markets, production/cost, globalization of markets, role of government/market government failure. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 2027 HONORS PRINCIPLES OF MICROECONOMICS (3) LEC. 3 Social Science II Core. Economic principles emphasizing scarcity/choice, consumer behavior, supply/demand, markets, production/cost, globalization of markets, role of government/market government failure. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 2030 PRINCIPLES OF MACROECONOMICS (3) LEC. 3 Pr., (ECON 2020 or ECON 2027) Economic principles emphasizing economic aggregates, including: measuring economic performance, macroeconomic theory, inflation and unemployment, money and banking and fiscal and monetary policy. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 2037 HONORS PRINCIPLES OF MACROECONOMICS (3) LEC. 3 Pr., ECON 2027 Economic principles emphasizing economic aggregates, including: measuring economic performance, macroeconomic theory, inflation and unemployment, money and banking and fiscal and monetary policy. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 3020 INTERMEDIATE MICROECONOMICS (3) LEC. 3 Pr., ECON 2020 or ECON 2027) Theory of pricing under varying market conditions and distribution of income among the factors of production. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 3030 INTERMEDIATE MACROECONOMICS (3) LEC. 3 Pr., (ECON 2030 or ECON 2037) A study of national economic aggregates and the market determination of output, employment, and inflation. An introduction to economic monetary and fiscal policy on the economy. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 3100 LAW AND ECONOMICS (3) LEC. 3 Pr., (ECON 2020 or ECON 2027) Discussion of the many substantive areas in which law has an economics foundation and an analysis of how law affects economic relations. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.
ECON 3200 MONEY AND BANKING (3)LEC. 3 Pr., (ECON 2030 or ECON 2037) Theoretical and institutional analysis of monetary systems, foreign exchange and commercial banking. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 3300 ECONOMICS OF SPORTS (3)LEC. 3 Pr., 2.2 GPA, (ECON 2020 or ECON 2027) Economic analysis of professional and collegiate sports, including the structure of competition and performance in individual and team sports. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 3400 FORENSIC ECONOMICS (3)LEC. 3 Pr., (ECON 2030 or ECON 2037) Application of economic analysis to matters of litigation, especially the calculation of economic damages, or economic loss. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 3500 COMPARATIVE ECONOMIC SYSTEMS (3)LEC. 3 Pr., (ECON 2030 or ECON 2037) Analysis of alternative government approaches to solving basic economic problems. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 3600 MATHEMATICAL METHODS FOR ECONOMISTS (3)LEC. 3 Pr., (ECON 2030 or ECON 2037) and STAT 2610 The fundamental mathematical and quantitative methods employed by economists. The application of calculus, probability, statistics, and linear algebra to economics. An introduction to multivariate regression analysis and the testing of economic hypotheses.

ECON 3700 HISTORY OF ECONOMIC THOUGHT (3)LEC. 3 Pr., (ECON 2030 or ECON 2037) The development of economic ideas, principles and systems of analysis from early times to the present. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 3800 PUBLIC CHOICE (3)LEC. 3 Pr., (ECON 2030 or ECON 2037) Economic analysis of public sector decision making. Emphasis on actions taken by voters, bureaucrats, and lobbyists elected to influence public sector outcomes. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 4000 ECONOMICS OF WORK AND PAY (3)LEC. 3 Pr., 2.2 GPA, (ECON 2030 or ECON 2027) Theoretical and institutional examination of the labor market, including wage theories, unionism, occupational choice and public policy. Pr., departmental approval.

ECON 4100 INDUSTRIAL ORGANIZATION (3)LEC. 3 Pr., ECON 2020 Relationship of market structure to the pricing behavior and economic performance of firms. Topics include regulation, research and development and technical change. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 4200 GOVERNMENT, BUSINESS AND SOCIETY (3)LEC. 3 Pr., (ECON 2030 or ECON 2037) and ECON 3020 Economic role of government in a free enterprise economy. Application of microeconomic theory to policy issues, particularly antitrust and regulation. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 4300 INTERNATIONAL ECONOMICS (3)LEC. 3 Pr., (ECON 2030 or ECON 2037) Economics of free trade, including identification and measurement of gains and losses. Analysis of trade restrictions such as quotas, tariffs and VERs, Examination of labor and capital movements between nations. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 4500 ECONOMIC HISTORY OF EUROPE (3)LEC. 3 Pr., (ECON 2030 or ECON 2037) Survey of the economic development of Europe and the resulting impact on the U.S. and the world economy. Pr., departmental approval. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 4600 ECONOMETRICS I (3)LEC. 3 Pr., ECON 3600 and STAT 2610 This course provides students with a basic statistical toolbox that can be used to analyze economic data and evaluate economic models. We cover topics relating to simple and multivariate linear regressions, maximum likelihood estimation, serial correlation and heteroscedasticity, simultaneous equations, qualitative response models, and a basic time series.

ECON 4700 BUSINESS HISTORY OF THE UNITED STATES (3)LEC. 3 Pr., ECON 2030 and ECON 2037 The study of business as the driving force in American economic history. Pr., departmental approval, 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 4920 INTERNSHIP (1-3)AAB/INT. SU. Pr., (ECON 2030 or ECON 2037) Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval, 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Course may be repeated for a maximum of 3 credit hours.

ECON 4967 HONORS SPECIAL PROBLEMS (1-3)IND. Pr., ECON 3020 Directed readings on a topic of special interest. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval, 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Course may be repeated for a maximum of 3 credit hours.

ECON 4970 SPECIAL TOPICS (1-3)AAB/IND. SU. Investigation and research into economic problems of special interest to the student and instructor. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval, 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Course may be repeated for a maximum of 6 credit hours.

ECON 4997 HONORS THESIS (1-3)IND. Pr., ECON 3020 Directed honors thesis research. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval; 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Course may be repeated for a maximum of 3 credit hours.

ECON 5020 ADVANCED MICROECONOMICS (3)LEC. 3 Pr., ECON 3020 and MATH 1610+ Mathematical analysis of market-based pricing and production. Includes the economics of information and uncertainty, and strategic behavior. Pr., departmental approval; 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 5030 MACROECONOMIC THEORY AND POLICY (3)LEC. 3 Pr., (ECON 3020 or ECON 3037) and ECON 3030 Analysis of the national economy and impact of government policies on aggregate economic variables. Pr., departmental approval; 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 5100 Economics of Growth and Development (3)LEC. 3 Pr., (ECON 2030 or ECON 2037) Cause/effects of economic growth and development. Measuring growth, role of government policy, growth and trade, investment, etc. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 5200 URBAN AND REGIONAL ECONOMIC DEVELOPMENT (3)LEC. 3 Pr., (ECON 2030 or ECON 2037) and ECON 3020 Nature/causes of state/local economic development, including plant location, residential location, interregional trade and factor flows. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 5400 Economic History of the United States (3)LEC. 3 Pr., (ECON 2030 or ECON 2037) Survey of the economic advancement of the United States from European origins to the present. Pr., departmental approval; 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 5500 Health Economics (3)LEC. 3 Pr., ECON 3020 Analysis of the economics of health care, including demand for and supply of health care, and health care policy. Pr., departmental approval; 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 5600 Government Spending and Taxation (3)LEC. 3 Pr., ECON 3020 The economic rationale for government expenditures, economic consequences of public spending, and methods of taxation and funding of government programs. Pr., departmental approval; 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 5700 Health Economics (3)LEC. 3 Pr., ECON 3020 Analysis of the economics of health care, including demand for and supply of health care, and health care policy. Pr., departmental approval; 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 6020 Advanced Microeconomics (3)LEC. 3 Pr., ECON 3020 and MATH 1610+ Mathematical analysis of market-based pricing and production. Includes the economics of information and uncertainty, and strategic behavior. Pr., 2.2 cumulative GPA.

ECON 6030 Macroeconomic Theory and Policy (3)LEC. 3 Pr., (ECON 2030 or ECON 2037) Analysis of the national economy and impact of government policies on aggregate economic variables. Pr., departmental approval.

ECON 6100 Economics of Growth and Development (3)LEC. 3 Pr., (ECON 2030 or ECON 2037) Cause/effects of economic growth and development. Measuring growth, role of government policy, growth and trade, investment, etc. Pr., 2.2 cumulative GPA.

ECON 6200 Urban and Regional Economic Development (3)LEC. 3 Pr., (ECON 2030 or ECON 2037) and ECON 3020 Nature/causes of state/local economic development, including plant location, residential location, interregional trade and factor flows, public policy. Pr., 2.2 cumulative GPA.

ECON 6400 Economic History of the United States (3)LEC. 3 Pr., (ECON 2030 or ECON 2037) Survey of the economic advancement of the United States from European origins to the present. Pr., departmental approval.

ECON 6600 Business and Economic Forecasting (3)LEC. 3 Pr., (ECON 2030 or ECON 2037) and (STAT 2610 or STAT 2010) Interpretation of macroeconomic forecasting methods and development of competency in forecasting at the firm level. Pr., departmental approval; 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

ECON 6700/6706 Health Economics (3)LEC. 3 Pr., ECON 3020 Analysis of the economics of health care, including demand for and supply of health care, and health care policy. Pr., departmental approval.

ECON 6800 Government Spending and Taxation (3)LEC. 3 Pr., ECON 3020 The economic rationale for government expenditures, economic consequences of public spending, and methods of taxation and funding of government programs. Pr., departmental approval.

ECON 7000 Managerial Economics (3)LEC. 3 Microeconomic theories of the firm and of markets, with emphasis on their applications to current business issues. Pr., Consent of MBA program director.
ECON 7110 MICROECONOMICS I (3) LEC. 3 Pr., ECON 3020 Consumer behavior and market models of competition and monopoly. Traditional and contemporary theories of consumer/ household behavior under constraint; models of competitive behavior. Pr., departmental approval.

ECON 7120 MICROECONOMICS II (3) LEC. 3 Pr., ECON 7110 Analysis of producer behavior, including production theory, cost theory, profit maximization, theories of various market structures and derived demand for inputs. Pr., departmental approval.

ECON 7130 MATHEMATICAL ECONOMICS (3) LEC. 3 Pr., ECON 3020 and ECON 6300 Fundamental mathematical methods in economics and econometrics: linear and matrix algebra, calculus, comparative statistics, optimization, concavity, constrained optimization dynamics difference equations, and differential equations. Pr., departmental approval.

ECON 7210 MACROECONOMICS I (3) LEC. 3 Pr., ECON 6030 Evaluation of fundamental theoretical and policy-oriented issues in macroeconomics, emphasizing post-Keynesian developments. Pr., departmental approval.

ECON 7220 MACROECONOMICS II (3) LEC. 3 Pr., ECON 6030 Foundations of macroeconomics, neoclassical production and growth theory, overlapping generational models, optimal saving, open-economy macroeconomics, applied time-series macrodynamics. Pr., departmental approval.

ECON 7310 ECONOMETRICS I (3) LEC. 3 Advanced treatment of the standard linear model of least square theory, including assumptions and properties of the SLM, and the statistical testing of behavioral hypotheses. Pr., departmental approval.

ECON 7320 ECONOMETRICS II (3) LEC. 3 Pr., ECON 7310 Econometric techniques employed in advanced empirical research. Topics include estimation and inference in simultaneous equation systems, limited dependent variables, non-nested testing, and time-series analysis.

ECON 7410 HISTORY OF ECONOMIC THOUGHT I (3) LEC. 3 Pr., ECON 3700 Analysis and study of classical contributions to economics, from early times to Karl Marx. Pr., departmental approval.

ECON 7420 HISTORY OF ECONOMIC THOUGHT II (3) LEC. 3 Pr., ECON 3700 Neoclassical economics including Mill, Jevons, early Austrians, early French contributors, Veblenian institutional economics, and Alfred Marshall. Pr., departmental approval.

ECON 7900 RESEARCH AND THESIS (1-6) MST. Course may be repeated with change in topic. Pr., departmental approval. Course may be repeated with change in topics.

ECON 8110 ADVANCED MICROECONOMICS I (3) LEC. 3 Pr., ECON 7120 Advanced analysis, integrating the economics of time and uncertainty into mainline price theory. Pr., departmental approval.

ECON 8120 ADVANCED MICROECONOMICS II (3) LEC. 3 Pr., ECON 7120 Advanced analysis, integrating imperfect information and strategic behavior into economic models of trade and investment. Pr., departmental approval.

ECON 8210 TOPICS IN MACROECONOMICS (3) LEC. 3 Pr., ECON 7220 Goals, procedures and achievements in attaining monetary objectives domestically and abroad. Emphasis on macro-money models and effects of monetary policy on economic activity. Pr., departmental approval.

ECON 8310 MICROECONOMETRICS (3) LEC. 3 Pr., ECON 7320 Analysis of limited dependent variable models, including Logit, Probit and Tobit models, censored and truncated regression models, frontier models and mixture models. Pr., departmental approval.

ECON 8320 TOPICS IN MACROECONOMETRICS (3) LEC. 3 Pr., ECON 7300 The analysis of economic time series and the identification and estimation of parameters in multi-equation economic models.

ECON 8420 ECONOMIC INSTITUTIONS AND CONTEMPORARY ECONOMIC THEORY (3) LEC. 3 How contemporary economic theory helps explain the emergence, hey-day and decline of economic institutions, including “Social” and regulatory institutions. Pr., departmental approval.

ECON 8510 ECONOMICS OF TAXATION (3) LEC. 3 Pr., ECON 7120 Examines tax structure in the U.S. evaluates tax reform proposals and the effects of taxation on resource allocation and economic welfare. Pr., departmental approval.

ECON 8520 PUBLIC CHOICE (3) LEC. 3 Advanced analysis of governmental expenditures and other not-for-profit sectors of the economy. Pr., departmental approval.

ECON 8530 ECONOMIC ANALYSIS OF THE LAW (3) LEC. 3 Pr., ECON 3020 Advanced analysis of the substantive areas in which law has an economic foundation and ways law affects economic relations. Pr., departmental approval.

ECON 8540 SEMINAR IN ENVIRONMENTAL ECONOMICS (3) LEC. 3 Pr., ECON 3020 Advanced analysis of pricing and allocation of renewable and non-renewable resources. Pr., departmental approval.

ECON 8550 EXTERNALITIES AND PUBLIC GOODS (3) LEC. 3 Pr., ECON 7120 Advanced analysis of pricing and allocation of economic goods when property rights are not well defined. Pr., departmental approval.

ECON 8610 INDUSTRIAL ORGANIZATION I (3) LEC. 3 Pr., ECON 7120 Determinants of market structure, effects of market structure on industry performance, theory of the firm, research and development, advertising and vertical integration. Pr., departmental approval.

ECON 8620 INDUSTRIAL ORGANIZATION II (3) LEC. 3 Pr., ECON 7120 Primary focus is on case studies in the history and current practice of regulation in the United States at all levels. Pr., departmental approval.

ECON 8710 INTERNATIONAL TRADE (3) LEC. 3 Trade theory: classical, neo-classical, factor proportions, and industrial organization. Applied trade theory and empirical applications. Pr., departmental approval.

ECON 8720 INTERNATIONAL MACROECONOMICS (3) LEC. 3 Theoretical and applied time series analysis at open economy macroeconomic models, international monetary and financial theory, balance of payments theory, and exchange rates. Pr., departmental approval.

ECON 8810 LABOR MARKET ANALYSIS (3) LEC. 3 Pr., ECON 7110 Analysis of labor markets, and determination of wages and other terms of employment. Emphasis on academic studies of labor market issues. Departmental approval.

ECON 8820 TOPICS IN LABOR ECONOMICS (3) LEC. 3 Pr., ECON 7110 Selected topics, including education and on-the-job training. Labor mobility/emigration, employment discrimination, and the impact of labor unions. Pr., departmental approval.

ECON 8970 SPECIAL PROBLEMS (1-3) LEC. SU. Variable content in the economics area. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

ECON 8980 ECONOMICS WORKSHOP (1) LEC. 1 Individual research project, presentations, and discussion of the economics profession. Pr., departmental approval.

ECON 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topic. Pr., departmental approval.

Education (EDUC)

Dr. Peggy Dagley 844-4448

EDUC 1010 ORIENTATION TO TEACHER EDUCATION (1) LEC. 1 SU. Orientation to the teaching profession.

Educational Foundations, Leadership and Technology (EFLT)

Dr. Joe Llanes - 844-4460

ADULT EDUCATION (ADED)

Dr. Maria Witte - 844-3078

ADED 7010/7016 LEARNING RESOURCES (3) LEC. 3 Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching.

ADED 7050 METHODS OF TEACHING IN ADULT EDUCATION (3) LEC. 2, LAB. 2 Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within adult education.

ADED 7060 CURRICULUM AND PROGRAM PLANNING IN ADULT EDUCATION (3) LEC. 3 Introduction to principles and practices involved in designing education programs in the area of specialization.

ADED 7600/7606 NATURE OF ADULT EDUCATION (3) LEC. 3 History and principles of adult education applied to the development and implementation of programs in remedial, occupational, continuing and life-long learning.

ADED 7620 COMMUNITY CONCEPTS, PROGRAMS, AND RESOURCES IN ADULT EDUCATION (3) LEC. 3 Processes by which adult education is merged with community organizations to maximize the effective use of physical and human resources. Pr., departmental approval.

ADED 7640 WORKFORCE EDUCATION (3) LEC. 3 Identification and evaluation of basic skills problems in the workplace. Strategies for addressing workplace education issues.

ADED 7650/7656 TEACHING THE DISADVANTAGED ADULT (3) LEC. 3 Problems of the disadvantaged adult with emphasis on the unique sociological, psychological, and physiological factors that influence learning and participation in remedial learning activities.

ADED 7900 DIRECTED STUDIES (1-3) IND. SU. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 3 credit hours. Pr., or departmental approval. Course may be repeated for a maximum of 3 credit hours.

ADED 7910 PRACTICUM (1-3) PRA. SU. Experiences closely relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 3 credit hours.

ADED 7920 INTERNSHIP (1-10) INT. SU. Pr., ADED 7050 Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 10 credit hours. Course may be repeated for a maximum of 10 credit hours.
EDLD 7500 INTRODUCTION TO CURRICULUM AND INSTRUCTIONAL LEADERSHIP (LEC) 3. Curriculum design and development; areas of study include student needs, organizational mission and goals, data driven improvement, change process, diverse faculty, curriculum alignment tools.

EDLD 7550 EDUCATIONAL FINANCE AND RESOURCE MANAGEMENT (LEC) 3. Preparation of pre-active leaders in school business affairs; use of action research and components of comprehensive, ongoing, planning and budgeting program; facilities management.

EDLD 7560 EDUCATIONAL SYSTEMS AND COMMUNITIES (LEC) 3. Change theory, forecasting, trend analysis and application of these concepts to student achievement and school improvement efforts.

EDLD 7570 LEGAL AND ETHICAL ISSUES (LEC) 3. Ethical and legal provisions for education communities: emphasis on the support of and belief in the cultural value of a diverse and educated democratic society.

EDLD 7580 SUPERVISION AND PERSONNEL ISSUES IN EDUCATION (LEC) 3. Policies and practices related to teacher recruitment, selection, evaluation, and professional development; faculty/staff developmental processes that impact student achievement and school improvement efforts.

EDLD 8200 ASSESSMENT AND EVALUATION IN LEARNING ORGANIZATIONS (LEC) 3. Study of assessment and evaluation practices that enable learning organizations to use data for decision-making purposes.

EDLD 8220 PERSONAL AND PROFESSIONAL DEVELOPMENT (LEC) 3. Includes theoretical frameworks and applications for successful and systematic mentoring of professionals in organizations.

EDLD 8230 SYSTEMIC PLANNING AND BUDGETING (LEC) 3. Covers the components and implementation of a comprehensive ongoing planning and budgeting program for learning organizations.

EDLD 8240 TRENDS AND ISSUES IN EDUCATIONAL ADMINISTRATION (LEC) 3. Trends and issues affecting educational institutions with particular attention to development of administrative procedures to cope with educational changes.

EDLD 8250 ORGANIZATIONAL POWER, POLITICS AND POLICY FORMATION (LEC) 3. Analysis of social forces, antecedent movements, and political actions affecting organizations. The study of policy development and practice.

EDLD 8270 LEADERSHIP IN FINANCE AND MANAGEMENT (LEC) 3. Educational finance including revenues, expenditures, cost, budgeting and accounting, and the local, state and federal role in supporting education.

EDLD 8300 CURRICULUM THEORY AND PRACTICE (LEC) 3. Pr., EDLD 7340 Advanced course dealing with application of curriculum theories with an emphasis on the impact of philosophical and theoretical beliefs on practice. Pr., departmental approval; or other General Curriculum course.

EDLD 8310 LEADERSHIP IN THE DEVELOPMENT AND APPLICATION OF CURRICULUM AND THEORY DESIGN (LEC) 3. Pr. EDLD 7340 and EDLD 8300 Application of transformative leadership in the design, delivery, and evaluation of curriculum in a wide variety of organizational settings. Pr., departmental approval.

EDLD 8320 CURRICULUM LEADERSHIP FOR ORGANIZATIONS (LEC) 3. Pr., EDLD 7340 and EDLD 8300 and EDLD 8310 For those considering a career in upper level management, focuses on context, societal, and political influences related to curriculum processes and organizational change. Pr., departmental approval.

EDLD 8340 TRANSFORMATIONAL PROCESSES AND ORGANIZATIONAL CHANGE (LEC) 3. Organizational and transformational change at personal, interpersonal, and institutional levels.
EDLD 8400 ETHICS FOR LEADERS (3) LEC. 3 Theory and practice of ethics and the role of ethical and personal integrity for leaders in the context of educational organizations and the communities they serve.

EDLD 8480 INSTITUTIONAL RESEARCH AND DECISION SUPPORT (3) LEC. 3 Components of institutional research and assessment programs that can support the comprehensive planning, decision support, and management needs of the institution.

EDLD 8500 THE PROFESSORATE (3) LEC. 3 Study of differences and similarities in faculty roles, work, and career paths using various disciplinary and institutional lenses.

EDLD 8510 SEMINAR IN COLLEGE TEACHING (3) LEC. 3 Overview of major issues in Higher Education and methods of instruction in college teaching. Involves use of experiential learning, group and collaborative activities such as microteaching, case studies, e-mail dialogue and reflective writing.

EDLD 8940 DIRECTED FIELD EXPERIENCE IN EDUCATIONAL LEADERSHIP (1-6) FLD. Field-based experience in diverse settings to develop knowledge, skills, and abilities in an area of special interest. Course may be repeated for a maximum of 6 credit hours.

EDLD 8950 SEMINAR (3) SEM. 3 Professional and social integration into doctoral program; enhancement of professional knowledge through structured inquiry, professional dialogue, and reflective thinking. Course may be repeated for a maximum of 6 credit hours.

EDLD 8990 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 hours. Course may be repeated with change in topics.

EDUCATIONAL MEDIA (EDMD)
Ms. Sherida Downer - 844-1718

EDMD 3300 UTILIZATION OF INSTRUCTIONAL TECHNOLOGY FOR EDUCATORS (2) LEC. 1, LAB. 2 Basics of current and emerging instructional & communication technologies with primary emphasis on curricular integration. Location, selection, and application of technology resources (WWW, commercially authored software, etc.) for curricular needs with emphasis on developmental stages, learning styles and learning technologies. Pr., Limited to majors requiring teaching certification.

EDMD 5000 INSTRUCTIONAL TECHNOLOGY FOR TEACHING AND LEARNING (3) LEC. 3 Introduction to the systematic application of instructional technologies in teaching and learning environments.

EDMD 5100 MEDIA FOR CHILDREN (3) LEC. 3 Examination and evaluation of current literature in print and other formats, including oral literature. Focuses on literary and instructional criteria for selecting and utilizing media.

EDMD 6000 INSTRUCTIONAL TECHNOLOGY FOR TEACHING AND LEARNING (3) LEC. 3 Introduction to the systematic application of instructional technologies in teaching and learning environments.

EDMD 6100 MEDIA FOR CHILDREN (3) LEC. 3 Examination and evaluation of current literature in print and other formats, including oral literature. Focuses on literary and instructional criteria for selecting and utilizing media.

EDMD 7000 INSTRUCTIONAL DESIGN AND DEVELOPMENT (3) LEC. 3 Theory, problems, procedures, and standards in the utilization of technology in instructional design and development.

EDMD 7010 INSTRUCTIONAL AND INFORMATION TECHNOLOGIES (3) LEC. 3 Evaluation, selection, and use of traditional and current technologies for instruction, information, and administration in learning environments.

EDMD 7020 PRINCIPLES OF GRAPHIC DESIGN FOR INSTRUCTION (3) LEC. 3 Principles of graphic design and visual literacy to facilitate the presentation of information. Criteria for graphics utilization examined.

EDMD 7100/7106 SELECTION AND USE OF MEDIA FOR YOUTH (3) LEC. 3 Evaluation, selection, and use of print and non-print media for youth, including materials for multi-cultural, special and gifted education.

EDMD 7110 BIBLIOGRAPHIC DESCRIPTION, ORGANIZATION AND CONTROL (3) LEC. 3 Principles and procedures of describing, classifying and organizing resources with applications using new technologies.

EDMD 7120/7125 INFORMATION SOURCES, SERVICES AND INSTRUCTION (3) LEC. 3 An overview of information needs, services, and print and electronic resources; ways to teach information literacy skills.

EDMD 7130 ADMINISTRATION OF MEDIA AND TECHNOLOGY SERVICES (3) LEC. 3 Functions of and planning for media and technology services. Budget, evaluation, facilities, guidelines, legal issues, personnel and policies.

EDMD 7200 COMPUTER-BASED INSTRUCTIONAL DESIGN (3) LEC. 3 Applying computer-based instructional design skills, students will develop instructional products using desktop publishing, hypermedia and optical technologies.

EDMD 7210/7216 INTEGRATION OF TECHNOLOGY INTO CURRICULUM (3) LEC. 3 Learner competence in integration of technology into curriculum, including designing and writing software and plans for using computers in instruction.

EDMD 7220 VIDEO-BASED INSTRUCTIONAL DESIGN (3) LEC. 3 Development and integration of video into learning prescriptions. Emphasis on the assigning of video in a total systems approach to curriculum building.

EDMD 7300 RESEARCH IN INSTRUCTIONAL TECHNOLOGY (3) LEC. 3 Pr.; FOUN 7200 A forum for sharing research perspectives, exploring processes involved in defining research problems and analyzing research theories, problems, and methods in instructional technology.

EDMD 7310 EVALUATION OF MEDIA AND TECHNOLOGY PROGRAMS (3) LEC. 3 Factors contributing to effective media and technology programs. Understanding of research process and experience with media and technology services assumed.

EDMD 7320 ADVANCED INFORMATION SOURCES AND SERVICES (3) LEC. 3 Electronic databases, advanced searching techniques, information representation, and the role of the media specialist in networking and creating electronic information sources. Previous coursework such as EDMD 7120 or equivalent is needed.

EDMD 7900 DIRECTED STUDIES (1-6) IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor of student’s work accomplished at regular intervals. Course may be repeated for a maximum of 6 credit hours.

EDMD 7910 PRACTICUM (1-8) PRA. SU. Experiences closely relating theory and practice, usually conducted in realistic settings. Course may be repeated for a maximum of 6 credit hours.

EDMD 7920 INTERNSHIP (1-6) INT. SU. Supervised experience in a school media center or other appropriate setting. These experiences, accompanied by regularly scheduled meetings with the university supervisor, provide evaluation and analysis of the intern experience. Course may be repeated for a maximum of 6 credit hours.

EDMD 7940 DIRECTED FIELD EXPERIENCE (3-6) FLD. SU. Pr., FOUN 7200 Field-based study in the area of media and technology. Addresses a scholarly concern of the student and is conducted using valid research techniques. Course may be repeated for a maximum of 6 credit hours.

EDMD 7970 SPECIAL TOPICS IN INSTRUCTIONAL TECHNOLOGY (3-9) LEC. Opportunity for study of current topics related to the field of instructional technology. Course may be repeated for a maximum of 9 credit hours.

EDMD 8010 PROGRAM EVALUATION (3) LEC. 3 Study of various theories and models of curriculum evaluation, methodological issues regarding planning and conducting evaluation studies, reporting and using information from evaluation.

ERMA 7000 INSTRUCTIONAL DESIGN AND DEVELOPMENT (3) LEC. 3 Theory, problems, procedures, and standards in the utilization of technology in instructional design and development.

ERMA 7100 ADVANCED STUDY OF EDUCATIONAL MEASUREMENT AND EVALUATION (3) LEC. 3 Educational measurement and evaluation with special emphasis on uses of measurement data such as standardized testing and emerging evaluation models such as alternative and authentic assessment.

ERMA 7110 EDUCATIONAL PSYCHOLOGY AND ASSESSMENT (3) LEC. 3 Study of educational psychology as it applies to understanding the teaching-learning process. Measurement and evaluation skills will also be covered.

ERMA 7200/7206 BASIC METHODS IN EDUCATION RESEARCH (3) LEC. 3 Major modes of inquiry in contemporary educational research including experimental, casual comparative, descriptive, qualitative inquiry, and action research models.

ERMA 7210 THEORY AND METHODOLOGY OF QUALITATIVE RESEARCH (3) LEC. 3 Major modes of qualitative research, their underlying philosophical assumptions about knowledge, and the major strategies for collecting and analyzing relevant data.

ERMA 7220 APPLIED QUALITATIVE RESEARCH (3) LEC. 3 Pr., (ERMA 7210 or FOUN 7210) Study of detailed strategies of data collection, principles of observation, interviewing, focus groups, recording and coding data, triangulation, strategies for analyzing coded data, and writing up of one’s findings.

ERMA 7300/7306 DESIGN AND ANALYSIS IN EDUCATION I (3) LEC. 3 Pr., (FOUN 7200 or ERMA 7300 or FOUN 7206 or ERMA 7306) Basic methods of inferential analysis including t-tests, between and within subjects ANOVA, mixed ANOVA and hierarchical designs as they are utilized in educational research. Pr., or departmental approval.

ERMA 7310/7316 DESIGN AND ANALYSIS IN EDUCATION II (3) LEC. 3 Pr., (FOUN 7300 or ERMA 7300) or (FOUN 7306 or ERMA 7306) Bivariate and multiple correlation and regression analysis, trend analysis, analysis of covariance, logistic regression, and path analysis as they are utilized in educational research. Pr., or departmental approval.

ERMA 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student’s learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours. Course may be repeated for a maximum of 6 credit hours.
ERMA 8120 TEACHER EVALUATION (3) LEC. 3 Analysis of research on teaching, classroom observation methods, teaching portfolios, supervision of teachers, license and certification assessment, ethical and legal consideration, and using information to improve teaching.

ERMA 8200/8206 SURVEY RESEARCH METHODS (3) LEC. 3 Overview of survey research, sampling issues, selection and construction of survey instruments, response effects, issues influencing response rate, reliability and validity of survey data, and analysis of survey data.

ERMA 8320 DESIGN AND ANALYSIS IN EDUCATION II (3) LEC. 3 Pr., (FOUN 7310 or ERMA 7310) or (ERMA 7316 or FOUN 7316) Discriminate analysis, MANOVA, canonical correlation, exploratory and confirmatory factor analysis, and hierarchical linear modeling as they are utilized in educational research. Pr., or departmental approval.

ERMA 8330 NON-PARAMETRIC DATA ANALYSIS IN EDUCATION RESEARCH (3) LEC. 3 Pr., FOUN 7300 or ERMA 7300 or ERMA 7306 Common non-parametric statistical tests appropriate for use with nominal and ordinal data in educational applications. These include rank-order correlation, sign tests, median tests, analysis of variance of ranks and log-linear analysis. Pr., or departmental approval.

ERMA 8340 A PRACTICAL INTRODUCTION TO STRUCTURAL EQUATION MODELING (3) LEC. 3 Pr., (FOUN 8320 or ERMA 8320) Theory and practice of structural equation modeling techniques as they are utilized in educational research will be developed by expanding concepts of multiple linear regression and exploratory factor analysis to allow for correlation and causally related latent constructs. Pr., or departmental approval.

ERMA 8350 ADVANCED MEASUREMENT THEORY (3) LEC. 3 Pr., (FOUN 7300 or ERMA 7300 or ERMA 7306 or FOUN 7306) and (FOUN 7310 or ERMA 7310 or FOUN 7316 or ERMA 7316) Introduction to classical and modern (IRT) test theory, measurement properties, differential item functioning, standard and adaptive testing.

ERMA 8890 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertations. Courses may be repeated for a maximum of 10 hours. Course may be repeated with changes in topic.

EDUCATIONAL PSYCHOLOGY (EPSY)
Dr. Sean Forbes 844-3083

EPSY 7400/7406 ED PSYCH & EDUCATIONAL IMPLICA (3) LEC. 3 Educational psychology theory and research addressing critical problems, challenges, and opportunities in education or other growth-oriented settings. Content ranges from the study of learning to educational evaluation and authentic assessment.

EPSY 7410 THE INDIVIDUAL IN THE TEACHING-LEARNING PROCESS (3) LEC. 3 The study of human growth, development, and motivation theory and research, including culture, socio-economic status, language, gender and race as a base for understanding individual differences and their sources.

EPSY 7420/7426 LEARNING THEORY AND EDUCATIONAL PRACTICE (3) LEC. 3 Pr., (EPSY 7400 or FOUN 7400) or (EPSY 7406 or FOUN 7406) Advanced study of learning theory and research with an emphasis on application to effective design, implementation, and evaluation of instruction. Motivation and management models will also be addressed. Pr., or departmental approval.

EPSY 7430 MOTIVATION AND ACHIEVEMENT (3) LEC. 3 Social, cultural, and psychological antecedents of achievement motivation are examined. This process requires reviewing theories and research, and emphasis is placed on discerning implications for practice and policy.

EPSY 7440 CLASSROOM MANAGEMENT: SKILLS AND REFLECTION (3) LEC. 3 Advanced study and analysis of existing classroom management/discipline models including observation/action research activity.

EPSY 7450 PERSONAL AND PROFESSIONAL DEVELOPMENT AND PERSONALITY DYNAMICS (3) LEC. 3 Survey of different theories and models of personality leading to in-depth study of theories and models most applicable for use in conceiving of and building personal and professional development plans.

EPSY 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student’s learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.

EPSY 7970 SPECIAL TOPICS IN FOUNDATIONS OF EDUCATION (3-6) LEC. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be repeated for a maximum of 6 credit hours.

EPSY 8410 LEARNING IN THE SOCIAL CONTEXT (3) LEC. 3 Pr., (FOUN 7420 or FOUN 7426 or EPSY 7420 or EPSY 7426) Examination of the complex nature of learning as a socially-shared and individualized process. Topics may include the social construction of knowledge, scaffolded instruction, cognitive apprenticeships, and problem based learning.

EPSY 8430 TOPICAL SEMINAR IN LEARNING, COGNITION, AND INSTRUCTION (3) LEC. 3 An intensive and advanced study of research and theory on selected topics. Examples include folk theories of mind and alternative methods of studying thinking.

EPSY 8440 EDUCATIONAL PSYCHOLOGY APPRENT Seminar (3) LEC. 3 Focuses on the historical foundations of educational psychology as well as possibilities for future disciplinary development.

EPSY 8500 EDUCATIONAL PSYCHOLOGY RESEARCH APPRENTICE Seminar (3) LEC. 3 A structured context for students to begin applying what they have learned from their research methods and statistic courses. Students will design and conduct research that contributes to the educational psychological knowledge base.

EPSY 8640 EDUCATIONAL PSYCHOLOGY LEARNING AND INSTRUCTION APPRENTICE SEMINAR (3) LEC. A structured opportunity for students to begin applying educational psychological concepts and theories in the classroom. Students will study theories of learning and instruction and begin to translate and implement these theories into practice.

EPSY 8990 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertations. Courses may be repeated for a maximum of 10 hours. Course may be repeated with changes in topic.

CULTURAL FOUNDATIONS (FOUN)
Dr. James Kaminsky 844-3592

FOUN 3000 DIVERSITY OF LEARNERS AND SETTINGS (3) LEC. 2, LAB. 3 Exploration of socio-cultural factors and individual differences; understanding diversity and communication with students with different cultural backgrounds, abilities, and values; combines class-based as well as community-based discovery learning, known as service learning, that links theory and practice and involves students in active participation in a local agency or service center.

FOUN 3100 CHILD DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT (6) LEC. 5, LAB. 3 Pr., EDUC 3000 or (FOUN 3000 and RSED 3000) Admission to Teacher Education. Cognitive, psychosocial, and moral aspects of child development; integration of development, learning, motivation, assessment, and evaluation in context of instructional planning.

FOUN 3110 ADOLESCENT DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT (3) LEC. 2, LAB. 3 Pr., EDUC 3000 or (FOUN 3000 and RSED 3000) Admission to Teacher Education. An integrated approach to the effective instruction of the adolescent learner in context.

FOUN 3120 ADOLESCENT DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT II (3) LEC. 3 Pr., FOUN 3110 and EDUC 3000 or (FOUN 3000 and RSED 3000) Admission to Teacher Education. Study of the adolescent development, learning, motivation, evaluation, and assessment concepts central to effective instruction.

FOUN 7000 CULTURAL FOUNDATIONS OF EDUCATION (3) LEC. 3 Advanced study of culture and its impact on the development and structure of education and schooling. Utilizing historical, philosophical, anthropological, and sociological perspectives, contemporary issues regarding the nature and practice of schooling will be examined.

FOUN 7010 HISTORY OF AMERICAN EDUCATION (3) LEC. 3 Examination of ideas, actors, and events which influenced the emergence of the formal school system, beginning with early American forms of education.

FOUN 7020 SOCIAL AND CULTURAL DIVERSITY IN AMERICAN EDUCATION (3) LEC. 3 Advanced study of education’s response to cultural pluralism. The impact of religious, ethnic, social, and racial diversity on the structure of the American public school will be examined.

FOUN 7030 MODERNITY, PHILOSOPHY AND THE CURRICULUM (3) LEC. 3 Advanced study of the philosophical assumptions of curriculum development within the context of modernity.

FOUN 7040 PHILOSOPHY AND EDUCATIONAL RESEARCH (3) LEC. 3 Advanced philosophical study of educational research within the context of education’s professional culture.

FOUN 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student’s learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 hours. Course may be repeated for a maximum of 6 credit hours.

FOUN 7970 SPECIAL TOPICS IN FOUNDATIONS OF EDUCATION (3-6) LEC. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be repeated for a maximum of 6 credit hours.

FOUN 8010 MODERN EDUCATION AND COMPARATIVE PERSPECTIVES (3) LEC. 3 Advanced comparative study of selected contemporary educational issues within the American and international urban context.

FOUN 8990 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertations. Courses may be repeated for a maximum of 10 hours. Course may be repeated with changes in topic.
ELEC 2110 ELECTRIC CIRCUIT ANALYSIS (4) LEC. 3, LAB 3. Pr., PHYS 1610 and (COMP 1200 or COMP 1210) and ENGR 1110 and MATH 2650 Basic laws and concepts; resistive circuits; first-order transient circuits; phasors and frequency response of circuits; RMS values and complex power.

ELEC 2120 LINEAR SIGNALS AND SYSTEMS ANALYSIS (3) LEC. 3. Pr., ELEC 2110 and MATH 2650. Time-domain and frequency-domain methods for modeling and analyzing continuous and discrete-data signals and systems.

ELEC 2220 DIGITAL LOGIC CIRCUITS (3) LEC. 3. Pr., COMP 1200 or COMP 1210 Electronic devices and digital circuits; binary numbers; Boolean algebra and switching functions; gates and flip-flops; combinational and sequential logic circuits; hierarchical design of digital systems; computer-aided design, tools for digital design, simulation, and testing.

ELEC 2210 DIGITAL ELECTRONICS (4) LEC. 3, LAB 3. Pr., ELEC 2110 and ELEC 2220. Hardware, microcomputers, and circuit simulation; programming, design, and analyzing continuous and discrete-data signals and systems.

ELEC 2220 COMPUTER SYSTEMS (3) LEC. 3. Pr., ELEC 2210 or ELEC 2200. Computer hardware and software organization, processor programming models, data representation, assembly language programming, design of memory systems, input and output device interfacing and programming and multiprocessoring.

ELEC 3030 ELECTRICAL ENGINEERING LABORATORY III (I) LAB. 3. Pr., ELEC 2220 and ELEC 2210. Assembly, testing and analysis of an AM/FM radio. Integration of basic concepts of electronics, electromagnetics, and signals and systems.

ELEC 3040 ELECTRICAL ENGINEERING LABORATORY IV (I) LAB. 3. Pr., ELEC 2220 and ELEC 3030 and ELEC 3500. Exploration and integration of electrical engineering concepts and professional practice issues through the design of a contemporary engineering system.

ELEC 3050 COMPUTER SYSTEM DESIGN LABORATORY I (LAB) 3. Pr., ELEC 3400. Laboratory experiments geared towards understanding the implementation and testing of components used in wireless communication systems.

ELEC 3310 FUNDAMENTALS OF APPLIED ELECTROMAGNETICS (3) LEC. 3. Pr., MATH 2660 and ELEC 2110. The study of electric and magnetic fields, using vector algebra, culminating in Maxwell’s equations and an introduction to electro-magnetic waves.

ELEC 3320 ELECTROMAGNETICS FOR WIRELESS COMMUNICATION (3) LEC. 3. Pr., ELEC 3310 Maxwell’s equations and circuit theory used in the study of transmission lines and guided waves, with an emphasis on fiber optics, electromagnetic compatibility and interference, antennas and radiation, and satellite communication systems.

ELEC 3400 COMMUNICATION SYSTEMS (3) LEC. 3. Pr., ELEC 3800 Pulse code modulation, line coding, information rate, equalization, amplitude modulation, angle modulation, noise in communication systems.

ELEC 3500 CONTROL SYSTEMS (3) LEC. 3. Pr., MATH 2650 and ELEC 2120. Introduction to adaptive and discrete transfer function models, system response specifications, control system characteristics, root locus analysis and design, frequency response analysis and design.

ELEC 3600 ELECTRIC POWER ENGINEERING (3) LEC. 3. Pr., ELEC 2110. Introduction to the basic concepts in electric power engineering.

ELEC 3700 ANALOG ELECTRONICS (3) LEC. 3. Pr., ELEC 2210 and ELEC 2120. Design and analysis of single-stage and multistage transistor amplifiers; biasing for integrated circuit design; small-signal modeling; operational amplifier circuits; IC design techniques; noise and RF amplifiers; D/A and A/D converters.

ELEC 3800 RANDOM SIGNALS AND SYSTEMS (3) LEC. 3. Pr., ELEC 2120. Analysis of random signals and noise, system reliability, responses of linear systems to random inputs, optimal filter design.

ELEC 3810 FUNDAMENTALS OF ELECTRICAL ENGINEERING (3) LEC. 3. Pr., MATH 2650. Electrical circuit analysis; electronic devices, digital systems, amplifier concepts, power devices and systems.

ELEC 3820 INDUSTRIAL INSTRUMENTATION (3) LEC. 2, LAB. 3. Pr., ELEC 3810 Principles of instrumentation. The detection and measurement of physical quantities with emphasis on sensors and signal processing. Programmable logic controllers.

ELEC 4000 SENIOR DESIGN PROJECTS (3) LEC. 3. Pr., ELEC 3040 or ELEC 3050 or ELEC 3060 A capstone design project which draws on the accumulated curricular experience. Particular project sections may have additional requisites.

ELEC 4200 DIGITAL SYSTEM DESIGN (3) LEC. 2, LAB. 3. Pr., ELEC 2210 and ELEC 2220. Hierarchical, modular design of digital systems, synchronous and asynchronous sequential circuit design and analysis, programmable logic devices and field programmable gate arrays, and circuit simulation for design verification and analysis.

ELEC 4800 INSTRUMENTATION ENGINEERING (3) LEC. 2, LAB. 3. Pr., ELEC 3040 or ELEC 3050. Study and application of sensors, instrumentation and computer technology to research and industrial process control.

ELEC 4810 LONG TERM TECHNOLOGY DEVELOPMENT AND PROJECT MANAGEMENT (1-2) LAB. Pr., ELEC 2210. Students participate in ongoing electrical, computer, or wireless engineering design projects and competitions while learning project management and organization strategies. May be repeated for up to three credit hours. Pr., Consent of instructor.

ELEC 4960 SPECIAL PROBLEMS (1-3) IND. Pr., departmental approval. Course may be repeated with change in topics.

ELEC 4970 SPECIAL TOPICS IN ELECTRICAL ENGINEERING (1-5) LEC. Course may be repeated with change in topic. Departmental approval. Course may be repeated with change in topics.

ELEC 4980 SPECIAL PROJECTS IN ELECTRICAL ENGINEERING (1-3) IND. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

ELEC 5100 WIRELESS COMMUNICATIONS (3) LEC. 3. Pr., ELEC 3400 and ELEC 3320. Introduction to mobile cellular and wireless personal communications, cellular concept, mobile radio propagation, modulation techniques, multiple access techniques, wireless systems and standards.

ELEC 5120 WIRELESS NETWORKS (3) LEC. 3. Pr., ELEC 3400. Introduction to wireless networking concepts, communication, wireless local area networks, Bluetooth and Home RF standards and Internet protocol and wireless access.

ELEC 5120 TELECOMMUNICATION NETWORKS (3) LEC. 3. Pr., ELEC 3400. Study of telephone systems, packet switching, circuit switching, packet switching, frame relay, local subscriber loop, trunk, Signall System 7 (SS7), ISDN, DSL, ATM, SONET, wavelength division multiplexing (WDM), SMS, voice over IP, network management.

ELEC 5130 RF DEVICES AND CIRCUITS (3) LEC. 3. Pr., ELEC 3700. Introduction to RF semiconductor devices and circuits targeted for wireless applications.

ELEC 5150 INFORMATION SECURITY (3) LEC. 3. Emerging protocols, standards and technologies of information security; design of information network security, firewall, virtual private networks and secured applications. Pr., departmental approval.

ELEC 5200 COMPUTER ARCHITECTURE AND DESIGN (3) LEC. 3. Pr., ELEC 4200. Structural organization and hardware design of digital computers; register transfer; micro-operations, control units and timing; instruction set design; input/output devices, multiprocessors, automated hardware design aids.

ELEC 5210 PERSONAL COMPUTER SYSTEM DESIGN (3) LEC. 3. Pr., ELEC 2220 or COMP 3350. Personal computer hardware components, microprocessors, motherboard design, cache and main memory technologies and subsystems, standard expansion buses and interfacing.

ELEC 5220 INFORMATION NETWORKS AND TECHNOLOGY (3) LEC. 3. Pr., ELEC 2220 or COMP 3350. Architectures, protocols, standards and technologies of information networks; design and implementation of information networks based on requirements; applications of information networks for data, audio and video communications.

ELEC 5230 PARALLEL PROCESSING (3) LEC. 3. Pr., ELEC 2220 or COMP 3350. Hardware components of multiprocessor systems including processor, inter-connection, memory and control architectures; software elements of parallel processing.


ELEC 5250 COMPUTER AIDED DESIGN OF DIGITAL CIRCUITS (3) LEC. 3. Pr., ELEC 2220 or COMP 3350. Computer-automated design of digital logic circuits, using discrete gates, programmable logic devices, and standard cells; hardware description languages, circuit simulation for design verification and analysis, fault diagnosis and testing.

ELEC 5280 EMBEDDED COMPUTING SYSTEMS (3) LEC. 3. Pr., ELEC 2220 or COMP 3350. The design of systems containing embedded computers. Microcontroller technology, assembly language and C programming, input/output interfacing, data acquisition hardware, interrupts, and timing. Real-time operating systems and application programming. Embedded system application examples.

ELEC 5270 LOW-POWER DESIGN OF ELECTRONIC CIRCUITS (3) LEC. 3. Pr., ELEC 2210. Design of digital circuits and systems for reduced power consumption, power analysis algorithms, low-power MOS technologies, low-power design architectures for FPGAs, memory, and microprocessors, reduction of power in testing of circuits. Pr., departmental approval.

ELEC 5280 BUILT-IN SELF-TEST (3) LEC. 3. Pr., ELEC 2200 and ELEC 2210. Testing during product life-cycle, fault models and detection, design for testability, test pattern generation, output response analysis, concurrent fault detection, manufacturing and system use, built-in self-test approaches and applications.
ELEC 5310 DESIGN OF ANTENNAS AND ANTENNA SYSTEMS (3) LEC. 3 Pr., ELEC 3320. Application of electromagnetic and circuit concepts to the design of practical antennas and antenna systems.

ELEC 5320 ELECTROMAGNETIC COMPATIBILITY (3) LEC. 3 Pr., ELEC 3320 and ELEC 3700. Electromagnetic noise coupling, designing for electromagnetic compatibility (EMC). EMC regulation, noise sources, standard techniques for eliminating noise, circuit layout for reduced electromagnetic interference (EMI).

ELEC 5340 MICROWAVE AND RF ENGINEERING (3) LEC. 3 Pr., ELEC 3320 and ELEC 3700. Application of electromagnetic and electronic concepts to the design of practical microwave devices and circuits typically used in wireless communications.

ELEC 5350 RADAR AND SONAR PRINCIPLES (3) LEC. 3 Pr., ELEC 3320 and ELEC 3800. Study of the fundamentals of RADAR systems including detection of non-deterministic signals in noise, and introduction to the principles of wave acoustics with emphasis on SONAR systems.

ELEC 5410 DIGITAL SIGNAL PROCESSING (3) LEC. 3 Pr., ELEC 3800. Digital processing of signals, sampling difference equations, discrete-time Fourier transforms, discrete and fast Fourier transforms, digital filter design.

ELEC 5430 DIGITAL IMAGE PROCESSING (3) LEC. 3 Pr., ELEC 3400 and ELEC 3800 Digital image processing principles and applications such as enhancement, restoration and compression.

ELEC 5510 MODELING AND SYSTEM IDENTIFICATION (3) LEC. 3 Pr., ELEC 3500 and ELEC 3800. Development of physical models (linear and nonlinear) from first principles and estimation of model parameters from experimental data. System identification in closed loop. Data collection under output feedback. Pr., departmental approval.

ELEC 5520 DISCRETE EMBEDDED CONTROL SYSTEMS (3) LEC. 3 Pr., ELEC 3500. Discrete state equation models, control system characteristics, pole placement design and estimator design.

ELEC 5530. MOBILE ROBOT DESIGN (3). LEC. 3 Pr., ELEC 2210 and (ELEC 3040 or ELEC 3050). Fundamentals of mobile robot design, including motor control, sensor integration, path planning, navigation, and localization.

ELEC 5610 POWER ELECTRONICS (3) LEC. 3 Pr., ELEC 3700 and ELEC 3600. Power electronic circuits, components, and devices.

ELEC 5620 POWER SYSTEM ANALYSIS (3) LEC. 3 Pr., ELEC 3600. Power system modeling, power flow analysis, analysis of faulted power systems. Pr., departmental approval.

ELEC 5630 ELECTRIC MACHINES (3) LEC. 3 Pr., ELEC 3600. Fundamentals of the electromagnetic-mechanical energy conversion process. Principles of operation, application, and control of ac and dc motors and generators. Pr., departmental approval.

ELEC 5650 POWER SYSTEM PROTECTION (3) LEC. 3 Pr., ELEC 3600. Fault analysis using symmetrical components. Power switchgear, including switches, disconnects, fuses, relays and circuit breakers. Fundamentals of electric power system protection, including bus, transformer and line protection.

ELEC 5700 SEMICONDUCTOR FUNDAMENTALS (3) LEC. 3 Pr., ELEC 3700. Introduction to semiconductors: crystal structure, energy band theory, equilibrium electron and hole statistics, doping, generation and recombination processes, carrier drift and diffusion, transport equations.

ELEC 5710 SEMICONDUCTOR DEVICES (3) LEC. 3 Pr., ELEC 5700. Introduction to semiconductor devices: pn junctions, junction diode based devices, optoelectronic devices, bipolar transistors, field effect transistors.

ELEC 5730 MICROELECTRONIC FABRICATION (3) LEC. 2, LAB. 3 Pr., ELEC 2210. Introduction to monolithic integrated circuit technology. Bipolar and MOS processes and structures. Elements of layout, design, fabrication, and applications. Experiments in microelectronic technologies. Pr., departmental approval.

ELEC 5740 ELECTRONICS MANUFACTURING (3) LEC. 2, LAB. 3 Pr., ELEC 3700. Materials and processes used to manufacture electronic products. Particular attention is given to substrate technology and electronics assembly. Pr., departmental approval.

ELEC 5750 INTRODUCTION TO PLASMA ENGINEERING (3) LEC. 3 Pr., ELEC 3320. Electrical breakdown and discharges in gases, basic plasma theories, applications of plasmas, plasma processing for microelectronic fabrication. Pr., departmental approval.

ELEC 5760 SOLID STATE SENSORS (3) LEC. 3 Pr., ELEC 3700. Theory, technology and design of micro-mechanical sensors, electrochemical microsensors, photodetectors, and integrated smart sensors. Pr., departmental approval.

ELEC 5770 VLSI DESIGN (3) LEC. 3 Pr., ELEC 2210 and ELEC 2220. Review of MOS transistor fundamentals, CMOS logic circuits; VLSI fabrication and design rules; clocking strategies and sequential design; performance estimation; memories and programmable arrays; standard cell design methodologies; computer aided design (CAD) tools.

ELEC 5780 ANALOG CIRCUIT DESIGN (3) LEC. 3 Pr., ELEC 3700. Circuit design techniques used for implementing analog integrated circuits in both CMOS and bipolar technologies. Pr., departmental approval.

ELEC 5810 COMPUTED IMAGING SYSTEMS (3) LEC. 3 Pr., ELEC 2120. Introduction to computed imaging systems such as magnetic resonance imaging (MRI), computed tomography (CT), and synthetic aperture radar (SAR). Pr., departmental approval.

ELEC 5820 MEMS TECHNOLOGY (3) LEC. 3 Pr., senior standing or departmental approval. Introduction to Micro-Electro-Mechanical Systems (MEMS), the study of the materials and microfabrication processes used to fabricate MEMS devices, the principles of operation of MEMS devices, and an introduction to the different application areas of MEMS devices.

ELEC 5970 SPECIAL TOPICS IN ELECTRICAL ENGINEERING (1-5) LEC. Course may be repeated with change in topic. Pr., departmental approval.

ELEC 6100/6105 WIRELESS COMMUNICATION SYSTEMS (3) LEC. 3 Pr., ELEC 3400 and ELEC 3320. Introduction to mobile cellular radio and wireless personal communications, cellular concept, mobile radio propagation, modulation techniques, multiple access techniques, wireless systems and standards.

ELEC 6110/6115 WIRELESS NETWORKS (3) LEC. 3 Pr., ELEC 3400. Introduction to wireless broadband, satellite communication, wireless local area networks, Bluetooth and Home RF standards and internet protocol and wireless access.

ELEC 6120/6126 TELECOMMUNICATION NETWORKS (3) LEC. 3 Pr., ELEC 3400. Plain Old Telephone System (POTS), Public Switching Telephone Network (PSTN), circuit switch, packet-switch, frame relay, local subscriber loop, trunk, Signal System 7 (SS7), ISDN, DSL, ATM, SONET, wavelength division multiplexing (WDM), SMDS, voice over IP, network management.

ELEC 6130/6136 RF DEVICES AND CIRCUITS (3) LEC. 3 Pr., ELEC 3700. Introduction to RF semiconductor devices and circuits targeted for wireless applications.

ELEC 6150/6155 INFORMATION SECURITY (3) LEC. 3 Pr., ELEC 3400. Introduction to digital and analog integrated circuit (IC) design with emphasis on front-end IC design skills. Digital IC designs using Verilog hardware description language. Analog IC designs using Cadence and analog IC design tools. Gain hands-on experience through digital and analog IC design projects.

ELEC 6200/6206 COMPUTER ARCHITECTURE AND DESIGN (3) LEC. 3 Pr., ELEC 4200. Structural organization and hardware design of digital computers; register transfers; micro-operations, control units and timing; instruction set design; input/output devices, multiprocessors, automated hardware design aids.

ELEC 6210/6216 PERSONAL COMPUTER SYSTEM DESIGN (3) LEC. 3 Pr., ELEC 2200 and ELEC 3550. Personal computer hardware components, microprocessors, motherboard design, cache and main memory technologies and subsystems, standard expansion buses and interfacing.

ELEC 6220/6226 INFORMATION NETWORKS AND TECHNOLOGY (3) LEC. 3 Pr., ELEC 2220 or COMP 3350. Architectures, protocols, standards and technologies of information networks; design and implementation of information networks based on requirements; applications of information networks for data, audio and video communications.

ELEC 6230/6236 PARALLEL PROCESSING (3) LEC. 3 Pr., ELEC 2220 or COMP 3350. Hardware components of multiprocessor systems including processor, inter-connection, memory and control architectures; software elements of parallel processing.

ELEC 6240/6246 NEURAL NETWORKS (3) LEC. 3 Pr., ELEC 2120. Principles, architectures, and technologies of neural networks; design and implementation of neural networks using electronics and optics; applications of neural networks.

ELEC 6250/6256 COMPUTER AIDED DESIGN OF DIGITAL CIRCUITS (3) LEC. 3 Pr., ELEC 2220 or COMP 3350. Computer-automated design of digital logic circuits, using discrete gates, programmable logic devices, and standard cells; hardware description languages, circuit simulation for design verification and analysis, fault diagnosis and testing.

ELEC 6260/6266 EMBEDDED COMPUTING SYSTEMS (3) LEC. 3 Pr., ELEC 2220 or COMP 3350. The design of systems containing embedded computers. Microprocessors, microcontrollers, assembly language and C programming, input/output interfacing, data acquisition hardware, interrupts, and timing. Real-time operating systems and application programming. Embedded system application examples.

ELEC 6270/6276 LOW-POWER DESIGN OF ELECTRONIC CIRCUITS (3) LEC. 3 Pr., ELEC 2210. Design of digital circuits and systems for reduced power consumption, power analysis algorithms, low-power MOS technologies, low-power design architectures for FPGAs, memory, and microprocessors; reduction of power in testing of circuits. Pr., departmental approval.

ELEC 6280/6286 BUILT-IN SELF-TEST (3) LEC. 3 Pr., ELEC 2200 and ELEC 2210. Testing during product life-cycle, fault models and detection, design for testability, test pattern generation, output response analysis, concurrent fault detection, manufacturing and system use, built-in self-test approaches and applications.
ELEC 6310/6316 DESIGN OF ANTENNAS AND ANTENNA SYSTEMS (3) LEC. 3 Pr., ELEC 3320 Application of electromagnetic and circuit concepts to the design of practical antennas and antenna systems.

ELEC 6320/6326 ELECTROMAGNETIC COMPATIBILITY (3) LEC. 3 Pr., ELEC 3320 and ELEC 3700 Electromagnetic noise coupling, designing for electromagnetic compatibility (EMC), EMC regulation, noise sources, standard techniques for eliminating noise, circuit layout for reduced electromagnetic interference (EMI).

ELEC 6340/6346 MICROWAVE AND RF ENGINEERING (3) LEC. 3 Pr., ELEC 3320 and ELEC 3700 Application of electromagnetic and electronic concepts to the design of practical microwave devices and circuits typically used in wireless communications.

ELEC 6350/6356 RADAR AND SONAR PRINCIPLES (3) LEC. 3 Pr., ELEC 3320 and ELEC 3800 Study of the fundamentals of RADAR systems including detection of non-deterministic signals in noise, and introduction to the principles of wave acoustics with emphasis on SONAR systems.

ELEC 6410/6416 DIGITAL SIGNAL PROCESSING (3) LEC. 3 Pr., ELEC 3800 Digital processing of signals, sampling difference equations, discrete-time Fourier transforms, discrete and fast Fourier transforms, digital filter design.

ELEC 6430/6436 DIGITAL IMAGE PROCESSING (3) LEC. 3 Pr., ELEC 3400 and ELEC 3800 Digital image processing principles and applications such as enhancement, restoration and compression.

ELEC 6510/6516 MODELING AND SYSTEM IDENTIFICATION (3) LEC. 3 Pr., ELEC 3500 and ELEC 3800 Development of physical models (linear and nonlinear) from first principles and estimation of model parameters from experimental data. System identification in closed loop. Data collection under output feedback. Pr., departmental approval.

ELEC 6520/6526 DISCRETE EMBEDDED CONTROL SYSTEMS (3) LEC. 3 Pr., ELEC 3500 Discrete state equation models, control system characteristics, pole placement design and implementation, estimator design and implementation.

ELEC 6530/6536 MOBILE ROBOT DESIGN (3) LEC. 3, Pr., ELEC 2210 and (ELEC 3040 or ELEC 3050). Fundamentals of mobile robot design, including motor control, sensor integration, path planning, navigation, and localization.

ELEC 6610/6616 POWER ELECTRONICS (3) LEC. 3 Pr., ELEC 3600 and ELEC 3700 Power electronic circuits, components, and devices.

ELEC 6620/6626 POWER SYSTEM ANALYSIS (3) LEC. 3 Pr., ELEC 3600 Power system modeling, power flow analysis, analysis of faulted power systems. Pr., departmental approval.

ELEC 6630/6636 ELECTRICAL MACHINES (3) LEC. 3 Pr., ELEC 3600 Fundamentals of the electromagnetic-mechanical energy conversion process. Principles of operation, application, and control of ac and dc motors and generators. Pr., departmental approval.

ELEC 6650/6656 POWER SYSTEM PROTECTION (3) LEC. 3 Pr., ELEC 3600 Fault analysis using symmetrical components. Power switchgear, including switches, disconnects, fuses, relays and circuit breakers. Fundamentals of electric power system protection, including bus, transformer and line protection.

ELEC 6700/6706 SEMICONDUCTOR FUNDAMENTALS (3) LEC. 3 Pr., ELEC 3700 Introduction to semiconductors: crystal structure, energy band theory, equilibrium electron and hole statistics, doping, generation and recombination processes, carrier drift and diffusion, transport equations.

ELEC 6710/6716 SEMICONDUCTOR DEVICES (3) LEC. 3 Pr., ELEC 5700 or ELEC 6706 Introduction to semiconductor devices: pn junctions, junction diode based devices, optoelectronic devices, bipolar transistors, field effect transistors.

ELEC 6730/6736 MICROELECTRONIC FABRICATION (3) LEC. 2, LAB. 3 Pr., ELEC 2210 Introduction to monolithic integrated circuit technology. Bipolar and MOS processes and structures. Elements of layout, design, fabrication, and applications. Experiments in microelectronic technologies. Pr., departmental approval.

ELEC 6740/6746 ELECTRONICS MANUFACTURING (3) LEC. 2, LAB. 3 Pr., ELEC 3700 Materials and processes used to manufacture electronic products. Particular attention is given to substrate technology and electronics assembly. Pr., departmental approval.

ELEC 6750/6756 INTRODUCTION TO PLASMA ENGINEERING (3) LEC. 3 Pr., ELEC 3320 Electrical breakdown and discharges in gases, basic plasma theories, applications of plasmas, plasma processing for microelectronic fabrication. Pr., departmental approval.

ELEC 6760/6766 SOLID STATE SENSORS (3) LEC. 3 Pr., ELEC 3700 Theory, technology and design of micro-mechanical sensors, electrochemical microsensors, photodetectors, and integrated smart sensors. Pr., departmental approval.

ELEC 6770/6776 VLSI DESIGN (3) LEC. 3 Pr., ELEC 2210 and ELEC 2220 Review of MOS transistor fundamentals, CMOS logic circuits; VLSI fabrication and design rules; clocking strategies and sequential design; performance estimation; memories and programmable arrays; standard cell design methodologies; computer aided design (CAD) tools.

ELEC 6780/6786 ANALOG CIRCUIT DESIGN (3) LEC. 3 Pr., ELEC 3700 Circuit design techniques used for implementing analog integrated circuits in both CMOS and bipolar technologies. Pr., departmental approval.

ELEC 6810/6816 COMPUTED IMAGING SYSTEMS (3) LEC. 3 Pr., ELEC 2120 Introduction to computed imaging systems such as magnetic resonance imaging (MRI), computed tomography (CT), and synthetic aperture radar (SAR). Pr., departmental approval.

ELEC 6820/6826 MEMS TECHNOLOGY (3) LEC. 3, Pr., senior standing or departmental approval. Introduction to Micro-Electro-Mechanical Systems (MEMS), the study of the materials and microfabrication processes used to fabricate MEMS devices, the principles of operation of MEMS devices, and an introduction to the different application areas of MEMS devices.

ELEC 6970/6976 SPECIAL TOPICS IN ELECTRICAL ENGINEERING (1-5) LEC. Study of a specialized area of electrical & computer engineering not covered by regularly offered courses. Course may be repeated with change in topics. Pr., departmental approval.

ELEC 7190/7196, ADVANCED RFIC DESIGN FOR WIRELESS COMMUNICATIONS (3) LEC. 3 Pr., ELEC 5190 or ELEC 6190 or ELEC 6196 Wireless standards and multiple access nature of the test problem, fault models, test generation algorithms, test generation for sequential circuits, fault simulation, testability measures, fault coverage, yield and defect levels, design-for-testability approaches.

ELEC 7310/7316 ADVANCED ELECTRODYNAMICS I (3) LEC. 3 Review of basic electromagnetics. Electromagnetic wave propagation in infinite and bounded media. Equivalence Principle, Uniqueness Theorem, Reciprocity, Green’s functions and Plane wave functions. Pr., departmental approval.

ELEC 7320/7326 ADVANCED ELECTRODYNAMICS II (3) LEC. 3 Pr., ELEC 7310 or ELEC 7316 Cylindrical wave functions. Spherical wave functions. Scattering by cylinders and spheres. Perturbational and variation techniques.

ELEC 7330 ELECTROMAGNETIC MEASUREMENTS (3) LEC. 1, LAB. 6 Pr., ELEC 5310 or ELEC 6310 or ELEC 6316 and (ELEC 5340 or ELEC 6340 or ELEC 6346) and (ELEC 5350 or ELEC 6350 or ELEC 6356) Electromagnetic theory is supported by lab experiments, including microstrip circuit characterization using a vector network analyzer, antenna and radar cross section measurements in an anechoic chamber, and optical measurements using an optical spectrometer.

ELEC 7340/7346 COMPUTATIONAL ELECTROMAGNETICS I (3) LEC. 3 Pr., ELEC 7310 or ELEC 7316 Solution of electromagnetic scattering, radiation, and coupling problems using method of moments, finite-difference, finite-element, transmission-line matrix and other advanced computational methods.

ELEC 7350/7356 COMPUTATIONAL ELECTROMAGNETICS II (3) LEC. 3 Pr., ELEC 7310 or ELEC 7316 Solutions of electromagnetic scattering, radiation, and coupling problems using a variety of common asymptotic techniques.

ELEC 7410/7416 STOCHASTIC SIGNAL AND SYSTEM ANALYSIS (3) LEC. 3 Applications of probability, random variables and stochastic processes in electrical engineering. Pr., departmental approval.

ELEC 7420/7426 ADAPTIVE SIGNAL PROCESSING (3) LEC. 3, Pr., ELEC 7410 Least mean square and recursive least square algorithms; adaptive FIR and IIR filters, lattice filters, Kalman filters; adaptive system identification and its application in communications and control.

ELEC 7430/7436 ADVANCED COMMUNICATION THEORY (3) LEC. 3 Pr., ELEC 3400 Principles of modern communication systems. Elements of information theory, source encoding, efficient signaling with coded waveforms, convolutional codes; carrier recovery and synchronization under AGN channel; adaptive equalization; maximum likelihood estimation, Viterbi algorithm.
ELEC 7500/7506 STATE-VARIABLE ANALYSIS OF SYSTEMS (3) LEC. 3 Matrices and linear spaces; state variable for linear continuous and discrete systems; applications in analysis and design of control systems. Pr., departmental approval.

ELEC 7510/7516 OPTIMAL AND STOCHASTIC CONTROL SYSTEMS (3) LEC. 3 Theory of optimal and stochastic control; optimal control, observability, controllability, sensitivity, observers and state estimators, pole assignments. Pr., departmental approval.

ELEC 7520/7526 ADVANCED DISCRETE CONTROL (3) LEC. 3 Discrete state modeling. Pole assignment and estimation. Multi-rate sampled systems. Non-synchronous sampled systems. MIMO. Pr., departmental approval.

ELEC 7550/7556 FUZZY LOGIC CONTROL SYSTEMS (3) LEC. 3 Pr., ELEC 7500 or ELEC 7506 Fuzzy logic as information representation and decision making paradigm; stability analysis, system identification and estimation, adaptive fuzzy control, supervisory control, gain scheduling.

ELEC 7560/7566 NONLINEAR SYSTEMS AND CONTROL (3) LEC. 3 Pr., ELEC 7500 or ELEC 7506 Principles of nonlinear system modeling and analysis; nonlinear control systems; nonlinear state system estimation. Pr., departmental approval.

ELEC 7610/7616 POWER SYSTEM DYNAMICS AND STABILITY (3) LEC. 3 Pr., ELEC 5620 or ELEC 6620 or ELEC 6626 or ELEC 6662 Transients in electric power systems, including lightning and switching phenomena. Traveling waves on power transmission lines, BIL, BSL, line insulation. System modeling. Pr., departmental approval.

ELEC 7630/7636 ADVANCED ELECTRIC MACHINES (3) LEC. 3 Pr., ELEC 5630 or ELEC 6634 Advanced electric machine modeling, induction motor, generalized machine theory, Park’s transformation, and generalized coordinate transformations. Derivation of traditional machine models. Machine non-linearities, including finite element analysis. Pr., departmental approval.

ELEC 7640/7646 POWER SYSTEM TRANSIENTS (3) LEC. 3 Pr., ELEC 5620 or ELEC 6620 or ELEC 6626 Transients in electric power systems, including lightning and switching phenomena. Traveling waves on power transmission lines, BIL, BSL, line insulation. System modeling. Pr., departmental approval.

ELEC 7710/7716 THE FIELD-EFFECT TRANSISTOR (3) LEC. 3 Pr., ELEC 6710 or ELEC 6716 Advanced treatment of the modern field-effect transistor: the state-of-the-art, the MOS capacitor, the 4-terminal MOSFET, short and narrow-channel effects, reliability, scaling theory, modeling, silicon-on-insulator technology, heterostructure devices.

ELEC 7720/7726 THE BIPOLAR TRANSISTOR (3) LEC. 3 Pr., ELEC 5710 or ELEC 6710 or ELEC 6716 Advanced treatment of the modern bipolar junction transistor; the state-of-the-art, terminal currents, solutions for arbitrary doping profiles, the polysilicon emitter contact, high-injector effects, dynamic operation, device models, heterojunction bipolar transistors.

ELEC 7730/7736 ADVANCED PLASMA PROCESSING FOR MICROELECTRONIC FABRICATION (3) LEC. 3 Pr., ELEC 5750 or ELEC 6750 or ELEC 6756 Plasma reactor design and process optimization, plasma-assisted etching and deposition processes, plasma-assisted oxidation and surface modification processes, plasma polymerization, plasma-induced damages to semiconductor devices. Pr., departmental approval.

ELEC 7740/7746 ELECTRONIC PACKAGING (3) LEC. 3 Pr., ELEC 5740 or ELEC 6740 or ELEC 6746 Design issues in the packaging of electronics. Emphasis is placed on physical design, electrical performance, thermal characteristics and mechanical stress-induced failures. Pr., departmental approval.

ELEC 7750/7756 LOW TEMPERATURE ELECTRONICS (3) LEC. 3 Pr., ELEC 5710 or ELEC 6710 or ELEC 6716 Advanced treatment of electronic devices operating at reduced temperatures: the case for cryogenic computers, semiconductor physics at low temperatures, carrier freeze-out, cooled CMOS technology, cooled bipolar technology, superconductors, packaging.

ELEC 7770/7776. SILICON-BASED HETEROSTRUCTURE DEVICES AND CIRCUITS (3) LEC. 3 Pr., ELEC 5750 or ELEC 6750 or ELEC 6756 Bandgap engineering, strained SiGe and SiGe BiCMOS technology, noise, linearity, circuits applications. Pr., consent of instructor.

ELEC 7770/7776 ADVANCED VLSI DESIGN (3) LEC. 3 Pr., ELEC 5770 or ELEC 6770 Review of CMOS logic circuits; impact of fabrication issues on design; high speed switching circuits; high performance memory structures; advanced clocking strategies and clock distribution; performance optimization; deep submicron design issues; ASIP design flow; logic synthesis, placement and routing; design verification; low power design. Pr., departmental approval.

ELEC 7780/7786 RF MICROELECTRONICS (3) LEC. 3 Pr., ELEC 5780 or ELEC 6786 or ELEC 6786 Techniques used in the design of monolithic integrated circuits for RF applications. Pr., departmental approval.

ELEC 7800/7806 ADVANCED COMPUTATIONAL TECHNIQUES FOR ELECTRICAL ENGINEERING (3) LEC. 3 Pr., ELEC 2120 and ELEC 3320 Introduction to high-level programming techniques in electrical engineering applications; topics include linear systems analysis, system identification, nonlinear dynamic systems, and electromagnetic applications.

ELEC 7810/7816. APPLIED COMPUTATION IN SIGNALS AND SYSTEMS (3) LEC. 3. Computational solutions to problems in electrical engineering, especially in the fields of control, electromagnetics, and signal processing.

ELEC 7900 INDEPENDENT STUDY IN ELECTRICAL ENGINEERING (1-3) IND. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

ELEC 7950 ELECTRICAL ENGINEERING SEMINAR (1-10) SEM. SU. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

ELEC 7970/7976 SPECIAL TOPICS IN ELECTRICAL ENGINEERING (1-5) LEC. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

ELEC 7980 MASTER OF ELECTRICAL ENGINEERING PROJECT (1-9) IND. SU. Formulation and implementation of an engineering design project. Project culminates in both a written report and an oral presentation to the student’s advisory committee. Pr., departmental approval. Course may be repeated with change in topics.

ELEC 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated for a maximum of 6 credit hours.

ELEC 8120/8126. PRINCIPLES OF NETWORK PERFORMANCE ANALYSIS (3) Lec. 2. Pr., (ELEC 5120 or ELEC 6120 or ELEC 6126) and ELEC 7410. Data network performance analysis, queuing systems, admission control, network traffic modeling, network calculus, flow and congestion control, wireless network analysis, and network simulation.

ELEC 8310 ADVANCED TOPICS IN ELECTROMAGNETICS (3) LEC. 3 Pr., ELEC 7320 or ELEC 7326 Continued development of analytical and numerical applications of Maxwell’s equations in arbitrary media in both the frequency and time domains. Includes individual and group projects.

ELEC 8410 SPECTRAL ESTIMATION AND SYSTEM IDENTIFICATION (3) LEC. 3 Pr., ELEC 7410 or ELEC 7416 Elements of parameter estimation theory; Nonparametric spectral estimation; periodogram and spectral windows; Parametric approaches; applications; higher-order spectral analysis; input-output system identification.

ELEC 8420 DETECTION AND ESTIMATION THEORY (3) LEC. 3 Pr., ELEC 7410 or ELEC 7416 Decision theory concepts. Detection of deterministic and random signals in noise; parameter estimation. Bayesian and maximum likelihood approaches, nonparametric and random parameter signal estimation.

ELEC 8510 ROBUST AND OPTIMAL CONTROL (3) LEC. 3 Pr., ELEC 7510 or ELEC 7516 Performance specification, performance limitations, model uncertainty, linear fractional transformations, structured singular value, parameterizations of stabilizing controllers, H2 and H-infinty optimal control, loop shaping. Pr., departmental approval.

ELEC 8560 ADAPTIVE CONTROL (3) LEC. 3 Pr., ELEC 7500 or ELEC 7506 Theory and application of adaptive control systems. Real-time parameter estimation, self-tuning regulators, model-reference adaptive systems, stability, auto-tuning and gain scheduling controllers. Pr., departmental approval.

ELEC 8710 ADVANCED TOPICS IN SEMICONDUCTOR DEVICES (3) LEC. 3 Pr., ELEC 5710 or ELEC 6710 or ELEC 6716 Advanced treatment of selected topics in semiconductor devices. Course may be repeated for a maximum of 6 credit hours.

ELEC 8780 CONTEMPORARY TOPICS IN ELECTRICAL CIRCUIT DESIGN (3) LEC. 3 Pr., ELEC 5780 or ELEC 6780 or ELEC 6786 Contemporary topics in electronic circuit design such as Delta-Sigma A/D and D/A conversion, switched capacitor circuits, continuous time and discrete time filter design, communications electronics. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

ELEC 8780 CONTINUOUS TIME SYSTEMS AND SIGNALS (3) LEC. 3 Pr., ELEC 6710 or ELEC 6716 Advanced treatment of continuous time systems and signal processing. Pr., departmental approval.

ELEC 8790 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

English (ENGL)

ENGL 1100 ENGLISH COMPOSITION I (3) LEC. 3 English Composition Core. Intensive study of and practice in effective expository and argumentative writing. May not be taken concurrently. Core. Topics in writing for students in Honors.

ENGL 1107 HONORS WRITING SEMINAR I (3) LEC. 3 English Composition Core. Topics in writing for students in Honors.

ENGL 1120 ENGLISH COMPOSITION II (3) LEC. 3 Pr., ENGL 1100 or ENGL 1107 English Composition core. Emphasis on research. May not be taken concurrently.
ENGL 1127 HONORS WRITING SEMINAR II (3) LEC. 3 Pr., (ENGL 1100 or ENGL 1107) English Composition core. Emphasis on research.

ENGL 1800 ORAL PROFICIENCY IN ENGLISH FOR INTERNATIONAL STUDENTS (3) LEC. 3 SU. Skills that international students need to communicate orally in English.

ENGL 1830 CLASSROOM COMMUNICATION SKILLS FOR INTERNATIONAL TEACHING ASSISTANTS (3) LEC. 3 SU. Oral language skills required for effective classroom communication.

ENGL 1830 WRITING PROFICIENCY IN ENGLISH FOR INTERNATIONAL STUDENTS (3) LEC. 3 SU. Skills that international students need to undertake successful research writing in English.

ENGL 2120 UNDERSTANDING POETRY (3) LEC. 3 Pr., ENGL 1100 or ENGL 1107 Approaches to reading and writing about poetry.

ENGL 2140 UNDERSTANDING FICTION (3) LEC. 3 Pr., ENGL 1100 or ENGL 1107 Approaches to reading and writing about fiction.

ENGL 2160 UNDERSTANDING DRAMA (3) LEC. 3 Pr., ENGL 1100 or ENGL 1107 Approaches to reading and writing about drama.

ENGL 2200 WORLD LITERATURE I (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Culturally diverse readings in world literature from the ancient period to c. 1600. May not be taken concurrently.

ENGL 2207 HONORS WORLD LITERATURE I (3) LEC. 3 Pr., ENGL 2200 Culturally diverse readings in world literature from c. 1600 to the present. May not be taken concurrently.

ENGL 2217 HONORS WORLD LITERATURE II (3) LEC. 3 Pr., (ENGL 2200 or ENGL 2207) Culturally diverse readings in world literature from c. 1600 to the present.

ENGL 3040 TECHNICAL WRITING (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Writing in engineering, scientific, and technical fields. Credit will not be given for both ENGL 3040 and ENGL 3080. Junior standing.

ENGL 3080 BUSINESS WRITING (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Writing in business, management, or governmental service fields. Credit will not be given for ENGL 3080 and ENGL 3040. Junior standing.

ENGL 3110 SURVEY OF LINGUISTICS (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 The structure of language, especially American English sounds, words, and syntax, along with study in such areas as dialects and language change.

ENGL 3190 STUDIES IN CHILDREN'S LITERATURE (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127

ENGL 3350 CLASSICAL MYTHOLOGY (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 The character and influence of Greek and Roman mythology.

ENGL 3380 THE BIBLE FOR STUDENTS OF LITERATURE (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Biblical backgrounds to English and American literature; the Bible as literature.

ENGL 3530 SURVEY OF BRITISH LITERATURE I (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 British literature from its beginnings to the end of the 18th century.

ENGL 3540 SURVEY OF BRITISH LITERATURE II (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 British literature from the end of the 18th century to the present.

ENGL 3710 SURVEY OF AFRICAN-AMERICAN LITERATURE (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 African-American literature from its beginnings to the present.

ENGL 3730 SURVEY OF AMERICAN LITERATURE I (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 American literature from its beginnings to 1865.

ENGL 3740 SURVEY OF AMERICAN LITERATURE II (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 American literature from 1865 to the present. Credit will not be given for both ENGL 3700 and ENGL 3740.

ENGL 3840 LITERATURE AND CULTURE (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 The relation of literary works to their cultural contexts.

ENGL 3870 WORLD ENGLISH LITERATURES (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Non-British and non-American literature written in English.

ENGL 4000 ADVANCED COMPOSITION (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Theory and practice of expository and argumentative writing.

ENGL 4010 THE PERSONAL ESSAY (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 History, reading, analysis, and writing of the personal essay.

ENGL 4030 INTERPRETING TEXTS (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Theory and practice of interpreting literary and non-literary texts.

ENGL 4140 LANGUAGE VARIATION (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Social, regional, and contextual forces that contribute to dialect diversity.

ENGL 4150 TOPICS IN LANGUAGE STUDY (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Concentrated investigation of varying topics in linguistics or rhetoric. Course may be repeated for a maximum of 6 credit hours.
ENGL 4600 THE CLASSICAL BACKGROUND (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Readings from the major Greek and Roman writers.

ENGL 4610 MEDIEVAL LITERATURE IN TRANSLATION (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 British and Continental medieval literature.

ENGL 4620 THE EUROPEAN NOVEL (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Significant novels by major European writers.

ENGL 4630 MODERN DRAMA (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 American, British, and world drama from Ibsen through World War II.

ENGL 4640 CONTEMPORARY DRAMA (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 American, and world drama of the post-World War II era.

ENGL 4650 STUDIES IN COMPARATIVE LITERATURE (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Non-British and non-American literature written in English or studied in translation. Course may be repeated for a maximum of 6 credit hours.

ENGL 4700 THE SHORT STORY (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Development of the short story in America and Europe from the early 19th-century to the present.

ENGL 4710 POPULAR GENRES (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Study of one or more of the genres represented in the literature of past and present popular cultures. Course may be repeated for a maximum of 6 credit hours.

ENGL 4720 TOPICS IN LITERATURE (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Concentrated investigation of varying topics in literature. Course may be repeated for a maximum of 6 credit hours.

ENGL 4730 TOPICS IN CRITICAL THEORY (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Course may be repeated for a maximum of 6 credit hours.

ENGL 4740 TOPICS IN GENDER AND LITERATURE (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Examination of varying topics related to the intersection between literature and gender. Course may be repeated for a maximum of 6 credit hours.

ENGL 4920 INTERNSHIP IN ENGLISH STUDIES (3) IND. SU. Pr., ENGL 1120 or ENGL 1127 Supervised experience in applying reading, writing and research skills to the workplace. Course may be repeated for a maximum of 6 credit hours.

ENGL 4980 SEMINAR IN ENGLISH (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Research seminar on a significant topic in literature and/or language. Course may be repeated for a maximum of 6 credit hours.

ENGL 4960 DIRECTED READING (3) IND. Pr., ENGL 4000-4999 Readings in a specific area of literature or language. Course may be repeated for a maximum of 6 credit hours. ADDITIONAL PREREQUISITES: Departmental approval. Course may be repeated for a maximum of 6 credit hours.

ENGL 4967 READING FOR HONORS (3) IND. Pr., (ENGL 1120 or ENGL 1127) Individual reading programs determined by the instructor and student. An honors essay and a written examination will be required.

ENGL 4997 HONORS THESIS (3) IND. Pr., (ENGL 1120 or ENGL 1127) Course may be repeated for a maximum of 6 credit hours.

ENGL 5000 TECHNICAL AND PROFESSIONAL EDITING (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 A technical writing, business writing, or advanced composition course or departmental approval.

ENGL 5010 DOCUMENT DESIGN IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 The relations between one or more literary works and their cultural context. Course may be repeated for a maximum of 9 credit hours.

ENGL 5020 THE PEDAGOGY OF TECHNICAL AND PROFESSIONAL COMMUNICATION (3) LEC. 3 Methods, practices, and theories of technical and professional communication for prospective teachers.

ENGL 7030 STUDIES IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) LEC. 3 Extensive study of selected types of research and writing for special purposes and novel situations. Course may be repeated for a maximum of 6 credit hours.

ENGL 7040 ENGLISH COMPOSITION: APPROACHES AND ISSUES (3) LEC. 3 Theory, research, and practice in English composition.

ENGL 7050 STUDIES IN COMPOSITION (3) LEC. 3 The advanced study of an approach or an issue in composition studies. Course may be repeated for a maximum of 6 credit hours.

ENGL 7130 FICTION WRITING (3) LEC. 3 Workshop in the craft and writing of fiction. Course may be repeated for a maximum of 6 credit hours.

ENGL 7140 POETRY WRITING (3) LEC. 3 Workshop in the craft and writing of poetry. Course may be repeated for a maximum of 6 credit hours.

ENGL 7150 BRITISH LITERATURE TO 1500 (3) LEC. 3 Major works and genres in Middle English and related literary traditions.

ENGL 7160 BRITISH LITERATURE 1500 TO 1660 (3) LEC. 3 Major literary movements, authors, and/or genres.

ENGL 7170 BRITISH LITERATURE 1660 TO 1800 (3) LEC. 3 Major literary movements, authors, and/or genres.

ENGL 7180 BRITISH LITERATURE 1800 TO 1900 (3) LEC. 3 Major literary movements, authors, and/or genres.

ENGL 7190 AMERICAN LITERATURE TO 1900 (3) LEC. 3 Major literary movements, authors, and/or genres.

ENGL 7200 WORLD LITERATURE IN ENGLISH 1900-PRESENT (3) LEC. 3 Major literary movements, authors, and/or genres.

ENGL 7230 OLD ENGLISH LANGUAGE AND LITERATURE (3) LEC. 3 Anglo-Saxon language, literature, and culture.

ENGL 7240 ENGLISH LANGUAGE LEARNING AND DEVELOPMENT (3) LEC. 3 Theories underlying the learning of English, especially as a non-native language.

ENGL 7270 THE STRUCTURE OF ENGLISH (3) LEC. 3 Phonology, morphology, and syntax of English.

ENGL 7290 STUDIES IN LINGUISTICS (3) LEC. 3 A topic or topics in English linguistics, e.g., historical syntax, dialectology, phonology. Course may be repeated for a maximum of 9 credit hours.

ENGL 7300 RHETORIC THEORY AND PRACTICE (3) LEC. 3 Issues and developments in rhetorical theory and analysis, with special attention to the rhetoric of written texts. Course may be repeated for a maximum of 9 credit hours.

ENGL 7570 MAJOR BRITISH AUTHORS (3) LEC. 3 One or more major authors or a single work by a major author. Course may be repeated for a maximum of 9 credit hours.

ENGL 7580 MAJOR AMERICAN AUTHORS (3) LEC. 3 One or more major authors or a single work by a major author. Course may be repeated for a maximum of 9 credit hours.

ENGL 7650 STUDIES IN POETRY (3) LEC. 3 Poetry of one or more literary periods or a poetic genre such as the lyric or the epic. Course may be repeated for a maximum of 9 credit hours.

ENGL 7660 STUDIES IN DRAMA (3) LEC. 3 Drama of one or more literary periods or a problem in the aesthetics of the dramatic art. Course may be repeated for a maximum of 9 credit hours.

ENGL 7670 STUDIES IN FICTION (3) LEC. 3 Fiction of one or more literary periods or a problem in the art of fiction. Course may be repeated for a maximum of 9 credit hours.

ENGL 7740 BRITISH LITERATURE AND CULTURE (3) LEC. 3 The relations between one or more literary works and their cultural context. Course may be repeated for a maximum of 9 credit hours.

ENGL 7750 AMERICAN LITERATURE AND CULTURE (3) LEC. 3 The relations between one or more literary works and their cultural context. Course may be repeated for a maximum of 9 credit hours.

ENGL 7770 AFRICAN-AMERICAN LITERATURE (3) LEC. 3 Study of African-American literature and literary theories of ethnicity and race. Course may be repeated for a maximum of 9 credit hours.

ENGL 7780 STUDIES IN DIVERSITY AND LITERATURE (3) LEC. 3 Focused topical approach or an issue in composition studies. Course may be repeated for a maximum of 6 credit hours.
ENGL 7800 STUDIES IN LITERARY THEORY (3) LEC. 3 Close study of particular theoretical approaches to literary study (e.g., cultural studies, postmodernism, textual criticism, anthropological approaches, etc.) Course may be repeated for a maximum of 6 credit hours.

ENGL 7810 STUDIES IN COMPARATIVE LITERATURE (3) LEC. 3 Comparative study of authors, genres, or issues from two or more cultures or critical perspectives. Course may be repeated for a maximum of 9 credit hours.

ENGL 7870 SPECIAL TOPICS IN ENGLISH STUDIES (3) LEC. 3 Special problems, topics, and materials in English studies not covered in other existing courses.

ENG 7930 DIRECTED INDIVIDUAL STUDY (1-3) IND. Available on a limited basis for qualified students; requires advance permission of the department graduate committee. Credits are to be arranged. Course may be repeated for a maximum of 6 credit hours.

ENG 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 20 credit hours.

ENG 8890 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

Engineering, Interdepartmental (ENGR)

ENGR 1100 ENGINEERING ORIENTATION (0) LEC. 1SU. Introduction to the College of Engineering and its resources, exploration of engineering careers, orientation to campus resources and facilities, and assistance with academics and transition to college.

ENGR 1110 INTRODUCTION TO ENGINEERING (2) LEC. 1, LAB. 3 Introduction to engineering design, engineering teams, graphical presentation, technical writing, oral presentation.

ENGR 1200 GRAPHICAL COMMUNICATION AND DESIGN (3) LEC. 2, LAB. 3 Pr., COMP 1200 Graphical concepts and projective geometry relating to spatial visualization and communication in design, including technical sketching, instrument drawing and computer-aided drafting and design.

ENGR 2010 THERMODYNAMICS (3) LEC. 2, LAB. 3 Pr., (CHEM 1030 or CHEM 1110 or CHEM 1117) and (MATH 1620 or MATH 1627 or MATH 1720) and (PHYS 1600 or PHYS 1607) Principles and applications of thermodynamics to engineering problems. Laboratory includes multi-disciplinary team projects on thermodynamics applications and fundamentals of engineering thermodynamics.

ENGR 2050/STATICS (3) LEC. 3 Pr., PHYS 1600 or PHYS 1607 and MATH 2630 Principles of vectors, forces, moments, free body diagrams, force systems, 2-D and 3-D equilibrium, friction, geometric properties of plane areas.

ENGR 2070 MECHANICS OF MATERIALS (3) LEC. 3 Pr., ENGR 2050 Coreq, MATH 2650 Principles of stress and strain; stress-strain relationships; uniaxially loaded members; torsion; bending; beam shear; shear, moment and thrust diagrams; transformed sections; column buckling.

ENGR 2100 FUNDAMENTALS OF ENGINEERING MECHANICS (3) LEC. 3 Pr., PHYS 1600 or PHYS 1607 Basic principles of two-dimensional force systems, free body diagrams, concepts of stress and strain, centroids of composite areas, kinematics and kinetics of particles and rigid bodies.

ENGR 2200 INTRODUCTION TO THERMODYNAMICS, FLUIDS AND HEAT TRANSFER (3) LEC. 3 Pr., CHEM 1030 and PHYS 1610 and MATH 2650 Principles and applications of thermodynamics, fluids and heat transfer.

ENGR 2350 DYNAMICS (3) LEC. 3 Pr., ENGR 2050 Fundamental principles of dynamics including kinematics and kinetics of particles, kinematics and kinetics of rigid bodies, mass moments of inertia, three-dimensional dynamics of rigid bodies, and simple harmonic motion.

ENGR 3510 INTRODUCTION TO BUSINESS AND ENGINEERING (5) LEC. 3 Pr., ACCT 2110 or ACCT 2117 Principles of business and engineering management processes. Pr., Admission to Business-Engineering Technology Program.

ENGR 3520 INTEGRATING BUSINESS AND ENGINEERING THEORY WITH PRACTICE (3) LEC. 2, LAB. 3 Cr., BUSI 3530 Case study problems from business and engineering practice.

ENGR 4957 ENGINEERING HONORS SEMINAR (3) SEM. 3 Topics of interest to honors students and engineering faculty. Interaction with successful engineering alumni. Pr., departmental approval.

ENGR 4970 PRODUCT/PROCESS DESIGN AND DEVELOPMENT I (1) LAB. 3 Cr., BUSI 4540 Processes to develop and present design proposal for cooperating industry. Credit will not be given for both BUSI 4970 and ENGR 4970.

ENGR 4980 PRODUCT/PROCESS DESIGN AND DEVELOPMENT II (3) LEC. 1, LAB. 6 Pr., BUSI 4970 or ENGR 4970 Cross-functional team design projects sponsoring industry.

Entomology (ENTM)

Dr. Wayne Clark - 844-2565

ENTM 2000 PESTS, PATHOGENS, PARASITES, AND PEOPLE (3) LEC. 3 Past and present problems of pests and disease involving humans and the food chain.

ENTM 2040/2043/2044 INSECTS: AN INTRODUCTION TO ENTOMOLOGY (3) LEC. 3 Life processes, importance, and occurrence of insects.
ENTM 6150 ARACHNOLOGY (4) LEC. 3, LAB. 3 Pr., ENTM 3040 Biology, behavior and systematics of all arachnid groups, with major emphasis on spiders and mites.

ENTM 6220 INSECT ECOLOGY (4) LEC. 3, LAB. 3 Pr., BIOL 3060 Ecological interactions of insects and their environment, with emphasis on herbivory, predation, parasitism and mutualism, as well as population and community dynamics.

ENTM 6300 SYSTEMATIC ENTOMOLOGY (5) LEC. 3, LAB. 6 Pr., ENTM 3040 or ENTM 4020 Principles of systematics and identification of insects through orders, families, genera, and species. Collections are required. Credit will not be given for both ENTM 4300 and ENTM 7300.

ENTM 6330 INTEGRATED PEST MANAGEMENT (4) LEC. 3, LAB. 2 Pr., ENTM 3040 or ENTM 4020 Integrated management of insects by environmental, biological, genetic, chemical and legal means.

ENTM 6340 URBAN FOREST INSECTS (3) LEC. 2, LAB. 3 Pr., ENTM 2150 and (ENTM 3040 or ENTM 4020) Identification, importance, biology and management of principal insects of the urban forest.

ENTM 6360 LANDSCAPE ENTOMOLOGY (4) LEC. 3, LAB. 3 Pr., (BIOL 1020 or BIOL 1027) or (BIOL 1030 or BIOL 1037) Identification and management of arthropod pests in the landscape. Recognition of pests and damage to trees, turf and ornamental plants.

ENTM 6370 URBAN ENTOMOLOGY (4) LEC. 3, LAB. 3 Pr., ENTM 3040 or ENTM 4020 Identification, biology and control of insect and other household arthropod pests.

ENTM 6440 INSECT MORPHOLOGY (5) LEC. 3, LAB. 6 Pr., ENTM 3040 or ENTM 4020 Comparative external anatomy and generalized internal structures of insects. Characteristics used in taxonomy will be emphasized. Credit will not be given for both ENTM 5440 and ENTM 6440.

ENTM 7100 GENERAL TOXICOLOGY (4) LEC. 3, LAB. 3 Pr., ENTM 3040 and CHEM 2030 History, mechanism of action, metabolism, and structure-activity relationship of natural and synthetic insecticides. Contemporary laboratory techniques in toxicology will be featured.

ENTM 7130 BIOLOGICAL AND MICROBIAL CONTROL OF INSECTS (4) LEC. 3, LAB. 3 Pr., (ENTM 3040 or ENTM 4020) and BIOL 3200 Biology, ecology, classification and use of insect natural enemies.

ENTM 7190 PLANT AND ANIMAL INTERACTIONS (3) LEC. 3 Pr., BIOL 3060 Ecological and evolutionary interrelationships emphasizing pollination biology, seed dispersal and plant-herbivore interactions.

ENTM 7200 INSECT PHYSIOLOGY (4) LEC. 3, LAB. 3 Pr., ENTM 3040 Introduction to insect physiology stressing structure and function of each organ system. Methods used in physiological research will be emphasized.

ENTM 7330 MEDICAL-VETERINARY ENTOMOLOGY (4) LEC. 3, LAB. 3 Pr., ENTM 3040 or BIOL 6110 Insects, mites, and other arthropods of medical or veterinary importance, identification of species, their biology and role as vectors of disease agents.

ENTM 7345 TROPICAL BIOLOGY: AN ECOLOGICAL APPROACH (8) LEC. 4, LAB. 12 Pr., BIOL 7000-7999 The principles of ecology in the tropics.

ENTM 7920 GRADUATE INTERNSHIP (3) LEC. 3 Pr., M.Ag. candidates or departmental approval. Practical professional experience under supervision of faculty internship advisor. Course may be repeated for a maximum of 12 credit hours.

ENTM 7950 SEMINAR (1) SEM. 1 SU. Presentation and discussion of scientific literature of thesis research findings. Required of all M.S. candidates.

ENTM 7960 SPECIAL PROBLEMS (1-5) LEC. Discussion groups on specific topics, assigned readings, or laboratory and field research.

ENTM 7990 RESEARCH AND THESIS (1-10) Admission to the M.S. Program. MST. Topics may focus on technical laboratory problems or field research related to arthropod biology. Course may be repeated with change in topic. Course may be repeated with change in topics.

ENTM 8050 SEMINAR (1) LEC. 1 SU. Presentation and discussion of scientific literature or dissertation research findings. Required of all Ph.D. students.

ENTM 8950 SPECIAL PROBLEMS (1-5) LEC. Research projects or study topics at an advanced level directed by individual faculty members. Course may be repeated for a maximum of 5 credit hours. Admission to the Ph.D. Program.ENTM 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topic. Pr., Admission to the Ph.D. Program. Course may be repeated with change in topics.

Environmental Science (ENVI)

Dr. Joe Morgan - 844-2866

ENVI 1010 INTRODUCTION TO ENVIRONMENTAL SCIENCE (5) LEC. 1 SU. Introduction to the environmental science field and the ENVI major.

ENVI 1020 FUNDAMENTALS OF ENVIRONMENTAL SCIENCE (2) LEC. 2 Survey of fundamental concepts, issues, and concerns related to environmental science.

ENVI 2010 ENVIRONMENTAL SCIENCE SEMINAR (1) LEC. 1 Pr., ENGL 1120 ENVIRONMENTAL SCIENCE SEMINAR ENGL 1120 and departmental approval. Discussion of current issues in environmental science.

Finance (FINC)

Dr. John Jahera, Jr. - 844-5344

FINC 2400 PERSONAL FINANCE (3) LEC. Plans for managing personal financing problems involving insurance, housing, household budgeting, investments, personal and bank loans, personal credit and time value of money. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 3100 FUNDAMENTALS OF GLOBAL TRADE (3) LEC. 3 Fundamentals skills in global export management, including basic global supply chain management and trade finance. This course does not qualify as a finance elective for finance majors but may be used as a general business elective. Pr., Junior standing and COB academic standards.

FINC 3200 RISK AND INSURANCE (3) LEC. 3 Essentials of risk management, with emphasis on the use of insurance, including the characteristics of property, liability, life and health insurance. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 3250 PRINCIPLES OF REAL ESTATE (3) LEC. 3 Fundamental principles and practices as applied to the purchase, sale and lease and management of real estate. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 3610 PRINCIPLES OF BUSINESS FINANCE (3) LEC. 3 Pr., ACCT 2110 or ACCT 2910 Corporate finance from the perspective of a financial manager. Topics include financial planning and forecasting budgeting, capital budgeting, basic valuation, dividends. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 3617 HONORS PRINCIPLES OF BUSINESS FINANCE (3) LEC. 3 Pr., ACCT 2117 Corporate finance from the perspective of a financial manager. Topics include financial planning and forecasting budgeting, capital budgeting, basic valuation, dividends. Fall, Spring. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 3620 SMALL BUSINESS FINANCE (3) LEC. 3 Pr., FINC 3610 or FINC 3617 Financial control, financial forecasting, working capital and sources of financing in a small and closely-held business environment. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 3630 ADVANCED BUSINESS FINANCE (3) LEC. 3 Pr., FINC 3610 or FINC 3617 and STAT 2610 In-depth analysis of financial concepts including valuation capital budgeting, cost of capital, leasing, financial analysis, and working capital management. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 3640 INVESTMENTS (3) LEC. 3 Pr., FINC 3610 or FINC 3617 Types of investment security markets, investment instruments, concepts and strategies for institutional and individual investors. Pr., 2.2 cumulative GPA or College of Business Academic Excellence requirements.

FINC 3700 FINANCIAL MARKETS INSTITUTIONS (3) LEC. 3 Pr., FINC 3610 or FINC 3617 and STAT 2610 In-depth analysis of financial concepts including valuation capital budgeting, cost of capital, leasing, financial analysis, and working capital management. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 3810 FOUNDATION OF BUSINESS FINANCE (3) LEC. 3 Foundations of Business Finance is a broad based introductory course that will focus on finance functions and applications of finance principles. This course is not open to undergraduates majoring in business. Credit will not be given for both FINC 3610 and FINC 3810.

FINC 4210 PROPERTY AND LIABILITY INSURANCE (3) LEC. 3 Pr., FINC 3200 Commercial risks and the insurance contracts used to address these risks. Pr., departmental approval; 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 4220 LIFE INSURANCE (3) LEC. 3 Pr., FINC 3610 Individual life, health, annuity contracts and other investments, with a focus on financial planning, estate planning, and business continuation arrangements. Pr., departmental approval; 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 4250 REAL ESTATE INVESTMENT (3) LEC. 3 Pr., (FINC 3610 or FINC 3617) and FINC 3250 Analysis and evaluation of real estate investments including cash flow measurement for both residential and commercial investment projects. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 4550 INTERNATIONAL FINANCIAL MARKETS (3) LEC. 3 Pr., FINC 5510 Analysis of multinational financial markets, their use by the multinational corporation in managing currency risk, as a source of funds, and for portfolio investment. Departmental approval; 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.
sas, and current topics. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 4650 FINANCIAL STATEMENT ANALYSIS (3) LEC. 3 Pr., FINC 3610 or FINC 3617 Evaluation and assessment of financial condition, performance, and reporting strategies of firms using relevant financial and market information. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 4660 SECURITY ANALYSIS (3) LEC. 3 Pr., ACCT 3110 and FINC 3630 and FINC 3640 Analysis, techniques and selection of securities to meet specific investment objectives. Focus on individual security analysis and portfolio management. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 4670 MANAGEMENT OF FINANCIAL INSTITUTIONS (3) LEC. 3 Pr., FINC 3700 Management strategies for firms including management of credit, liquidity, capital and interest rate risks in a regulated environment. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 4900 DIRECTED STUDIES (1-3) IND. SU. Advanced individual research and study in finance under the direction of a faculty member. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval; 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Course may be repeated for a maximum of 6 credit hours.

FINC 4920 INTERNSHIP (1-6) AAB/INT. SU. The internship program offers the opportunity to gain relevant and meaningful work experience. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval; 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 4970 SPECIAL TOPICS (1-3) AAB. Specialized topics and current developments and innovations in finance. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval; 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 4997 HONORS THESIS (1-6) IND. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

FINC 5510 MULTINATIONAL FINANCIAL MANAGEMENT (3) LEC. 3 Pr., FINC 3610 or FINC 3617 Advantages and problems associated with the modern multinational corporation, including analysis of currency risk, hedging, and political risk. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 5560 FINANCIAL ENGINEERING (3) LEC. 3 Pr., FINC 3630 or FINC 3640 or FINC 3700 Examination of derivative securities with emphasis on applying derivative securities to the management of corporate financial risk. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

FINC 6510/6516 MULTINATIONAL FINANCIAL MANAGEMENT (3) LEC. 3 Advantages and problems associated with the modern multinational corporation, including analysis of currency risk, hedging, and political risk. Pr., FINC 6680/6686 FINANCIAL ENGINEERING (3) LEC. 3 Pr., FINC 7600 or BUSI 7110 Theory and pricing of derivative securities with emphasis on applying derivative securities in corporate financial risk management. Pr., departmental approval.

FINC 7410/7416 BUSINESS RISK MANAGEMENT (3) LEC. 3 An analysis of business risk and the risk management methods, including loss control, insurance, and other forms of risk financing, used to handle these risks. Pr., departmental approval.

FINC 7600/7606 ADVANCED CORPORATE FINANCE (3) LEC. 3 Pr., FINC 3610 or FINC 3617 Intensive study of theory and problems in corporate finance from an internal decision making point of view. Pr., departmental approval.

FINC 7620/7626 ADVANCED REAL ESTATE FINANCE (3) LEC. 3 Pr., FINC 7600 or FINC 7606 or BUSI 7110 Study of real estate markets including regulatory and legal issues, valuation of income producing property, financing sources, corporate real estate, investment performance measurement. Pr., departmental approval.

FINC 7630/7636 HEALTH CARE FINANCE (3) LEC. 3 Pr., FINC 7600 or FINC 7606 or BUSI 7110 Techniques and analysis of financial management in a health care setting. Emphasis on financial planning and forecasting, budgeting, capital investment analysis in the regulated healthcare marketplace. Pr., departmental approval.

FINC 7640/7646 ADVANCED INVESTMENTS (3) LEC. 3 Pr., FINC 7600 or FINC 7606 or BUSI 7110 Types of investment securities, regulation and operation of securities markets and the theory and practice of investments. Pr., departmental approval.

FINC 7650/7656 APPLIED FINANCIAL MANAGEMENT (3) LEC. 3 Pr., FINC 7600 or FINC 7606 or BUSI 7110 The integration of financial theory with practice through case studies, seminar analysis, company analysis, and current topics in finance. Pr., departmental approval.

FINC 7660/7666 SECURITY ANALYSIS AND MANAGEMENT (3) LEC. 3 Pr., FINC 7600 or FINC 7606 or BUSI 7110 Advanced analytical methods for security valuation, managing investment portfolios, and developing appropriate investment strategies. Pr., departmental approval.

FINC 7670/7676 Mergers, Acquisitions and Restructuring (3) LEC. 3 Pr., FINC 7600 or FINC 7606 or BUSI 7110 Strategic analysis of corporate restructuring and governance including valuation, control issues, joint ventures, diversification, takeover defense measures, diversification issues. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

FINC 7690/7696 ADVANCED FINANCIAL SYSTEMS (3) LEC. 3 Pr., (FINC 7600 or FINC 7606) or BUSI 7110 Analysis and examination of financial institutions and markets in an evolving regulatory and global marketplace for financial services and products. Pr., departmental approval.

FINC 7700/7706 INDEPENDENT STUDY (1-3) IND. SU. In-depth research and study under the direction of a faculty member. Topics are variable within finance and finance-related areas. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

FINC 7790/7796 SPECIAL TOPICS (1-3) IND. Specialized topics in finance and finance-related areas not otherwise covered in existing courses. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

FINC 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic. Pr., departmental approval.

Fisheries and Allied Aquacultures (FISH)

Fisheries and Allied Aquacultures (FISH) (FINC 7600 or FINC 7606) or BUSI 7110 Advanced analytical methods for security spreadsheets, case analysis, company analysis, and current topics in finance. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

Fisheries and Allied Aquacultures (FISH) (FINC 7600 or FINC 7606) or BUSI 7110 Advanced analytical methods for security spreadsheets, case analysis, company analysis, and current topics in finance. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.
**Fisheries and Allied Aquacultures (FISH)**

**FISH 5520 SMALL IMPOUNDMENT MANAGEMENT (3)** LEC. 5, LAB. 10 Pr., (BIOL 1030 or BIOL 1037) and FISH 2100. Major aspects of primarily recreational fishing pond management, including construction, stocking, water quality management, harvest strategy, diagnosis of problems and communication of analyses. Summer.

**FISH 5630 FACILITIES FOR AQUACULTURE (3)** LEC. 2, LAB. 4 Pr., (BIOL 1030 or BIOL 1037) and CHEM 1040 and FISH 2100 Principles and practice of site selection, design and construction of aquacultural facilities, with emphasis on impoundments and ponds. Odd years. Spring.

**FISH 5850 FISH AND SEAFOOD PROCESSING TECHNOLOGY (3)** LEC. 3 Pr., CHEM 2030 and BIOL 3200 Emphasis on important species, market forms, preservation techniques, and rules and regulations of the seafood industry. Summer.

**FISH 5670 FISHERIES AND AQUACULTURES EXTENSION METHODS (2)** LEC. 2 Pr., (BIOL 1030 or BIOL 1037) and CHEM 1040 and FISH 2100 Concepts and practices pertaining to aquacultural extension organization, administration, program development and implementation. Summer.

**FISH 5725 MARINE ICHTHYOLOGY (6)** LEC. 6 Pr., BIOL 1030 or 1037. General background in the biology of marine fishes and their taxonomy. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, MS. Summer. Pr., Acceptance at GCRL; Departmental approval.

**FISH 5745 MARINE FISHERIES MANAGEMENT (4)** LEC. 4 Overview of practical marine fishery management problems. Offered only at the Gulf Coast Research Laboratory. Ocean Springs, MS. Summer. Pr., departmental approval; admission to the Gulf Coast Research Laboratory.

**FISH 6210 PRINCIPLES OF MARINE AQUACULTURE (3)** LEC. 3 Pr., BIOL 1030 or BIOL 1037. Principles underlying aquatic productivity and levels of management as demonstrated by present practices of aquaculture around the world. Fall.

**FISH 6215 MARINE AQUACULTURE (2)** LEC. 1, LAB. 2. Introduction to culture of marine species with emphasis in nutrition and feeding, reproductive biology, production techniques, processing, marketing and economics. Taught at the Dauphin Island Sea Lab. Summer.

**FISH 6220 WATER SCIENCE (3)** LEC. 3 Pr., CHEM 1040. Properties of water, the water cycle, basic water chemistry and water quality with emphasis on water in managed ecosystems. Fall.

**FISH 6240 HATCHERY MANAGEMENT (4)** LEC. 2, LAB. 8 Pr., FISH 6210. Study of warm-water hatchery techniques and application of those techniques in the field. Spring.

**FISH 6250 AQUACULTURE PRODUCTION (4)** LEC. 3, LAB. 4 Pr., BIOL 1030 or BIOL 1037. Factors affecting growth and yield of aquacultural species, with implications toward farming commonly cultured species. Production techniques for commercially important finfish are discussed. Summer.

**FISH 6320 LIMNOLOGY (4)** LEC. 3, LAB. 6 Pr., CHEM 1040 and BIOL 3060 and FISH 5220. Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of freshwater communities. Focus on interactions among these variables. Credit will not be given for both FISH 5320 and FISH 6320.

**FISH 6380 GENERAL ICHTHYOLOGY (4)** LEC. 3, LAB. 6 Pr., BIOL 1030 or BIOL 1037 Survey of the biodiversity of world and local fishes, with an overview of ecology, behavior, biology and conservation of fishes. Fall.

**FISH 6410 INTRODUCTION TO FISH HEALTH (2)** LEC. 2 Pr., BIOL 1030 or BIOL 1037 Introduction to parasitic, bacterial and viral pathogens of wild and cultured finfish and shellfish. Fall.

**FISH 6425 MARINE FISH DISEASES (4)** LEC. 7.5, LAB. 6 Pr., (BIOL 1030 or BIOL 1037) and BIOL 3200 Introduction to diseases of marine finfish and shellfish and practical techniques used to isolate and identify diseases. Taught at Dauphin Island Sea Lab, Summer. First Term. Summer.

**FISH 6510 FISHERIES BIOLOGY AND MANAGEMENT (4)** LEC. 3, LAB. 4 Pr., BIOL 1030 or BIOL 1037 This course provides a general overview and introduction to fisheries management with emphasis on freshwater examples. The laboratory will provide hands-on field experience. Credit will not be given for both FISH 5510 and FISH 6510. Fall.

**FISH 6520 SMALL IMPOUNDMENT MANAGEMENT (3)** LEC. 5, LAB. 10 Pr., (BIOL 1030 or BIOL 1037) and BIOL 3200 Introduction to diseases of marine finfish and shellfish and practical techniques used to isolate and identify diseases. Taught at Dauphin Island Sea Lab, Summer. First Term. Summer.

**FISH 6510 FISHERIES BIOLOGY AND MANAGEMENT (4)** LEC. 3, LAB. 4 Pr., BIOL 1030 or BIOL 1037 This course provides a general overview and introduction to fisheries management with emphasis on freshwater examples. The laboratory will provide hands-on field experience. Credit will not be given for both FISH 5510 and FISH 6510. Fall.

**FISH 6650 FISH AND SEAFOOD PROCESSING TECHNOLOGY (3)** LEC. 3 Pr., CHEM 2030 and BIOL 3200 Emphasis on important species, market forms, preservation techniques, and rules and regulations of the seafood industry. Summer.

**FISH 6670 FISHERIES AND AQUACULTURE EXTENSION METHODS (2)** LEC. 2 Concepts and practices pertaining to aquacultural extension organization, administration, program development and implementation. Summer.

**FISH 6725 MARINE ICHTHYOLOGY (6)** LEC. 6 Pr., BIOL 3060 and FISH 6380 General background in the biology of marine fishes and their taxonomy. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, MS. Summer. Pr., Acceptance at GCRL; Departmental approval.

**FISH 6735 PRINCIPLES OF MARINE AQUACULTURE (6)** LEC. 6 Pr., BIOL 6000-8999 Principles and technologies for culture of commercially important marine organisms. Offered at the Gulf Coast Research Laboratory, Ocean Springs, MS. Summer. Pr., Acceptance at GCRL; Departmental approval.

**FISH 7230 WATER AND SEDIMENT QUALITY MANAGEMENT IN AQUACULTURE (4)** LEC. 3, LAB. 3 Pr., FISH 6220 Advanced treatment of water and sediment quality management in aquaculture. Analytical methods for soil and water quality. Fall.

**FISH 7240 RESOURCE USE AND ENVIRONMENTAL ISSUES IN AQUACULTURE (2)** LEC. 2 Resource use, environmental effects, and sustainability of aquaculture with emphasis on approaches to improving efficiency and reducing negative environmental effects. Fall.

**FISH 7270 CRUSTACEAN AND MOLLUSCAN AQUACULTURE (4)** LEC. 3, LAB. 3 Pr., FISH 5210 or FISH 6210 General biology and culture techniques of the major shrimp, crawfish and shellfish species cultured throughout the world. Spring.

**FISH 7330 RESERVOIR LIMNOLOGY (3)** LEC. 2, LAB. 5 Pr., FISH 5320 or FISH 6320 Consideration of the ecological characteristics of reservoirs as they relate to modern concepts of ecosystem management. Even years. Summer.

**FISH 7340 FISH ECOLOGY (3)** LEC. 2, LAB. 3 Pr., BIOL 3060 Study of interactions among fish and their environment. Laboratory will emphasize critical literature reading and experimental approaches. Even years. Fall.

**FISH 7360 MANAGEMENT OF AQUATIC FLORA IN FISHERIES AND AQUACULTURE (4)** LEC. 3, LAB. 6 Pr., BIOL 6120 Role of aquatic vegetation in fish production, its utilization and control. Odd years. Summer.

**FISH 7380 ECOLOGY AND MANAGEMENT OF RIVERINE SYSTEMS (4)** LEC. 3, LAB. 3 Pr., BIOL 7370 River systems within a landscape ecology and ecosystem management context. Laboratory sessions stress techniques for assessment and management. Even years. Spring.

**FISH 7410 MOLECULAR DIAGNOSIS: PRINCIPLES AND APPLICATIONS (3)** LEC. 3 Introduction to molecular biology techniques currently used in disease diagnosis.

**FISH 7420 FISH DISEASES (4)** LEC. 4 Pr., BIOL 3200 Diagnostic techniques for viral, bacterial, fungal and parasitic diseases of fishes, including etiologic agents, geographical ranges, species susceptibility, clinical signs, clinical pathology, epidemiology and management. Fall.

**FISH 7440 FISH ANATOMY AND PHYSIOLOGY (3)** LEC. 2, LAB. 3 Pr., FISH 5380 or FISH 6380 Advanced studies of fish anatomy and physiology. Emphasis of tissues and topics of importance in fishery biology, aquaculture and fish health. Spring.

**FISH 7450 FISH PATHOLOGY (3)** LEC. 2, LAB. 3 Pr., FISH 5410 or FISH 6410 or FISH 7420. Morphological and physiological changes in fish with infectious or non-infectious diseases. Even years. Fall.

**FISH 7460 CLINICAL FISH DISEASE DIAGNOSIS (1-3)** LEC. 2 Pr., FISH 6410 and FISH 7420. Practical experience in necropsy of diseased fish. Identification of causative agents and prescription of appropriate disease control. Course may be repeated for a maximum of 3 credit hours.

**FISH 7530 FISH POPULATION DYNAMICS (3)** LEC. 2, LAB. 4 Pr., FISH 6510 or FISH 6510 and STAT 7040. Derivation of fish population estimates, growth, recruitment and mortality; use of modeling techniques to assess exploited fish populations. Even years. Spring.

**FISH 7540 QUANTITATIVE TECHNIQUES IN FISHERY ASSESSMENT (3)** LEC. 2, LAB. 4 Pr., FISH 6510 or FISH 5510 and STAT 7000 and STAT 7040 Quantitative techniques to assess and manage fish populations in freshwater. The laboratory will analyze actual fisheries data using SAS on personal computers. Odd years. Spring.

**FISH 7640 FISH NUTRITION (3)** LEC. 3. Fundamental and applied aspects of fish nutrition, including nutrient requirements, physiology of food assimilation, feed preparation, and practical feeding.

**FISH 7641 FISH NUTRITION LABORATORY (2)** LEC. 6 Cr., FISH 7640. Laboratory exercises in analysis of fish feeds and formulation and preparation of fish feeds. Summer.

**FISH 7660 FISH GENETIC ENHANCEMENT AND RESOURCE MANAGEMENT (3)** LEC. 3 Pr., BIOL 3000 Basis of genetic enhancement in aquatic animals by selective breeding, genome manipulation and genetic engineering, genetic maintenance and conservation. Odd years. Fall.
**Foreign Languages and Literatures (FLNG)**

**FLCN 1000 ELEMENTARY CHINESE ABROAD (1-10).** LEC. Elementary coursework on approved study-abroad program. May repeat up to 10 credit hours. Pr., departmental approval.

**FLCN 1010 ELEMENTARY CHINESE I (4).** LEC. Exposure to Chinese language and culture for students with little or no knowledge of Chinese.

**FLCN 1020 ELEMENTARY CHINESE II (4).** LEC. Pr., FLCN 1010. Fulfills CLA foreign language core requirement. Continued exposure to Chinese language and culture. Pr., departmental approval.

**FLCN 2000 INTERMEDIATE CHINESE ABROAD (1-10).** IND. Variable credit, determined by dept. Intermediate coursework on approved study-abroad program. May repeat up to 10 credit hours. Pr., departmental approval.

**FLCN 2010 INTERMEDIATE CHINESE I (4).** LEC. Continued exposure to Chinese culture; introduction to intermediate language skills. Pr., departmental approval.

**FLCN 2020 INTERMEDIATE CHINESE II (4).** LEC. Continued exposure to Chinese culture; intermediate language skills with emphasis on grammar. Pr., departmental approval.

**FLCN 3000 ADVANCED CHINESE ABROAD (1-10).** IND. Variable credit, determined by dept. Advanced coursework on approved study-abroad program. May repeat up to 10 credit hours. Pr., departmental approval.

**FLCN 3010 CHINESE COMPOSITION AND CONVERSATION (3-6).** LEC. Intense practice of spoken and written Chinese, both text- and situation-based. Pr., departmental approval.

**FLCN 3050 CHINESE CINEMA (3).** LEC. 3. Major works of Chinese cinema from 1920s to present with emphasis on cultural and literary aspects.

**FLCN 3450 TOPICS IN CHINESE LITERATURE AND CULTURE (3-6).** LEC. Directed study of topics of interest. May repeat up to 6 credit hours with change of topics.

**FLCN 3510 INTRODUCTION TO CHINESE CULTURE IN ENGLISH (3-6).** LEC. Chinese culture as depicted in art, film, literature, history. May repeat up to 6 credit hours.

**FLCN 3930 DIRECTED STUDY IN CHINESE (1-8).** IND. Directed study in area of special interest for the superior student in Chinese.

**FLFR 1010 ELEMENTARY FRENCH I (4).** LEC. 3. LAB. 2. Basic language skills with emphasis on conversation. For students with less than two years of high school French. Exposure to culture.

**FLFR 1020 ELEMENTARY FRENCH II (4).** LEC. 3. LAB. 2 Pr., FLFR 1010 Basic language skills with emphasis on conversation. Exposure to culture. Fulfills College of Liberal Arts core foreign language requirement. Pr., FLFR 1010 or two or more years of high school French.

**FLFR 1030 READING PROFICIENCY IN FRENCH (3).** LEC. 3. SU. For graduate students, who should consult their advisors for specific departmental language requirements. May not be used to fulfill undergraduate language requirements.

**FLFR 2000 INTERMEDIATE FRENCH ABROAD (1-10) AAB/FLD.** For course work at the intermediate level, taken on an approved study program abroad. The student should consult with the French undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

**FLFR 2010 INTERMEDIATE FRENCH I (4).** LEC. 3. LAB. 2 Pr., FLFR 1020 Language skills, grammar review, readings in French culture, literature, and history. Pr., FLFR 1020 or 4 or more years of high school French or departmental approval.


**FLFR 3000 JUNIOR/ADVANCED FRENCH ABROAD (1-9) AAB/FLD.** Course work at the junior/advanced level, taken on an approved study program abroad. The student should consult with the undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

**FLFR 3010 FRENCH PHONETICS AND DICTION (3).** LEC. 3 Pr., FLFR 2020 Basic principles of French phonetics through sound recognition discrimination and intensive practice. Pr., departmental approval.

**FLFR 3030 FRENCH CONVERSATION (3).** LEC. 3 Pr., FLFR 2020 Intensive practice in spoken French, based on texts and everyday situations, especially in contemporary French society. Includes review of vocabulary, Pr., departmental approval.

**FLFR 3040 FRENCH COMPOSITION (3).** LEC. 3 Pr., FLFR 2020 Review of grammar and practice in writing on topics ranging from descriptions and personal opinions to current affairs and social problems. Pr., departmental approval.

**FLFR 3100 INTRODUCTION TO FRENCH LITERATURE (3).** LEC. 3 Pr., FLFR 3030 or FLFR 3040 Provides grounding in basic analytical approaches, language and organizational skills needed to discuss French literature effectively and coherently, orally or in writing. Pr., departmental approval.

**FLFR 3110 FRENCH CIVILIZATION (3).** LEC. 3 Pr., FLFR 2020 Consideration of topical aspects of the cultural heritage of France, as reflected in present day life patterns, traditions and institutions. Pr., departmental approval.

**FLFR 3140 SURVEY OF FRENCH LITERATURE (3).** LEC. 3 Pr., FLFR 3100 The Middle Ages to the 1800’s. Coherent and effective writing in French. Pr., departmental approval.

**FLFR 3150 SURVEY OF FRENCH LITERATURE II (3).** LEC. 3 Pr., FLFR 3100 Readings in French literature from the 19th Century to the present (prose, theatre, and poetry), centered on a theme or topic. Pr., departmental approval.

**FLFR 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN FRENCH (1).** LEC. 1 Pr., FLFR 2010 Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than language. Parallel enrollment is recommended. Pr., departmental approval. Course may be repeated for a maximum of 9 credit hours.

**FLFR 3310/3313/3314 BUSINESS FRENCH (3).** Intensive practice in preparing commercial correspondence and reading contracts, agreements, and related documents in French. Emphasis will be placed on the acquisition of a business-oriented vocabulary. Pr., One FLFR 3000-level course.

**FLFR 3350 TOPICS IN FRENCH LITERATURE AND CULTURE (3).** LEC. 3 Pr., ENGL 1120 or ENGL 1127 Topics drawing on French literature, history, fine arts, or culture of general interest to students with little or no previous study of French.

**FLFR 3930 DIRECTED STUDIES (1-3) IND.** Directed study in an area of special interest to the superior student in French. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

**FLFR 4000 SENIOR/ADVANCED FRENCH ABROAD (1-9) FLD.** Course work at the senior/advanced level, taken on an approved study program abroad. The student should consult with the undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

**FLFR 4020 ADVANCED GRAMMAR AND STYLISTICS (3).** LEC. 3 Pr., FLFR 3040 Practice in writing and analyzing French texts, with emphasis on advanced grammatical structures and stylistics. Pr., FLFR 3040 or equivalent.

**FLFR 4030 FRENCH CONTINUING CONVERSATION (3).** LEC. 3 Pr., FLFR 3030 and FLFR 3040 Continuing practice in spoken French to maintain and upgrade proficiency. Major credit will not be given for FLFR or FLFT majors. Course may be repeated for a maximum of 2 credit hours. Pr., departmental approval.
FLFR 4040 FRENCH CONTINUING COMPOSITION (3) LEC. 3 Pr., FLFR 3030 and FLFR 3040 Continuing practice in written French to maintain and upgrade proficiency. Pr., departmental approval.

FLFR 4310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3 Pr., FLFR 3310 Practical exercises in preparing and translating trade correspondence and documents in French as well as assigned group work and case studies under simulated real life pressures. Pr., departmental approval.

FLFR 4410 ADVANCED TOPICS IN FRENCH LITERATURE, CULTURE OR LANGUAGE (3) LEC. 3 The study of a special aspect or theme of the French Language, Literature, or Culture. Course may be repeated for a maximum of 9 credit hours. Pr.; Three 3000-level French courses or departmental approval.

FLFR 4740 TRANSLATION (3) LEC. 3 Pr., FLFR 3000-3999 and FLFR 3040 Basic techniques and problem areas in translating from French into English and from English into French.

FLFR 4930 DIRECTED STUDY (1-3) IND. Pr., FLFR 3000-3999 Directed study in area of special interest for the superior student in French. Course may be repeated for a maximum of 6 credit hours. 

FLFR 4980 FRENCH SENIOR CAPSTONE (1) IND. 1 SU. Assessment of language skills through written paper and oral exam. Fall, Spring.

FLFR 5310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3 Pr., FLFR 3000-3999 Practice in handling, preparing and translating international trade correspondence documents and related legal procedures in French. Development of case studies and other international trade group work in French and in English under simulated real life pressures. Pr., departmental approval.

FLFR 5970 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS (3) LEC. 3 Pr., FLFR 3000-3999 Review of principal grammatical structures, develop skills through appropriate exercises and class assignments, and improve stylistic sensitivity by exposure to a variety of language samples. Pr., departmental approval.

FLFR 5980 SEMINAR IN FRENCH LITERARY GENRES AND MOVEMENTS (3) LEC. 3 Pr., FLFR 3000-3999 Seminar in advanced languages skills or topics from French literary genres and movements. Pr., departmental approval.

FLFR 6310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3 Pr., FLFR 3000-3999 Practice in handling, preparing, and translating international trade correspondence documents and related legal procedures in French. Departmental approval.

FLFR 6970 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS (3) LEC. 3 Pr., FLFR 3000-3999 Review of principal grammatical structures, develop skills through appropriate exercises and class assignments, and improve stylistic sensitivity by exposure to a variety of language samples. Pr., departmental approval.

FLFR 6980/6986 SEMINAR IN FRENCH LITERARY GENRES AND MOVEMENTS (3) SEM. 3 Pr., FLFR 3000-3999 Seminar in advanced languages skills or topics from French literary genres and movements. Pr., departmental approval.

FLFR 7000 GRADUATE FRENCH ABROAD (1-9) AAB/FLD. For course work at the graduate level taken on an approved study program abroad. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

FLFR 7010 ADVANCED FRENCH CIVILIZATION (3) LEC. 3 An in-depth study of French civilization with emphasis on the relationship of history, arts, and literature from prehistoric times to the present. Pr., departmental approval.

FLFR 7020 ADVANCED COMPOSITION AND STYLISTICS (3) LEC. 3 Graduate status, or departmental approval. Acquisition of advanced writing skills in French. Techniques and strategies of appropriate stylistic expression through analysis of various sources of texts: Literary, historical, commercial, popular, etc. Pr., Graduate status, or departmental approval.

FLFR 7090 INTRODUCTION TO COLLEGE LEVEL FRENCH INSTRUCTION (1) LEC. 1 SU. Orientation to French graduate studies. Introduction to College-level French instruction, critical observation of performance and guidance by designated instructors. Pr., departmental approval.

FLFR 7430 FRENCH PRESS (3) LEC. 3 Political, intellectual and cultural events in France, Europe, and the world as reflected in major French daily and weekly publications. Pr., departmental approval.

FLFR 7740 ADVANCED TRANSLATION (3) LEC. 3 Acquisition of skills for translation from French to English and from English to French using a wide variety of texts including historical, literary, commercial, and popular sources. Pr., departmental approval.

FLFR 7920 FOREIGN LANGUAGE CAREER INTERNSHIP (1-6) INT. Experiential learning either in the business community or in university-sponsored programs outside the United States. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

FLFR 7930 DIRECTED STUDIES IN LANGUAGE SKILLS (3) LEC. 3 Course may be repeated for a maximum of 6 credit hours.

FLFR 7960 SPECIAL PROBLEMS IN FRENCH LANGUAGE, LITERATURE OR CULTURE (1-3) IND. Study in a specialized area under close supervision of an instructor. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

FLFR 7970 SPECIAL TOPICS (1-3) SEM. The detail study of a specific aspect of the French language, literature, or Culture. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

GREEK (FLGK)

FLGK 1010 ELEMENTARY CLASSICAL GREEK I (4) LEC. 3, LAB. 2 Classical Greek. Introduction to the knowledge and skills necessary for reading ancient Greek. Fall.

FLGK 1020 ELEMENTARY CLASSICAL GREEK II (4) LEC. 3, LAB. 2 Pr., FLGK 1010 Classical Greek. Introduction to the knowledge and skills necessary for reading ancient Greek. Fulfills College of Liberal Arts foreign language core requirement. Spring. Pr., departmental approval.

FLGK 2010 INTERMEDIATE CLASSICAL GREEK I (4) LEC. 3, LAB. 2 Pr., FLGK 1020 Classical Greek. Introduction to reading ancient Greek prose and poetry. Fall. Pr., departmental approval.


FLGK 3110 CLASSICAL GREEK LITERATURE (3) LEC. 3, LAB. 2 Pr., FLGK 2010 Advanced readings in ancient Greek prose and poetry. Course may be repeated with change in topic. Pr., departmental approval.

FLGK 3510 CLASSICAL GREEK LITERATURE AND CULTURE (3) LEC. 3. Classical Greek cultural practices and ideology with a focus on literary evidence. Readings in English.

FLGK 3930 DIRECTED STUDIES IN ANCIENT GREEK LITERATURE (1-3) IND. Independent study of classical Greek text(s). Topic proposed by student in conjunction with faculty advisor. Course may be repeated with change in topic. Pr., departmental approval.

GERMAN (FLGR)

FLGR 1000 ELEMENTARY GERMAN ABROAD (1-10) IND. Course work at the elementary level. This credit may substitute for required 1000 level courses in German. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

FLGR 1010 ELEMENTARY GERMAN I (4) LEC. 3, LAB. 2 Fundamentals of German language skills stressed. Exposure to Germanic civilization. For students with no previous background or less than two years of high school German.

FLGR 1020 ELEMENTARY GERMAN II (4) LEC. 3, LAB. 2 Pr., FLGR 1010 Review of basic German grammar and vocabulary. Fundamentals of German language skills with progressive emphasis on conversation. Fulfills the College of Liberal Arts foreign language core requirement. Pr., departmental approval.

FLGR 1030 READING PROCIENCY IN GERMAN (3) LEC. 3 Reading proficiency for graduate students, who should consult their advisors for specific departmental language requirements. May not be used to satisfy undergraduate language requirements. Fall.

FLGR 2000 INTERMEDIATE GERMAN ABROAD (1-10) AAB/FLD. Course work at the intermediate level taken on an approved study program abroad. The student should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

FLGR 2010 INTERMEDIATE GERMAN I (4) LEC. 3, LAB. 2 Pr., FLGR 1020 Language skills stressed; structural review and composition; readings in German literature and German civilization. Pr., 4 years of high school German or departmental approval.

FLGR 2020 INTERMEDIATE GERMAN II (4) LEC. 3, LAB. 2 Pr., FLGR 2010 Continued review of German grammar and syntax, vocabulary building. Additional work in composition; readings in German literature and civilization. Pr., departmental approval.

FLGR 3000 JUNIOR ADVANCED GERMAN ABROAD (1-10) AAB/FLD. Course work at the advanced level taken on an approved study program abroad. The student should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

FLGR 3010 BEGINNING GERMAN COMPOSITION AND CONVERSATION (3) LEC. 3 Pr., FLGR 2020 Concentration on developing skills in written and spoken German. Review of German grammar and syntax, vocabulary building. Work in German phonology. Fall. Pr., FLGR 2020 or equivalent.

FLGR 3020 INTERMEDIATE GERMAN COMPOSITION AND CONVERSATION (3) LEC. 3 Pr., FLGR 2020 Further development of skills in written and spoken German. Continued review of selected topics of grammar and syntax, and vocabulary acquisition. Spring. Pr., FLGR 3010 or equivalent.

FLGR 3030 ADVANCED GERMAN COMPOSITION AND CONVERSATION (3) LEC. 3 Pr., FLGR 2020 Introduce linguistic principles governing mechanics of spoken German. Emphasizes English-German contrast and pronunciation difficulties. Further development of conversation skills.
FLIT 3930 DIRECTED STUDIES IN ITALIAN (1-3). Directed study in area of special interest. May be repeated for a maximum of 9 credit hours. Pr., departmental approval.

FLIT 3110 SPECIAL TOPICS IN ITALIAN (3). Supplementary instruction in Italian language, literature, culture. Pr., departmental approval. Course may be repeated for a maximum of 9 credit hours.

FLIT 1000 ELEMENTARY ITALIAN ABROAD (1-10) AAB/FLD. Course work at the intermediate level taken on an approved study program abroad. The student should consult with the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

FLIT 1010 ELEMENTARY ITALIAN I (4) LEC. 3, LAB. 2 For students with little or no knowledge of Italian. Basic language skills. Exposure to culture. Fall.

FLIT 1020 ELEMENTARY ITALIAN II (4) LEC. 3, LAB. 2 Pr., FLIT 1010 Continuation of basic language skills. Exposure to culture. Fulfills the College of Liberal Arts foreign language core requirement. Pr., departmental approval.

FLIT 2000 INTERMEDIATE ITALIAN ABROAD (1-10) AAB/FLD. Course work at the intermediate level taken on an approved study program abroad. The student should consult with the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

FLIT 2010 INTERMEDIATE ITALIAN I (4) LEC. 3, LAB. 2 Pr., FLIT 1020 Special emphasis on conversation and Italian culture. Language skills stressed, grammar review. Fall. Pr., departmental approval.

FLIT 2020 INTERMEDIATE ITALIAN II (4) LEC. 3, LAB. 2 Pr., FLIT 2010 Special emphasis on reading Spring. Pr., departmental approval.

FLIT 3000 JUNIOR ADVANCED ITALIAN ABROAD (1-9) AAB/FLD. Course work at the junior/advanced level taken on an approved study program abroad. The student should consult with the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

FLIT 3030 ITALIAN CONVERSATION (3) LEC. 3 Pr., FLIT 2010 Intensive practice in spoken Italian, based on texts and everyday situations, especially in contemporary Italian society. Includes review of vocabulary. Pr., departmental approval.

FLIT 3040 ITALIAN COMPOSITION (3) LEC. 3 Pr., FLIT 2020 Review of grammar and practice in writing on topics ranging from descriptions and personal opinions to current affairs and social problems. Pr., departmental approval.

FLIT 3050/3054 ITALIAN CINEMA (3) LEC. 3. Sampling of important films from the time of the telefonibianchi (1937) to the present (major directors and trends), including the intellectual, historical, cultural, and literary matrix of each film.

FLIT 3110 SPECIAL TOPICS IN ITALIAN (3) LEC. 3 Pr., FLIT 2010 Supplementary instruction in Italian language, literature, culture. Pr., departmental approval. Course may be repeated for a maximum of 9 credit hours.

FLIT 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN ITALIAN (1) LEC. 1 Pr., FLIT 2010 Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than language. Parallel enrollment is recommended. Pr., departmental approval. Course may be repeated for a maximum of 9 credit hours.

FLIT 4110 MASTERPIECES OF GERMAN LITERATURE I (3) LEC. 3 Pr., FLGR 3010 Selected readings by representative authors from the periods of German Classicism, Romanticism, and Realism Naturalism. Fall. Pr., departmental approval.

FLIT 4120 MASTERPIECES OF GERMAN LITERATURE II (3) LEC. 3 Pr., FLGR 3010 Selected readings by representative authors from the periods of the early 20th century, Weimar Republic, and Postwar Germany. Pr., departmental approval.

FLIT 4150 GERMAN DRAMA (3) LEC. 3 Pr., FLGR 3000-3999 Consideration, analysis, and criticism of selected German theater works by representative authors. Fall. Pr., departmental approval.

FLIT 4160 CONTEMPORARY GERMAN LITERATURE (3) LEC. 3 Pr., FLGR 3000-3999 Consideration, analysis and criticism of recent selected German literary works. Pr., 3 FLGR 3000-level German courses or departmental approval.

FLIT 4300 GERMAN BUSINESS AND ECONOMICS I (3) LEC. 3 Pr., FLGR 2020 Emphasis on speaking, listening, reading and writing skills in professional, commercial German. Familiarization with German and European business practices. Fall. Pr., departmental approval.


FLIT 4510 GERMAN LITERATURE TRANSLATION I (3) LEC. 3 From Goethe to Thomas Mann. Reading and analysis of significant literary works by major German writers from 1750 to 1945. Pr., departmental approval.

FLIT 4520 GERMAN LITERATURE TRANSLATION II (3) LEC. 3 Postwar German literature. Reading and analysis of significant literary works by major German writers from 1945 to the present. Pr., departmental approval.

FLIT 4910 PRACTICUM IN GERMAN (1-6) PRA. Number of hours and applicability toward major to be determined in consultation with the undergraduate director. Credit may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

FLIT 4950 SEMINAR IN GERMAN LITERATURE (3) SEM. 3 Pr., FLGR 3010 Readings in German literature from selected periods or in selected genres. Pr., departmental approval.

FLIT 4980 SENIOR CAPSTONE (1) IND. 1 SU. Assessment of language skills through written paper and oral exam. Fall. Spring.
FLRN 1030 READING PROFICIENCY IN LATIN (3) LEC. 3. To prepare graduate students to pass the graduate proficiency exam in Latin. Students should check with their Graduate Director for Departmental language requirements before enrolling. Pr., departmental approval.

FLRN 2010 INTERMEDIATE LATIN I (4) LEC. 3, LAB. 2 Pr., FLRN 1020 Review of classical Latin grammar with reading of selections from Latin literature. Fall, Pr., FLRN 1020 or 4 years of high school Latin or departmental approval.


FLRN 3110 LITERATURE (3) LEC. 3 Pr., FLRN 2010 Advanced readings in Latin prose and poetry. Course may be repeated with change in topic. Pr., departmental approval.

FLRN 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN LATIN (1) LEC. 1 Pr., FLRN 1020 Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than language. Parallel enrollment is recommended. Pr., departmental approval. Course may be repeated for a maximum of 9 credit hours.

FLRN 3510 ROMAN LITERATURE AND CULTURE IN TRANSLATION (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Roman oral practices and ideology with a focus on literary evidence. Readings in English.

FLRN 3930 DIRECTED STUDIES IN LATIN LITERATURE (1-3) IND. Independent study of Latin Text(s). Topic proposed by student in conjunction with faculty advisor. Course may be repeated with change in topic. Pr., departmental approval.

FOREIGN LANGUAGE (FLNG)

FLNG 1000 ELEMENTARY FOREIGN LANGUAGE ABROAD (1-10) AAB/FLD. For languages not currently taught in the department of Foreign Languages and Literatures, but taken through approved distance learning or study abroad programs. Credit awarded in consultation with Department Chair. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

FLNG 1010 ELEMENTARY FOREIGN LANGUAGE (4) LEC. 4 For languages not currently taught in the Department of Foreign Language and Literatures. Pr., departmental approval.

FLNG 1020 ELEMENTARY FOREIGN LANGUAGE (4) LEC. 4 Pr., FLNG 1010 For languages not currently taught in the Department of Foreign Language and Literatures. Departmental approval.

FLNG 2000 INTERMEDIATE FOREIGN LANGUAGE (1-10) AAB/LEC. For languages not currently taught in the Department of Foreign Languages and Literatures, but taken through approved distance learning or study abroad programs. Credit awarded in consultation with Department Chair. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

FLNG 4907 HONORS THESIS (1-6) IND. Directed readings and research culminating in a thesis. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

RUSSIAN (FLRU)

FLRU 1010/1013/1014 ELEMENTARY RUSSIAN I (4) LEC. 3, LAB. 2 Fundamentals of Russian. Stress on language skills, progressive emphasis on conversation. Exposure to Russian culture and civilization.

FLRU 1020/1023/1024 ELEMENTARY RUSSIAN II (4) LEC. 3, LAB. 2 Pr., FLRU 1010 or FLRU 1013 or FLRU 1014 Fundamentals of Russian. Stress on language skills, progressive emphasis on conversation. Exposure to Russian culture and civilization. Fulfills College of Liberal Arts foreign language core requirement.

FLRU 2010 INTERMEDIATE RUSSIAN I (4) LEC. 3, LAB. 2 Pr., FLRU 2020 Stress on language skills, structural review and composition. Continued exposure to Russian civilization. Pr., departmental approval.

FLRU 2020 INTERMEDIATE RUSSIAN II (4) LEC. 3, LAB. 2 Pr., FLRU 2010 Stress on language skills, structural review and composition. Continued exposure to Russian civilization. Pr., departmental approval.

FLRU 2510 RUSSIAN CULTURE IN ENGLISH (3) LEC. 3 Intensive exposure to Russian culture from the 10th century to the Revolution as reflected in the fine arts and literature.

FLRU 2520 RUSSIAN TODAY IN ENGLISH (3) LEC. 3. Intensive introduction to Russian culture from the Revolution to the present, as reflected in the fine arts and literature.

SPANISH (FLSP)

FLSP 1000 ELEMENTARY SPANISH ABROAD (1-10) AAB/FLD. Course work at the elementary level. This credit may substitute for required 1000 level courses in Spanish. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

FLSP 1010 ELEMENTARY SPANISH I (4) LEC. 3, LAB. 2 Basic language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. For students with less than 2 years of high school Spanish.

FLSP 1020 ELEMENTARY SPANISH II (4) LEC. 3, LAB. 2 Fundamentals of Spanish language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. Fulfills College of Liberal Arts foreign language core requirement.

FLSP 1030 READING PROFICIENCY IN SPANISH (3) LEC. 3. SUI. Enables graduate students to read and understand scholarly material in Spanish related to their field of study. May not be used to satisfy undergraduate language requirements. Spring. Pr., departmental approval.

FLSP 2010 INTERMEDIATE SPANISH I (4) LEC. 3, LAB. 2 Pr., FLSP 1020 A review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures. Fall. Pr., departmental approval.

FLSP 2020 INTERMEDIATE SPANISH II (4) LEC. 3, LAB. 2 Pr., FLSP 2010 Continued review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures. Fall. Pr., departmental approval.

FLSP 3000 JUNIOR ADVANCED SPANISH ABROAD (1-9) AAB/FLD. Course work at the junior/advanced level taken on an approved study program abroad. The student should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

FLSP 3010 SPANISH PHONETICS (3) LEC. 3 Pr., FLSP 2020 Training in practical phonetics with an emphasis on pronunciation correctness. Fall, Spring. Pr., departmental approval.

FLSP 3020 SPANISH SYNTAX (3) LEC. 3 Pr., FLSP 2020 Sentence structure in Spanish emphasizing the interrelationship among the various parts of speech. Fall, Spring. Pr., departmental approval.

FLSP 3030 SPANISH CONVERSATION (3) LEC. 3 Pr., FLSP 2020 Intensive practice in spoken Spanish, based on texts and everyday situations, especially in contemporary Spanish society. Includes review of vocabulary, Pr., departmental approval. Course may be repeated for a maximum of 9 credit hours.

FLSP 3040 SPANISH COMPOSITION (3) LEC. 3 Pr., FLSP 2020 Review of grammar and practice in writing on topics ranging from descriptions and personal opinions to current affairs and social problems. Pr., departmental approval.

FLSP 3100 INTRODUCTION TO HISPANIC LITERATURE (3) LEC. 3 Pr., FLSP 2020 Study of literary genres, rhetorical figures, and other critical concepts. Literary analysis of Spanish and Spanish American texts. Fall, Spring.

FLSP 3110 SPANISH CIVILIZATION I (3) LEC. 3 Pr., FLSP 3040 or 3020. Culture of Spain up to 1700. Emphasis on geographic, historical, social, artistic, and political forces in Spanish civilization. Fall.

FLSP 3120 SPANISH CIVILIZATION II (3) LEC. 3 Pr., FLSP 3040 or 3020. Culture of Spain from 1700 to the present. Emphasis on geographic, historical, social, artistic, and political forces in Spanish civilization. Spring.

FLSP 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN SPANISH (1-10) LEC. 1 Pr., FLSP 2010 Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than Spanish. Parallel enrollment is recommended. Pr., departmental approval. Course may be repeated for a maximum of 9 credit hours.

FLSP 3210 SPANISH-AMERICAN CIVILIZATION I (3) LEC. 3 Pr., FLSP 3040 or 3020. Intensive exposure to the culture of Spanish America from Pre-Columbian times through the Independence movement. Fall.

FLSP 3220 SPANISH-AMERICAN CIVILIZATION II (3) LEC. 3 Pr., FLSP 3040 or 3020. Intensive exposure to the culture of Spanish America from Independence to the present, as reflected in the fine arts and literature. Spring.

FLSP 3310 COMMERCIAL SPANISH TRANSLATION (3) LEC. 3 Pr., FLSP 3040 or 3020. Introduction to the techniques of English/Spanish and Spanish/English translation in a commercial environment, including correspondence, technical documents, advertising, and oral translation. Fall.

FLSP 3970 SPECIAL TOPIC IN HISPANIC FILM (3) LEC. 3. The main purpose of the Topics in Hispanic Film course is to study film as a window into Hispanic cultures--both Spanish and Spanish-American. Course may be repeated for a maximum of 6 credit hours.

FLSP 4000 SENIOR ADVANCED SPANISH ABROAD (1-9) AAB/FLD. Course work at the senior/advanced level taken on an approved study program abroad. The student should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

FLSP 4020 CONTINUING SPANISH SYNTAX (1-3) AAB/IND. Continuing practice in Spanish syntax. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.
FLSP 4030 CONTINUING SPANISH CONVERSATION (1-3) AAB/IND. Continuing practice in Spanish conversation. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

FLSP 4040 CONTINUING SPANISH COMPOSITION (1-3) IND. Continuing practice in Spanish composition. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

FLSP 4110 MASTERPIECES OF SPANISH LITERATURE (3) LEC. 3 Pr., FLSP 3040 or 3020. Major works of Spanish literature from medieval times to the present. Fall.

FLSP 4120 TOPICS IN SPANISH LITERATURE (3) LEC. 3 Pr., FLSP 3040 or 3020. Readings in Spanish literature. Spring. Course may be repeated with change in topic.

FLSP 4210 MASTERPIECES OF SPANISH-AMER LITERATURE (3) LEC. 3 Pr., FLSP 3040 or 3020. Major works of Spanish American literature from Colonial times to the present. Fall.

FLSP 4220 TOPICS IN SPANISH-AMERICAN LITERATURE (3) LEC. 3 Pr., FLSP 3040 or 3020. Readings in Spanish American Literature. Spring. Course may be repeated with a change in topic.

FLSP 4310 BUSINESS SPANISH I (3) LEC. 3 Pr., FLSP 3040 or 3020. Business vocabulary and terminology, business practices and cultural influences in the Hispanic world. Fall, Spring.

FLSP 4320 BUSINESS SPANISH II (3) LEC. 3 Pr., FLSP 3040 or 3020. Business vocabulary and terminology, business practices and cultural influences in the Hispanic world. Fall, Spring.

FLSP 4330 TOPICS IN BUSINESS SPANISH (3) LEC. 3 Pr., FLSP 3040 or 3020. Study of an aspect of Spanish business terminology/ documentation. Course may be repeated with change in topic.

FLSP 4420 TOPICS IN HISPANIC LITERATURE AND CULTURE (3) LEC. 3 Pr., FLSP 3040 or 3020. An analysis of the cultural milieu which influences artistic creativity within a historical period.

FLSP 4510 SPANISH LITERATURE TRANSLATION (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127. Major works of Spanish literature in English translation. Pr., departmental approval.

FLSP 4520 SPANISH-AMERICAN LITERATURE IN TRANSLATION (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127. Major works of Spanish American literature in English translation. Pr., departmental approval.

FLSP 4910 PRACTICUM IN SPANISH (1-3) AAB/PR. Academic credit for practical work experience related to the major field. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

FLSP 4980 SENIOR CAPSTONE (1) IND. 1 SU. Assessment of language skills through written paper and oral exam. Fall, Spring.

FLSP 5010 ADVANCED SPANISH PHONETICS (3) LEC. 3 Pr., FLSP 3000-3999. Advanced training in Spanish phonetics with specific course materials determined by needs of students. Pr., 4000-level Spanish courses or departmental approval.

FLSP 5020 ADVANCED SPANISH SYNTAX (3) LEC. 3 Pr., FLSP 3000-3999. Advanced training in Spanish syntax and stylistics with specific course materials determined by needs of students. Pr., 4000-level Spanish courses or departmental approval.

FLSP 6010 ADVANCED SPANISH PHONETICS (3) LEC. 3 Pr., FLSP 3000-3999. Advanced training in Spanish phonetics with specific course materials determined by needs of students. Pr., 4000-level Spanish courses or departmental approval.

FLSP 6020 ADVANCED SPANISH SYNTAX (3) LEC. 3 Pr., FLSP 3000-3999. Advanced training in Spanish syntax and stylistics with specific course materials determined by needs of students. Pr., 4000-level Spanish courses or departmental approval.

FLSP 7000 GRADUATE SPANISH ABROAD (1-9) AAB/FLD. Course work at the graduate level taken on an approved study program abroad. The student should consult with the Spanish graduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

FLSP 7010 HISTORY OF THE SPANISH LANGUAGE (3) LEC. 3. The diachronic study of the development of the Spanish language from its Latin origins to the present.

FLSP 7020 SPANISH LINGUISTICS (3) LEC. 3 A synchronic study of the Spanish language focusing on phonology, morphology, syntax and lexicology, taking into consideration dialectal differences.

FLSP 7030 APPLIED SPANISH LINGUISTICS (3) LEC. 3. A critical study of the current research done in applied linguistics regarding the acquisition of Spanish by non-native speakers, with emphasis on the emphasis on the problems faced by adult English-speaking individuals.

FLSP 7050 LITERARY CRITICISM AND THEORY (3) LEC. 3 A study of contemporary literary criticism and theory as it relates to Spanish and Spanish American Literature.

FLSP 7060 RESEARCH METHODS (1) LEC. 1 SU. An introduction to the methods of scholarly investigation in literary history and criticism. Credit may not be used to satisfy degree requirements.

FLSP 7090 INTRODUCTION TO COLLEGE LEVEL SPANISH INSTRUCTION (1) LEC. 1 SU. Instruction for graduate teaching assistants including critical observation in performance and guidance by a designated supervisory professor. Required of all students who hold a graduate teaching assistantship. Credit may not be used to satisfy degree requirements.

FLSP 7100 SPANISH MEDIEVAL LITERATURE I (3) LEC. 3 A critical and historical study of medieval Spanish literature through representative texts from the various genres of the period beginning with the origins of Spanish literature until 1299 a.d.

FLSP 7110 SPANISH MEDIEVAL LITERATURE II (3) LEC. 3 A study of medieval Spanish literature through representative texts from the various genres of the period corresponding to the years 1300-1500 a.d.

FLSP 7120 16TH CENTURY SPANISH LITERATURE (3) LEC. 3 A critical and historical study of representative literary works in all genres from around 1492 to the end of the 16th Century.

FLSP 7130 17TH CENTURY SPANISH LITERATURE (3) LEC. 3 A critical and historical study of representative literary works in all genres in the 17th Century with emphasis on Baroque literature.

FLSP 7140 SURVEY OF 18TH AND 19TH CENTURY SPANISH LITERATURE (3) LEC. 3 Survey of the major literary-cultural/historical trends present in 18th and 19th Century Spanish literature.

FLSP 7150 HISPANIC COLONIAL LITERATURE OF THE UNITED STATES (3) LEC. 3 Explores works of literature dealing with the Colonial Hispanic exploration and colonization of the United States from the 16th to 19th centuries.

FLSP 7160 20TH CENTURY SPANISH LITERATURE (3) LEC. 3 A critical and historical study of 20th-century Peninsular literature from the Generation of 98 to Spanish post-war literature through representative works in all genres.

FLSP 7170 CONTEMPORARY SPANISH LITERATURE (3) LEC. 3 A critical and historical study of contemporary literature from the Spanish Civil War to the present through representative works in all genres.

FLSP 7210 COLONIAL SPANISH-AMERICAN LITERATURE (3) LEC. 3 A study of representative literary genres and authors of Vice Regal America from Spanish transcriptions of Pre-Columbian works to those just prior to the Wars of Independence.

FLSP 7220 SPANISH AMERICAN POETRY I (3) LEC. 3 A critical and historical study of the development of Spanish American poetry from 1824 to the first generation of Modernism.

FLSP 7230 SPANISH AMERICAN POETRY II (3) LEC. 3 A critical and historical study of the development of Spanish American Poetry from Post-Modernism to the present.

FLSP 7240 SPANISH-AMERICAN POST-COLONIAL PROSE TEXTS TO THE NEW NARRATIVE (3) LEC. 3 A critical and historical study of representative essayists and fiction writers of the 19th and 20th centuries predating the New Narrative.

FLSP 7250 THE NEW NARRATIVE IN SPANISH-AMERICAN FICTION: MODERNIST AND POST-MODERNIST TEXTS (3) LEC. 3 A critical and historical study of major works of Modernist and Postmodernist fiction that achieved international acclaim during the second half of the 20th century.

FLSP 7270 SPANISH AMERICAN THEATER I (3) LEC. 3 A critical and historical study of the development of Spanish American Theatre emphasis on the period prior to 1900.

FLSP 7280 SPANISH AMERICAN THEATER II (3) LEC. 3 A critical and historical study of the development of Spanish American theater from 1900 to present.

FLSP 7300 DON QUIJOTE (3) LEC. 3 A critical study of Cervantes’ masterpiece.

FLSP 7970/7976 SPECIAL TOPICS IN LINGUISTICS, LITERATURE AND CULTURE (3) AAB/SEM. 3 An in-depth study of a movement of author(s) and analysis of the cultural milieu which influences creativity or an investigation of a specific linguistic phenomenon in Spanish. Course may be repeated with a change in topic. Pr., BA in Spanish or BS in Foreign Language Education in Spanish. Course may be repeated with change in topics.

FLSP 7990 RESEARCH AND THESIS (1-10) MST. Directed readings and research culminating in a thesis. Course may be repeated with change in topic.
Forestry (FORY)

Forest Engineering (FOEN)
Dean Richard Brinker - 844-1007
Dr. Steve Taylor - 844-3534

FOEN 3000 INTRODUCTION TO FORESTRY OPERATIONS (2) LEC. 3, Pr., FORY or BSEN majors. Introduction to basic field operations in Forestry including site preparation and planting, harvesting and primary manufacturing processes.

FOEN 3040 FOREST SURVEYING (3) LEC. 1, LAB. 8 Basic land surveying concepts and procedures as applied to Forestry. Use of basic surveying instruments and calculations for land areas, boundaries, and topographic features. Summer.

FOEN 4220 LOWVOLUME ROAD DESIGN (3) LEC. 2, LAB. 3 Pr., FOEN 3040 or BSEN 3230 Engineering design of low volume, unpaved roads, especially for forestry applications, including preconstruction planning, construction and maintenance, horizontal and vertical alignment, earthwork volume and distribution analysis, cost analysis, and Best Management Practices. Fall.

FOEN 4730 APPLICATION OF TIMBER HARVESTING TECHNIQUES (2) LEC. 1, LAB. 3 Pr., FOEN 5700 Business considerations including safety, regulations, contracts, deeds and cost accounting and analysis combined with equipment operation and maintenance. Fall.

FOEN 4930 DIRECTED STUDIES (1-3) IND. Faculty supervision of individual student investigations of specialized problems in forest engineering. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

FOEN 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Topics of an undergraduate nature pertinent to Forest Engineering. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

FOEN 4970 SPECIAL TOPICS (1-4) LEC. Individual or small group study of a specialized area in forest engineering. Course may be repeated for a maximum 12 credit hours. ADDITIONAL PREREQUISITES: Departmental approval. Course may be repeated for a maximum of 8 credit hours.

FOEN 4997 HONORS THESIS (1-6) IND. Directed research and Honors Thesis. Course may be repeated for a maximum of 6 credit hours. ADDITIONAL PREREQUISITES: Departmental approval. Course may be repeated for a maximum of 6 credit hours.

FOEN 5230 ENGINEERED WOOD STRUCTURE DESIGN (3) LEC. 2, LAB. 3 Pr., ENGR 2070. Load, deflection criteria; engineering characteristics of wood; design of wood components and mechanical connections; shear walls and diaphragms; trusses; bridges; post-frame construction. Fall.

FOEN 5700 HARVESTING (3) LEC. 2, LAB. 3 Pr., FORY 3180 Analysis of the administration of timber harvest, equipment choice, planning methods, movement of timber products, machine and system costs, balancing of harvesting systems, logging safety, and environmental impact. Spring.

FOEN 5710 TIMBER HARVESTING ANALYSIS METHODS (3) LEC. 2, LAB. 3 Pr., FOEN 3000 Analysis methods for timber harvesting productivity and costs including gathering of time and production data, preparation of data for analysis and statistical modeling. Spring.

FOEN 7930 DIRECTED STUDIES (1-3) IND. Faculty supervision of individual student investigations of advanced specialized problems in forest engineering. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

FOEN 7970 SPECIAL TOPICS (1-4) LEC. Individual or small group study of an advanced specialized area in forest engineering. Course may be repeated for a maximum of 12 credit hours. Pr., departmental approval.

Forestry (FORY)

FOPR 3390 INTRODUCTION TO WOOD SCIENCE AND FOREST PRODUCTS (3) LEC. 2, LAB. 3 Pr., FORY 3020. The basic properties of wood and their impact on the manufacture of forest products. Identification of important products and woods. Fall.

FOPR 4200 FOREST PRODUCTS UTILIZATION (3) LEC. 2, LAB. 3 Pr., FOPR 3390 Properties, grades and specification of solid softwood and hardwood products. Properties and specifications of wood composite products. Utilization of solid wood and wood composite products. Fall.

FOPR 4740 WOOD ADHESIVES AND COATINGS (3) LEC. 2, LAB. 3 Pr., FOPR 3390 Types and characteristics of adhesives and wood coating materials and their uses in primary and secondary wood products manufacturing. Spring.

FOPR 4780 WOOD CHEMISTRY (3) LEC. 3 Pr., CHEM 2070 Chemical composition of wood, chemical analyses of wood components and their derivatives and utilization. Energy from wood and forest residues. Spring.

FOPR 4930 DIRECTED STUDIES (1-3) IND. Analysis of a problem in forest products or wood science involving library research, laboratory or field work and a report on the findings. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

FOPR 4970 SPECIAL TOPICS (1-4) LEC. Study of timely topics in forest products on an as needed or as available basis. Pr., departmental approval. Course may be repeated for a maximum of 8 hours.


FOPR 5300 MECHANICAL AND PHYSICAL PROPERTIES OF WOOD (3) LEC. 2, LAB. 3 Pr., FOPR 4200 Mechanical and physical properties of wood and factors affecting their structural performance, including wood- moisture relationships, density, specific gravity, thermal, electrical and acoustical properties. Spring.

FOPR 5350 FOREST PRODUCTS PRODUCTION AND OPERATIONS MANAGEMENT (3) LEC. 3 Pr., FOPR 3390 Production and operations management concepts, principles and techniques applied to wood products manufacturing. Problem situation analyses with emphasis on economic decision making. Fall.

FOPR 5360 FOREST PRODUCTS MARKETING (3) LEC. 3 Pr., FOPR 3390 Managerial approach to marketing of forest products. In-depth examination of major forest products markets, the Marketing Mix concept, and marketing strategy and tactics. Spring.

FOPR 5500 MODERN SAWMILL TECHNOLOGY AND OPERATIONS MANAGEMENT (3) LEC. 3 Pr., FOPR 3390 Design, operation and management of sawmills with emphasis on computer-aided processing and decision making. Fall.


FOPR 6300 MECHANICAL AND PHYSICAL PROPERTIES OF WOOD (3) LEC. 2, LAB. 3 Pr., FOPR 4200 Mechanical and physical properties of wood and factors affecting their structural performance, including wood-moisture relationships, density, specific gravity, thermal, electrical and acoustical properties. Spring.

FOPR 6350 FOREST PRODUCTS PRODUCTION AND OPERATIONS MANAGEMENT (3) LEC. 3 Pr., FOPR 3390 Production and operations management concepts, principles and techniques applied to wood products manufacturing. Problem situation analyses with emphasis on economic decision making. Fall.

FOPR 6360 FOREST PRODUCTS MARKETING (3) LEC. 3 Pr., FOPR 3390 Managerial approach to marketing of forest products. In-depth examination of major forest products markets, the Marketing Mix concept, and marketing strategy and tactics. Spring.

FOPR 6500 MODERN SAWMILL TECHNOLOGY AND OPERATIONS MANAGEMENT (3) LEC. 3 Pr., FOPR 3390 Design, operation and management of sawmills with emphasis on computer-aided processing and decision making. Fall.

FOPR 7030 PHYSICS OF WOOD AND WOOD COMPOSITES (3) LEC. 3 Hydrothermophysics, dimensional stability, acoustics, piezoelectric properties and defectoscopy of wood and its composites. Fall. Pr., departmental approval.


FOPR 7060 ADVANCED FOREST PRODUCTS PRODUCTION AND OPERATIONS MANAGEMENT (3) LEC. 3 Pr., FOPR 5350 or FOPR 6350 Analysis of production/operations management problem situations in wood products manufacturing through systems approach and quantitative modeling techniques. Spring.

FOPR 7930 DIRECTED STUDIES (1-3) IND. Analysis of a problem in forest products or wood science involving library research, laboratory or field work and a report on the findings. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

FOPR 7970 SPECIAL TOPICS (1-4) LEC. Study of timely topics in forest products on an as needed or as available basis. Pr., departmental approval. Course may be repeated for a maximum of 12 hours.

FOPR 7990 RESEARCH AND THESIS (1-15) MST. Course reflects time spent on thesis research project. Pr., departmental approval.

FOPR 8930 DIRECTED STUDIES (1-3) IND. Analysis of a problem in forest products or wood science involving library research, laboratory or field work and a report on the findings. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

FOPR 8970 SPECIAL TOPICS (1-4) LEC. Study of timely topics in forest products on an as needed or as available basis. Course may be repeated for a maximum of 12 credit hours. Pr., departmental approval.

FOPR 8990 RESEARCH AND DISSERTATION (1-15) DSR. Course reflects time spent on dissertation research project. Pr., departmental approval.

Forestry (FORY)

Dr. Greg Somers - 844-1006

FORY 3020 FOREST BIOLOGY (2) LEC. 1, LAB. 3 FORY or BSEN majors. Introduction to biological and ecological principles as trees in forest management; identification of major tree species. Summer.

FORY 3050 FIELD MENSURATION (3) LEC. 1, LAB. 8 FORY or BSEN majors. Basic concepts and procedures for measuring trees, stands and other forest
resources; units of measure, log rules, volume tables, condition class mapping and timber estimation, Summer.

FORY 3060 INTRODUCTION TO FOREST MANAGEMENT STRATEGIES (2)
LEC. 1. LAB. FORY or BSEN majors. 3 Biological, social, and economic principles underlying forest management strategies, the diversity of forestry enterprises, and the complexities facing forest managers. Summer.

FORY 3100 DENDROLOGY (3) LEC. 2. LAB. 3 Pr., FORY 3020 Taxonomy and identification of important forest trees of the U.S., including cover types of forest regions. Fall.

FORY 3180 FOREST MEASUREMENTS I (3) LEC. 2. LAB. 3 Pr., FORY 3050 Theoretical and empirical estimates of tree and log volumes, tree taper, and yield tables. Sampling design and analysis to estimate current conditions of timber stands. Fall.

FORY 3200 FOREST TREE PHYSIOLOGY (3) LEC. 3 Pr., FORY 3020 Relationship between cultural, environmental and genetic factors that affect metabolism and growth of individual trees. Fall.

FORY 3440 ENVIRONMENTAL LAW (3) LEC. 3 Jr., Junior Standing. A review of environmental law including: competing interests; common law remedies; land use; and Federal statutes on water, air, toxins and waste. Spring.

FORY 3500 FORESTRY FOR SMALL WOODLAND OWNERS (3) LEC. 3 An appreciation of forest trees and the environment, the environmental functions of trees, and the economic potential of a balanced land-use plan.

FORY 3540 ESTATE PLANNING (3) LEC. 3 Pr., Junior Standing. Planning for the disposition of assets including wills and trusts, the transfer tax system, and strategies to minimize the taxable estate. Spring.

FORY 3640 TAXATION OF TIMBER AND OTHER NATURAL RESOURCES (2) LEC. 2 Income taxation of natural resources, including passive loss rules, depletion and capital gains, and an introduction to taxation of businesses. Fall.

FORY 4190 FOREST MEASUREMENTS II (3) LEC. 2. LAB. 3 Pr., FORY 3180 with a minimum grade of C. Factors affecting and mathematical principles of tree- volume and stand growth. Spring.

FORY 4230 FOREST ECOCYLOGY (3) LEC. 2. LAB. 3 Pr., FORY 3180 and FORY 3200 with minimum grades of C. Forests as functional systems, the biotic and abiotic environment, temporal changes in ecosystem structure and function, application of ecological information. Spring.

FORY 4440 FOREST FIRE MANAGEMENT (3) LEC. 1. LAB. 6 Pr., FORY 4230 or BIOL 3060 The management of fire, both as a tool and wildfire suppression in the management of forested ecosystems. Emphasis placed on experience, technique and administration. Spring.

FORY 4500 NATURAL RESOURCES LAW AND ECONOMICS (3) LEC. 3 Pr., ECON 2070 Economic causes, rationale, and consequences of natural resources. Summer.

FORY 4550 PROPERTY LAW (3) LEC. 3 Land ownership, transfer and management including trespass, nuisance, adverse possession, easements, concurrent ownership, land use regulations and regulatory takings.

FORY 4820 FORESTRY IN THE PRIVATE SECTOR (2) SEM. 4 Pr., FORY 5410 Management systems and practices used in wood purchasing, timber harvesting and timberland management including public relations, forest sustainability, certification and personal business skills. Spring.

FORY 4830 INDUSTRIAL WOOD PROCUREMENT PRACTICUM (1) PFA. 2 SU. Pr., FORY 3050 Strategies, field and office procedures involved in purchasing wood for an industrial forestry firm. Taught as a weekend field exercise at Solon Dixon Forest Education Center. Course may be repeated for a maximum of 2 credit hours.

FORY 4930 DIRECTED STUDIES (1-3) IND. Analysis of a problem in forestry involving library research, laboratory or field work and a report on the findings. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

FORY 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Topics of an undergraduate nature pertinent to Forestry. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

FORY 4970 SPECIAL TOPICS (1-4) LEC. Study of timely topics in forestry on an as needed or as available basis Course may be repeated for a maximum of 8 credit hours.

FORY 4980 SENIOR CAPSTONE PROJECT (4) LEC. 4 Pr., FORY 5230 and FORY 5410 Integrated study of Forest Resource Management using a case-study approach through development of a comprehensive plan related to the declared emphasis. Spring.

FORY 4990 SCHOLARS PROJECT (1-3) IND. A problem in the student's area of interest. To promote independent work, library research, field work, data analysis or other tasks. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

FORY 4997 HONORS THESIS (1-6) IND. Directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

FORY 5150 FOREST HEALTH (3) LEC. 3 Pr., FORY 3020 with a minimum grade of C or BIOL 3060. Importance, taxonomy, identification and integrated pest management strategies of principle disease, insect and abiotic disorders of forest and shade trees from seedlings to maturity and forest products. Fall.

FORY 5151 FOREST HEALTHLABORATORY (1) LEC. 1 Cr., FORY 5150 Identification of basic diseases and insects that affect forest health along with identification of their damage; the processes of pathogen infection and symptomology; and the process of wood decay studied in a laboratory and field environment.

FORY 5230 SILVICULTURE (4) LEC. 3. LAB. 3 Pr., FORY 4230 with a minimum grade of C or BIOL 5140 or BIOL 3060 or BSEN 3230. Principles and methods of controlling establishment, growth and quality of forest stands. Application of ecological principles to manipulation of forest ecosystems to meet specific objectives. Fall.

FORY 5240 FOREST WATERSHED MANAGEMENT (2) LEC. 2 Pr., FORY 5230 or BIOL 5140 The hydrologic cycle in forests. Effects of forestry practices on erosion processes, site quality, and water quality. Spring.

FORY 5310 ENVIRONMENTAL ETHICS (3) LEC. 3 Critical examination of environmental ethics: historical development and various ethical perspectives. Examination of current environmental issues using perspectives covered in course. Fall.

FORY 5400 FOREST ECONOMICS (3) LEC. 2. LAB. 3 Pr., FORY 3180 with a minimum grade of C. Marginal analysis, investment theory, resource supply, economics of conservation, and taxation principles applied to forestry. Structure and performance of forest products markets. Spring.

FORY 5410 FOREST MANAGEMENT AND ADMINISTRATION (3) LEC. 2. LAB. 3 Pr., FORY 5400 and FORY 4190 with minimum grades of C. Quantitative approaches to decision making in Forestry with an emphasis on the interests of large scale firms and agencies. Fall.

FORY 5420 FOREST POLICY (3) LEC. 3 Pr., FORY 5400 with a minimum grade of C. History and current situations regarding both public and private sector aspects of forest policies, and the effects of political, economic, legal, and social dynamics. Spring.

FORY 5440 INTERNATIONAL FORESTRY (3) LEC. 2. Presentation of the world's forested ecosystems, their characteristics, silviculture, utilization, international trade and policies affecting their sustainable use. Spring.

FORY 5450 FOREST SECTOR ECONOMICS (3) LEC. 3 Pr., FORY 5400 Status, trend, employment and other fundamentals of forest industry, Timber supply and demand, forest products supply and demand, technological change, international trade. Spring.

FORY 5470 GIS APPLICATIONS IN NATURAL RESOURCES (2) LEC. 1. LAB. 3 Basic understanding of GIS through discussion of the basic components of a GIS and how GIS are used in forestry applications. Fall. Pr., departmental approval.

FORY 5480 GIS DATABASE DESIGN AND ANALYSIS (2) LEC. 2 Geographic information system database planning, design, creation, management and analysis using a project oriented approach. Spring. Pr., departmental approval.

FORY 5550 URBAN FORESTRY (3) LEC. 2. LAB. 3 Pr., FORY 3100 or HORT 3220 Principles and concepts of tree establishment, management and health in an urban environment. Case studies of urban forestry programs are presented. Spring.

FORY 6150 FOREST HEALTH (3) LEC. 3 Pr., FORY 3020 or BIOL 3060 Importance, taxonomy, identification and integrated pest management strategies of principle disease, insect and abiotic disorders of forest and shade trees from seedlings to maturity and forest products. Fall.

FORY 6151 FOREST HEALTH LABORATORY (1) LEC. 1 Cr., FORY 6150 Identification of basic diseases and insects that affect forest health along with identification of their damage; the processes of pathogen infection and symptomology; and the process of wood decay studied in a laboratory and field environment.

FORY 6230 SILVICULTURE (4) LEC. 3. LAB. 3 Pr., FORY 4230 or BIOL 3060 or BIOL 5140 or BIOL 6140 or BSEN 3230 Principles and methods of controlling establishment, growth and quality of forest stands. Application of ecological principles to manipulation of forest ecosystems to meet specific objectives. Fall.

FORY 6240 FOREST WATERSHED MANAGEMENT (2) LEC. 2 Pr., FORY 5230 or FORY 6230 or BIOL 5140 or BIOL 6140 The hydrologic cycle in forests. Effects of forestry practices on erosion processes, site quality, and water quality. Spring.

FORY 6310 ENVIRONMENTAL ETHICS (3) LEC. 3 Critical examination of environmental ethics. Historical development and various ethical perspectives. Examination of current environmental issues using perspectives covered in course. Fall.

FORY 6400 FOREST ECONOMICS (3) LEC. 2. LAB. 3 Pr., FORY 3180 Marginal analysis, investment theory, resource supply, economics of conservation, and taxation principles applied to forestry. Structure and performance of forest products markets. Spring.

FORY 6410 FOREST MANAGEMENT AND ADMINISTRATION (3) LEC. 2. LAB. 3 Pr., (FORY 5400 or FORY 6400) and FORY 4190 Quantitative approaches to decision making in Forestry with an emphasis on the interests of large scale firms and agencies. Fall.
FORY 6420 FOREST POLICY (3) LEC. 3 Pr., FORY 5400 or FORY 6400 History and current situations regarding both public and private sector aspects of forest policies, and the effects of political, economic, legal, and social dynamics. Spring.

FORY 6440 INTERNATIONAL FORESTRY (2) LEC. 2 Presentation of the world’s forested ecosystems, their characteristics, silviculture, utilization, international trade and policies affecting their sustainable use. Spring.

FORY 6450 FOREST SECTOR ECONOMICS (4) LEC. 4 Pr., FORY 5400 or FORY 6400 Fundamentals of forest industry, timber supply and demand, forest products supply and demand, technological change, international trade and development, sophisticated forest sector modeling. Spring.

FORY 6470 GIS APPLICATIONS IN NATURAL RESOURCES (2) LEC. 1, LAB. 3 Basic understanding of GIS through discussions of the components of a GIS and how GIS are used in natural resource applications. Fall. Pr., departmental approval.

FORY 6480 GIS DATABASE DESIGN AND ANALYSIS (2) LEC. 2 Geographic information system database planning, design, creation, management and analysis using a project oriented approach. Spring. Pr., departmental approval.

FORY 6650 URBAN FORESTRY (3) LEC. 2, LAB. 3 Pr., FORY 3100 or HORT 3220 Principles and concepts of tree establishment, management and health in an urban environment. Case studies of urban forestry programs are presented. Spring.

FORY 7110 FOREST BIOGEOCHEMISTRY (3) LEC. 2, LAB. 3 Pr., FORY 6230 Fundamental and applied aspects of forest biogeochemical processes at scales of the individual tree, forest community, and forest ecosystem. Spring.

FORY 7140 FOREST NURSERY MANAGEMENT (2) LEC. 2 Pr., FORY 3200 Principles of seedling development and growth as applied to forest nursery management. Evaluation of activities to improve the outplanting performance of Southern Pine seedlings. Odd years. Spring.

FORY 7160 ADVANCED STUDIES OF THE EFFECTS OF AIR POLLUTION (4) LEC. 2, LAB. 3 Pr., FORY 4230 and FORY 3200 Woody plant responses to air pollutants. Emphasis on pollutant sources, mechanisms of toxicity, methodologies used and ecosystem and global effects. Even years. Spring.

FORY 7170 ECOPHYSIOLOGY OF FOREST TREES (3) LEC. 3 Pr., BIOL 3100 or FORY 3200 Interactions among the environment, silvicultural practices, physiologi cal mechanisms and tree growth. Integration of root, shoot and foliar functions and leaf, tree and stand level processes. Odd years. Spring.

FORY 7210 ECOSYSTEM ECOLOGY (3) LEC. 3 Pr., BIOL 3060 or FORY 4230 or BIOL 5140 or BIOL 6140 To create a conceptual model of the terrestrial ecosystem including spatial distributions over time; and the impact of human activity and natural disturbance. Spring.

FORY 7220 LANDSCAPE ECOLOGY (3) LEC. 3 Pr., BIOL 3060 or FORY 4230 or BIOL 5140 or BIOL 6140 The development and dynamics of spatial heterogeneity, interactions and exchange across heterogeneous landscapes and the influence of spatial heterogeneity on biotic and abiotic processes. Even years. Fall.

FORY 7250 PLANTATION ESTABLISHMENT AND MANAGEMENT (2) LEC. 1, LAB. 3 Pr., FORY 4230 Current plantation establishment problems and practices in the Southern United States. Principles of nursery management, tree improvement, seedling establishment, vegetation management, pruning and site interactions. Even years. Spring.

FORY 7330 ECOLOGY AND SILVICULTURE OF EASTERN HARDWOOD FORESTS (3) LEC. 2. LAB. 3 Pr., FORY 4230 Silvicultural characteristics of major hardwood species and community composition, dynamics, site relationships, and silviculture of Southern and Eastern deciduous forests, emphasizing oaks. Odd years. Fall.

FORY 7440 FOREST FINANCE AND INVESTMENT (3) LEC. 3 Principles of corporate and real estate finance as applied to commercial timberland and the place of this asset class in individual and institutional portfolios. Spring. Pr., departmental approval.

FORY 7480 ADVANCED FOREST ECONOMICS (3) LEC. 3 Evolution of the role of economics in forestry, policy and production analysis methods, non-market valuation, and social analysis. Spring.

FORY 7480 ADVANCED FOREST POLICY (3) LEC. 3 Pr., FORY 5400 or FORY 6400 Policy process and players, theory and evolution of property rights, public choice theory, land ethics, policy analysis, programs and statutory laws, forest policy in an international context. Odd years. Spring.

FORY 7510 RESEARCH METHODS (2) LEC. 1, LAB. 3 Overview of the scientific method and its application in forestry/natural resources research. Evaluation and preparation of project proposals with emphasis on research quality and written communication skills. Fall.

FORY 7550 ADV STUDIES FOREST HYDROLOGY (3) LEC. 3 In depth focus on components of the hydrologic cycle in forested landscapes and how changes in the landscape and management practices impact the hydrologic regime in the watershed. Pr., departmental approval.

FORY 7580 NATURAL RESOURCE POLICY ANALYSIS AND ADMINISTRATION (3) LEC. 3 The policy-making process, the history of natural resource and environmental policy, and applied techniques in policy analysis. Summer.

FORY 7850 URBAN FORESTRY SEMINAR (1) SEM. 1 Presentation and discussion of research, scientific papers and issues related to urban forest establishment, care and planning. Credit will not be given for both FORY 7850 and HORT 7850. Fall.

FORY 7910 PRACTICUM IN COLLEGE TEACHING (1) PRA. 1 SIU. Techniques and practice of collegiate teaching at the level of Graduate Assistant. Students work under direct supervision and tutelage of the instructor.

FORY 7930 DIRECTED STUDIES (1-3) IND. Analysis of a problem in forestry involving library research, laboratory or field work and a report on the findings. Pr., departmental approval. Course may be repeated for a maximum of 9 credit hours.

FORY 7950 SEMINAR (1) SEM. 3 SU. Develop the ability and confidence in making oral presentations based upon research results and provide constructive criticism of peers’ presentations. Spring.

FORY 7970 SPECIAL TOPICS (1-4) LEC. Study of timely topics in forestry on an as needed or as available basis. Course may be repeated for a maximum of 13 credit hours. Pr., departmental approval.

FORY 7980 MASTER OF NATURAL RESOURCES PAPER (2) IND. In-depth study involving library review, data collection and/or data analysis. Pr., departmental Program.

FORY 7990 RESEARCH AND THESIS (1-15) MST. Course reflects time spent on thesis research project. Pr., departmental approval.

FORY 8930 DIRECTED STUDIES (1-3) IND. Analysis of a problem in forestry involving library research, laboratory or field work and a report on the findings. Pr., departmental approval. Course may be repeated for a maximum of 9 credit hours.

FORY 8970 SPECIAL TOPICS (1-4) LEC. Study of timely topics in forestry on an as needed or as available basis. Pr., departmental approval. Course may be repeated for a maximum of 12 credit hours.

FORY 8990 RESEARCH AND DISSEMINATION (1-15) DSR. Course reflects time spent on dissertation research project. Pr., departmental approval.

Forestry and Wildlife Sciences (FOWS)

Dr. Greg Somers - 844-1006

FOWS 1010 INTRODUCTION TO RENEWABLE NATURAL RESOURCES (1) LEC. 1 Introduction to the wealth and breadth of renewable natural resources in the state, region, nation, and world. Speakers cover topics in forestry, wildlife, water, and soil. Fall, Spring.

FOWS 5020 NATURAL RESOURCE ECOLOGY AND HABITAT MANAGEMENT (3) LEC. 3 Ecological principles involved with managing habitats for wildlife and forest resources. Topics will include management strategies and development of management teams in multiple ecosystems. Fall.

FOWS 5050 NATURAL RESOURCE ISSUES AT THE URBAN-RURAL INTERFACE (3) LEC. 3 Urban development impacts on both individual and multiple resource issues and the complexities involved in human- environmental interactions. Spring.

FOWS 5880 ECOLOGICAL ECONOMICS (3) LEC. 3 Foundations, principles and empirical application of ecological economics to address current social and economic issues. Spring.

FOWS 6020 NATURAL RESOURCE ECOLOGY AND HABITAT MANAGEMENT (3) LEC. 3 Ecological principles involved with managing habitats for wildlife and forest resources. Topics will include management strategies and development of management teams in multiple ecosystems. Fall.

FOWS 6050 NATURAL RESOURCE ISSUES AT THE URBAN-RURAL INTERFACE (3) LEC. 3 Urban development impacts on both individual and multiple resource issues and the complexities involved in human- environmental interactions. Spring.

FOWS 6880 ECOLOGICAL ECONOMICS (3) LEC. 3 Foundations, principles and empirical application of ecological economics to address current social and economic issues. Spring.

WILDLIFE SCIENCES (WILD)

Dr. Greg Somers - 844-1006

WILD 1100 WILDLIFE FOOD PLOT ESTABLISHMENT (2) LEC. 2 Fundamental concepts, issues, and concerns related to wildlife food plots and practical procedures for establishment of wildlife food plots. Fall.

WILD 2050 WILDLIFE CONSERVATION HISTORY AND LAW (3) LEC. 3 The history of wildlife conservation in North America, the conservation problems that have arisen since European settlement, and the laws and practices that have evolved to remedy them. Fall.

WILD 3280 PRINCIPLES OF WILDLIFE MANAGEMENT (3) LEC. 3 Pr., BIOL 3060 Fundamentals of wildlife management theory, application, and administration. Fall.

WILD 3281 WILDLIFE MANAGEMENT LABORATORY (1) LAB. 3 Cr., WILD 5280 Laboratory experiences in wildlife management. Fall.

WILD 4310 WILDLIFE MANAGEMENT TECHNIQUES (3) LEC. 1, LAB. 6 Pr., WILD 5280 or WILD 5290 Intensive study of field and laboratory techniques used to man-
WILD 4920 WILDLIFE MANAGEMENT INTERNSHIP (4) PRA. 4 SU. Practical job experience under joint supervision of the Internship advisor and appropriate state, federal, or private agency. Training will prepare student for potential career employment. Pr., departmental approval.

WILD 4930 DIRECTED STUDIES (1-3) IND. Analysis of a problem in wildlife sciences involving library research, laboratory or field work and a report on the findings. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

WILD 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Topics of an undergraduate nature pertinent to wildlife sciences. Course may be repeated for a maximum of 3 credit hours.

WILD 4970 SPECIAL TOPICS (1-4) LEC. Study of timely topics in forestry on an as needed or as available basis. Pr., departmental approval. Course may be repeated for a maximum of 8 credit hours.

WILD 4997 HONORS THESIS (1-6) IND. Directed research and writing of honors thesis. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

WILD 5270 WILDLIFE RESOURCE PHILOSOPHY AND POLICY (3) LEC. 3 Pr., WILD 5280 or WILD 5290 Examination of attitudes, philosophies and policies that govern management of the wildlife resource. Extensive reading and class participation required. Spring.

WILD 5280 WILDLIFE ECOLOGY AND MANAGEMENT I (3) LEC. 3 Pr., WILD 3280 Intensive study of the ecology and management of selected waterfowl, galliforms, gruiforms, raptors, shorebirds, doves and pigeons, woodpeckers and neotropical migrants. Fall.

WILD 5281 WILDLIFE ECOLOGY AND MANAGEMENT I LABORATORY (1) LAB. 3 Cr., WILD 5280 Outdoor and audio-visual identification of selected bird species, habitats, and techniques used to manipulate bird populations and habitats. Some weekend field trips required. Fall.

WILD 5290 WILDLIFE ECOLOGY AND MANAGEMENT II (3) LEC. 3 Pr., WILD 3280 Intensive study of the ecology and management of selected artiodactyls, rodents, lagomorphs, bats, carnivores, and herps. Spring.

WILD 5291 WILDLIFE ECOLOGY AND MANAGEMENT II LABORATORY (1) LAB. 3 Cr., WILD 5290 Outdoor and audio-visual identification of selected mammal and herb species, habitats, and techniques used to manipulate those populations and habitats. Some weekend field trips required. Spring.

WILD 5410 WILDLIFE DAMAGE MANAGEMENT (3) LEC. 2, LAB. 1 Pr., WILD 3280 This course is designed to familiarize students with the basic philosophy, biology, and techniques related to managing negative human wildlife interactions. Spring.

WILD 6270 WILDLIFE RESOURCE PHILOSOPHY AND POLICY (3) LEC. 3 Pr., WILD 6280 or WILD 6290 Examination of attitudes, philosophies and policies that govern management of the wildlife resource. Extensive reading and class participation required. Spring.

WILD 6280 WILDLIFE ECOLOGY AND MANAGEMENT I (3) LEC. 3 Pr., WILD 3280 Intensive study of the ecology and management of selected waterfowl, galliforms, gruiforms, raptors, shorebirds, doves and pigeons, woodpeckers and neotropical migrants. Fall.

WILD 6281 WILDLIFE ECOLOGY AND MANAGEMENT II LABORATORY (1) LAB. 3 Cr., WILD 6280 Outdoor and audio-visual identification of selected bird species, habitats, and techniques used to manipulate bird populations and habitats. Some weekend field trips required. Fall.

WILD 6290 WILDLIFE ECOLOGY AND MANAGEMENT II (3) LEC. 3 Pr., WILD 3280 Intensive study of the ecology and management of selected artiodactyls, rodents, lagomorphs, bats, carnivores, and herps. Spring.

WILD 6291 WILDLIFE ECOLOGY AND MANAGEMENT II LAB (1) LAB. 3 Cr., WILD 6290 Outdoor and audio-visual identification of selected mammal and herb species, habitats, and techniques used to manipulate those populations and habitats. Some weekend field trips required. Spring.

WILD 6410 WILDLIFE DAMAGE MANAGEMENT (3) LEC. 2, LAB. 1 This course is designed to familiarize students with the basic philosophy, biology, and techniques related to managing negative human wildlife interactions. Spring.

WILD 7070 UPLAND WILDLIFE ECOLOGY (4) LEC. 3, LAB. 6 Pr., WILD 5280 or WILD 6280 Application of wildlife ecological theories and methods with emphasis on upland species and habitats. Several overnight field trips may be made. Fall.

WILD 7080 FOREST WILDLIFE ECOLOGY AND MANAGEMENT (4) LEC. 4 Pr., WILD 5280 or WILD 6280 In-depth discussions into life history, biology, ecology, and management of important wildlife species of forested ecosystems. Management strategies for each species emphasized. Summer.

WILD 7200 WILDLIFE NUTRITIONAL ECOLOGY (3) LEC. 3 Exploration of the basic nutrient requirements of free-ranging wildlife and comparison of requirements to related domestic species. Odd years. Fall.

WILD 7250 WILDLIFE POPULATION ANALYSIS (3) LEC. 2, LAB. 3 Pr., STAT 7000 Estimation of survival and success rates for wildlife and fisheries populations. Theoretic approaches for model selection and population modeling. Odd years. Spring.

WILD 7350 WATERFOWL BIOLOGY AND MANAGEMENT (4) LEC. 3, LAB. 3 Pr., WILD 5280 or WILD 6280 Taxonomy, biology and management of waterfowl with emphasis on North American species. Odd years. Spring.

WILD 7930 DIRECTED STUDIES (1-3) LEC. Analysis of a problem in wildlife sciences involving library research, laboratory or field work and a report on the findings. Pr., departmental approval. Course may be repeated for a maximum of 9 credit hours.

WILD 7950 GRADUATE SEMINAR (1) SEM. 1 SU. Students develop ability and confidence in making oral presentations based upon research and provide constructive criticism of their peers’ presentations. Spring.

WILD 7970 SPECIAL TOPICS (1-4) LEC. Study of timely topics in forestry on an as needed or as available basis. Pr., departmental approval. Course may be repeated for a maximum of 12 credit hours.

WILD 7990 RESEARCH AND THESIS (1-12) MIST. Course reflects time spent on thesis research project. Pr., departmental approval.

WILD 8930 DIRECTED STUDIES (1-3) LEC. Analysis of a problem in wildlife sciences involving library research, laboratory or field work and a report on the findings. Pr., departmental approval. Course may be repeated for a maximum of 9 credit hours.

WILD 8970 SPECIAL TOPICS (1-4) LEC. Study of timely topics in forestry on an as needed or as available basis. Pr., departmental approval. Course may be repeated for a maximum of 12 credit hours.

WILD 8990 RESEARCH AND DISSERTATION (1-12) DSR. Course reflects time spent on dissertation research project. Pr., departmental approval.

Geology and Geography

Dr. Charles E. Savrda - 844-4887

GEOG 1010/1013/1014 GLOBAL GEOGRAPHY (3) LEC. 3 Social Science I Core. Spatial and locational context for analyzing change in the contemporary world, including elements of both physical and cultural environments.

GEOG 1017 HONORS GLOBAL GEOGRAPHY (3) LEC. 3 Spatial and locational context for analyzing change in the contemporary world, including elements of both physical and cultural environments.

GEOG 2010 CULTURAL GEOGRAPHY (3) LEC. 3 Spatial perspectives on cultural society and geography’s approach to solving problems using case studies and key issues.

GEOG 2020 PHYSICAL GEOGRAPHY (3) LEC. 3 Selected elements of the earth’s physical system to include such items as landscapes, basic weather elements, soils and vegetation.

GEOG 2800 GEOGRAPHICAL METHODS AND TECHNIQUES (4) LEC. 3, LAB. 2 Pr., COMP 1000 Key geographical concepts and production of basic geographical tools for portraying spatial data through laboratory exercises. Pr., departmental approval.

GEOG 2850 MAP READING AND ANALYSIS (3) LEC. 2, LAB. 2 Introduction to basic concepts and techniques used to interpret map symbols and to analyze geographic patterns.

GEOG 3110 UNITED STATES AND CANADA (3) LEC. 3 Survey of the region incorporating physical and cultural elements, providing a synthesis of the economic and political processes of the U.S. and Canada.

GEOG 3120 ALABAMA AND THE SOUTHEAST (3) LEC. 3 Study of the physical and cultural environments of the state.

GEOG 3130 LATIN AMERICA (3) LEC. 3 Survey of physical and human landscape of the region including historical geography, natural resources, economic development and problems and prospects affecting major countries.

GEOG 3140 AFRICA (3) LEC. 3 Analysis of the relationships among diverse populations and the physical environments of sub-Saharan Africa.

GEOG 3150 EUROPE (3) LEC. 3 Survey of physical and human landscape of the region including historical geography, natural resources, economic development and problems and prospects affecting several of the major countries.

GEOG 3160 ASIA (3) LEC. 3 Survey of the physical and cultural landscape of Asia, including its development and spatial distribution of resources, with a focus on major countries.

GEOG 3300 INTERNATIONAL TRAVEL AND TOURISM (3) LEC. 3 Environmental and cultural patterns that characterize places attractive to tourists. Provides realistic situations for developing travel plans and programs.

GEOG 3810 CARTOGRAPHY AND GRAPHICS (4) LEC. 3, LAB. 2 Pr., GEOG 2800 Techniques of map production including relevant computer graphics applications and related laboratory exercises. Pr., departmental approval.
GEOG 4920 INTERNSHIP (3) LEC. 3 Opportunity to apply classroom experience to real job setting. Course may be repeated for a maximum of 6 credit hours.

GEOG 4930 DIRECTED STUDIES (1-4) IND. Conferences, reading, research and/or reports may fulfill course requirement. Course may be repeated for a maximum of 4 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 4 credit hours.

GEOG 5010 URBAN GEOGRAPHY (3) LEC. 3 Analysis of urban patterns and the processes creating them. Pr., departmental approval.

GEOG 5210 CLIMATOLOGY (3) LEC. 3 The atmosphere and global circulation, El Nino, regional patterns, paleoclimate reconstruction, climate change, climate influences on health and human activities, data sources and statistical analysis, and GIS applications. Pr., departmental approval.

GEOG 5220 GEOMORPHOLOGY (3) LEC. 3 Basic concepts, terms, and techniques used to identify landforms and their evolutionary processes. Credit will not be given for both GEOG 5220 and GEOG 6220.

GEOG 5300 ADVANCED REGIONAL STUDIES IN GEOGRAPHY (3) LEC. 3 Spatial patterns of socio-economic development of Latin America and the Caribbean. Pr., departmental approval.

GEOG 5310 GEOGRAPHY OF RURAL CHANGE (3) LEC. 3 Examination of the patterns and processes associated with populations levels and distributions, natural resource management systems, economic development, and cultural landscapes of rural communities. Credit will not be given for both GEOG 5310 and GEOG 6310.

GEOG 5350 ECONOMIC GEOGRAPHY (3) LEC. 3 Economic Geography in a global context. Spatial aspects of resource use, agricultural development, manufacturing production and services. Pr., departmental approval.

GEOG 5400 GEOGRAPHY OF NATURAL HAZARDS (3) LEC. 3 Geography of natural hazards and their impacts on society. Credit will not be given for both GEOG 5400 and GEOG 6400.

GEOG 5500 GEOGRAPHY OF ENVIRONMENTAL MANAGEMENT (3) LEC. 3 Understanding and application of the theories and methods for the United States’ version of environmental impact assessment. Pr., departmental approval.

GEOG 5510 HUMAN-ENVIRONMENT INTERACTION (3) LEC. 3 Investigation the inter-relationships between humans and their natural or physical environments. Pr., departmental approval.

GEOG 5600 GLOBAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3 Global environmental problems such as climate change, ozone and deforestation and international public agencies and private volunteer movements protecting our global commons. Pr., departmental approval.

GEOG 5700 QUANTITATIVE METHODS AND SPATIAL ANALYSIS (3) LEC. 3 Pr., STAT 2510 Quantitative methodology necessary for spatial analysis research. Credit will not be given for both GEOG 5700 and GEOG 6700. Pr., similar statistics course.

GEOG 5710 GEOGRAPHIC FIELD METHODS (3) LEC. 1, LAB. 4 Geographic methods and techniques used to conduct field research investigations of human and physical characteristics of the landscape. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 5720 GEOPHYSICAL OBSERVATIONS (3) LEC. 3 Introduction to concepts and techniques used in developing a geographic information system (GIS) for evaluating spatial distribution patterns and spatial relationships. Pr., departmental approval.

GEOG 5800 GEOGRAPHIC THOUGHT (3) LEC. 3 Develops effective thinking skills; evaluates written materials in geography; Reviews geographical research and produces written reports and papers related to geographic issues. Pr., departmental approval.

GEOG 5820 AERIAL PHOTOGRAPHY AND REMOTE SENSING (4) LEC. 3, LAB. 2 Pr., GEOG 2800 Aerial photo and satellite digital interpretation, photogrammetry, remote sensing technology and photogrammetry and related laboratory exercises. ADDITIONAL PREREQUISITES: Or departmental approval.

GEOG 5830 GEOGRAPHIC INFORMATION SYSTEMS (4) LEC. 3, LAB. 2 Introduction to concepts and techniques used in developing a geographic information system (GIS) for evaluating spatial distribution patterns and spatial relationships. Pr., departmental approval.

GEOG 5840 ADVANCED CONCEPTS IN CARTOGRAPHY (3) LEC. 2, LAB. 2 Pr., GEOG 3810 Advanced techniques of map design and production including relevant computer graphics applications and related laboratory exercises. Credit will not be given for both GEOG 5800 and GEOG 6800.

GEOG 5850 ADVANCED REMOTE SENSING (3) LEC. 2, LAB. 2 Pr., GEOG 5820 Explores advanced topics of remote sensing for use in research and analysis. Credit will not be given for both GEOG 5870 and GEOG 6870.

GEOG 5860 ADVANCED CONCEPTS IN CARTOGRAPHY (3) LEC. 2, LAB. 2 Pr., GEOG 3810 Advanced techniques of map design and production including relevant computer graphics applications and related laboratory exercises. Credit will not be given for both GEOG 5860 and GEOG 6860.

GEOG 5870 GEOGRAPHIC INFORMATION SYSTEMS (3) LEC. 2, LAB. 2 Pr., GEOG 5830 Advanced concepts and techniques used in the collection and analysis of data for evaluating spatial patterns and process. Credit will not be given for both GEOG 5860 and GEOG 6860.

GEOG 5970 SEMINAR IN GEOGRAPHY (3) LEC. 3 Development of modern geographic thinking with attention to applied research topics. Course may be repeated for a maximum of 6 credit hours.

GEOG 6010 URBAN GEOGRAPHY (3) LEC. 3 Analysis of urban patterns and the processes creating them.

GEOG 6210 CLIMATOLOGY (3) LEC. 3 The atmosphere and global circulation, El Nino, regional patterns, paleoclimate reconstruction, climate change, climate influences on health and human activities, data sources and statistical analysis, and GIS applications.

GEOG 6220 GEOMORPHOLOGY (3) LEC. 3 Basic concepts, terms, and techniques used to identify landforms and their evolutionary processes. Credit will not be given for both GEOG 5220 and GEOG 6220.

GEOG 6300 ADVANCED REGIONAL STUDIES IN GEOGRAPHY (3) LEC. 3 Spatial patterns of socio-economic development of Latin America and the Caribbean. Pr., departmental approval.

GEOG 6310 GEOGRAPHY OF RURAL CHANGE (3) LEC. 3 Examination of the patterns and processes associated with populations levels and distributions, natural resource management systems, economic development, and cultural landscapes of rural communities. Credit will not be given for both GEOG 5310 and GEOG 6310.

GEOG 6350 ECONOMIC GEOGRAPHY (3) LEC. 3 Economic Geography in a global context. Spatial aspects of resource use, agricultural development, manufacturing production and services. Pr., departmental approval.

GEOG 6400 GEOGRAPHY OF NATURAL HAZARDS (3) LEC. 3 Geography of natural hazards and their impacts on society. Credit will not be given for both GEOG 5400 and GEOG 6400.

GEOG 6500 GEOGRAPHY OF ENVIRONMENTAL MANAGEMENT (3) LEC. 3 Understanding and application of the theories and methods for the United States’ version of environmental impact assessment. Pr., departmental approval.

GEOG 6510 HUMAN-ENVIRONMENT INTERACTION (3) LEC. 3 Investigation the inter-relationships between humans and their natural or physical environments. Pr., departmental approval.

GEOG 6600 GLOBAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3 Global environmental problems such as climate change, ozone and deforestation and international public agencies and private volunteer movements protecting our global commons. Pr., departmental approval.

GEOG 6700 QUANT METH & SPATIAL ANALYSIS (3) LEC. 3 Pr., STAT 2510 Quantitative methodology necessary for spatial analysis research. Credit will not be given for both GEOG 5700 and GEOG 6700. Pr., similar statistics course.

GEOG 6710 GEOGRAPHIC FIELD METHODS (3) LEC. 1, LAB. 4 Geographic methods and techniques used to conduct field research investigations of human and physical characteristics of the landscape. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 6800 GEOGRAPHIC THOUGHT (3) LEC. 3 Develops effective thinking skills; evaluates written materials in geography; Reviews geographical research and produces written reports and papers related to geographic issues. Pr., departmental approval.

GEOG 6820 AERIAL PHOTOGRAPHY AND REMOTE SENSING (4) LEC. 3, LAB. 2 Aerial photo and satellite digital interpretation, photogrammetry, remote sensing technology and photogrammetry and related laboratory exercises. ADDITIONAL PREREQUISITES: Or departmental approval.

GEOG 6830 GEOGRAPHIC INFORMATION SYSTEMS (4) LEC. 3, LAB. 2 Introduction to concepts and techniques used in developing a geographic information system (GIS) for evaluating spatial distribution patterns and spatial relationships. Pr., departmental approval.

GEOG 6860 ADVANCED CONCEPTS IN CARTOGRAPHY (3) LEC. 2, LAB. 2 Pr., GEOG 3810 Advanced techniques of map design and production including relevant computer graphics applications and related laboratory exercises. Credit will not be given for both GEOG 5860 and GEOG 6860.

GEOG 6870 ADVANCED REMOTE SENSING (3) LEC. 2, LAB. 2 Pr., GEOG 6820 Explores advanced topics of remote sensing for use in research and analysis. Credit will not be given for both GEOG 5870 and GEOG 6870.

GEOG 6880 ADVANCED GEOGRAPHIC INFORMATION SYSTEMS (3) LEC. 2, LAB. 2 Pr., GEOG 6830 Advanced concepts and techniques used in the collection and analysis of data for evaluating spatial patterns and processes. Credit will not be given for both GEOG 5880 and GEOG 6880.

GEOG 6970 SEMINAR IN GEOGRAPHY (3) LEC. 3 Development of modern geographic thinking with attention to applied research topics. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

GEOG 7990 M.S. RESEARCH AND THESIS (3) RES. 3 Research and Thesis.

GEOLOGY (GEOL)

GEOL 1100 PHYSICAL GEOLOGY (4) LEC. 3, LAB. 2 Coreq., GEOL 1101 Science Core. General physical geology. Survey of the important minerals and rocks. Origin and classification of geologic structures, earthquakes, and landforms. Study of geologic maps. Credit will not be given for both GEOL 1100 and GEOL 3190.

GEOL 1101 PHYSICAL GEOLOGY LABORATORY (0) LAB. 2 Coreq., GEOL 1100 Examination of rocks and minerals and use of geologic and topographic maps; Problems in structural geology, earthquakes, and landforms.
LEC. 3 Pr., GEOL 1100 Coreq., GEOL 1111 Science Core. Physical and biological history of the Earth, with emphasis on the evolution of life forms.

GEOL 1111 HISTORICAL GEOLOGY LABORATORY (3) LEC. 2 Pr., GEOL 1100 Coreq., GEOL 1110 Examination of rock, fossil, and related data sets bearing on the geological development of the earth with emphasis on North America.

GEOL 1200 MARINE TECHNICAL METHODS (2) LAB. 8 Introduction to procedures utilized aboard marine research vessels; physical, biological and geological measurements and sampling techniques. Taught only at Dauphin Island Sea Lab. Summer. Pr., departmental approval.

GEOL 1220 COASTAL CLIMATOLOGY (2) LEC. 7 Controlling factors and features of world climates, with attention to coastal areas; application and interpretation of climate data. Taught only at Dauphin Island Sea Lab. Summer. Pr., departmental approval.

GEOL 2010/2013 MINERALOGY AND OPTICAL CRYSTALLOGRAPHY (5) LEC. 4, LAB. 2 Pr., CHEM 1040 Departmental approval. Physical and chemical properties of minerals, classification and roles with emphasis on natural systems, materials science, health, and environment. Credit will not be given for both GEOL 2010 and GEOL 2013.

GEOL 2020 MARINE GEOLOGY (4) LEC. 2, LAB. 4 Geology of ocean basins; special emphasis on continental shelves, their sediments and the sedimentary process at work there. Taught only at Dauphin Island Sea Lab. Summer. Pr., departmental approval.

GEOL 2050 IGNEOUS AND METAMORPHIC PETROLOGY (4) LEC. 3, LAB. 2 Pr., GEOL 2010 Principles and processes of igneous and metamorphic activity in a plate tectonic and petrologic context. Description, classification and interpretation of igneous and metamorphic rocks.

GEOL 2100 ENVIRONMENTAL GEOLOGY (4) LEC. 3, LAB. 2 Pr., GEOL 1100 Emphasis on geology as an environmental science; applied geology, geological hazards and environmental regulations as applied to geologic environmental remediation.


GEOL 3100 TERRESTRIAL VEGETATION THROUGH EARTH HISTORY (3) LEC. 2, LAB. 2 Pr., GEOL 2200 and (BIOL 1020 or BIOL 1027) Plants are primary producers and are the foundation upon which the global ecosystem is based. This course focuses on the development, evolution, and application of the plant fossil record to problems in earth history.

GEOL 3150 ENGINEERING GEOLOGY (3) LEC. 2, LAB. 2 Fundamental geologic principles, materials, and processes that affect engineering projects and programs. Emphasis on pre-construction geological analysis to recognize potential hazards and problems. Credit will not be given for both GEOL 3150 and GEOL 1100.

GEOL 3200 PRINCIPLES OF PALEONTOLOGY (3) LEC. 2, LAB. 2 Pr., GEOL 1110 The nature of the fossil record, applications of that data to geological and biological questions with emphasis on the concepts using examples from all biotic groups.

GEOL 3300 EVOLUTION AND EXTINCTION OF THE DINOSAURIA (3) LEC. 2, LAB. 2 Pr., GEOL 1100 Survey of the dinosaurs, their evolution and extinction. Southeastern U.S. dinosaurs. ADDITIONAL PREREQUISITES: Or departmental approval.


GEOL 3560 FIELD CAMP (6) LEC. 1, LAB. 10 Pr., GEOL 3400 Instruments and methods used in geological field mapping, interpretation of sedimentary, igneous and metamorphic rocks and deformational analysis. Summer.

GEOL 4010 SEDIMENTARY PETROLOGY (3) LEC. 2, LAB. 2 Pr., GEOL 2050 Detailed description and classification of sediments and sedimentary rocks with emphasis on interpretation of origins, transport histories, depositional environments and diagenetic histories. Pr., departmental approval.


GEOL 4210 ECONOMIC GEOLOGY (3) LEC. 2, LAB. 2 Pr., GEOL 3400 The origin, distribution and classification of mineral deposits formed by igneous, metamorphic and sedimentary processes. Introduction of methods of exploration and development.

GEOL 4260 INTRODUCTION TO GEOCHEMISTRY (3) LEC. 3 Pr., CHEM 1040 and GEOL 2050 Principles governing the distribution of major, minor and trace elements within the earth; differentiation of elements due to geologic processes and the hydrosphere.

GEOL 4300 GEODYNAMICS (3) LEC. 3 Pr., GEOL 3400 and (MATH 1620 or MATH 1627) and PHYS 1510 Structure and dynamics of the earth deduced from seismology, gravity, heat flow and magnetism.

GEOL 4740 GEOLOGY SENIOR SEMINAR (1) LEC. 1 Pr., GEOL 4010 Current concepts and research findings in the principal subject areas within the broad discipline of geology.

GEOL 4930 DIRECTED STUDIES IN UNDERGRADUATE RESEARCH (1-3) IND. Directed studies in areas of geology not covered by an existing course or to supplement knowledge gained from an existing course. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

GEOL 4980 UNDERGRADUATE RESEARCH METHODS (1-3) IND. Active participation in original research under supervision of a senior investigator. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 3 credit hours.

GEOL 4997 HONORS THESIS (2-4) LEC. 3 May incorporate library, field or laboratory research in any proportion. Written thesis and thesis defense required. Course may be repeated for a maximum of 4 credit hours.

GEOL 5060 INVERTEBRATE PALEONTOLOGY (4) LEC. 3, LAB. 2 Pr., GEOL 3200 and (BIOL 1030 or BIOL 1037) In-depth coverage of the invertebrate fossil record, focusing on the systematics and evolutionary history of major groups. Laboratory/discussion sessions and field trips included.

GEOL 5100 HYDROGEOLOGY (3) LEC. 2, LAB. 2 Pr., GEOL 1100 and CHEM 1030 and MATH 1610 and GEOG 5830 and PHYS 1500 Fundamentals of groundwater flow in porous media, hydrodynamic dispersion, determination of aquifer properties and geological aspects of groundwater occurrences. Pr., departmental approval.

GEOL 5240 COASTAL GEOMORPHOLOGY (2) LEC. 5, LAB. 4 Introduction to coastal sediment processes and applied coastal geomorphology; emphasis on waves, tides, sediments and their impact of anthropogenic influences. Taught only at Dauphin Island Sea Lab. Summer. Pr., departmental approval.

GEOL 5300 BASIN ANALYSIS (3) LEC. 2, LAB. 2 Pr., GEOL 4010 Study of analytical techniques of sedimentary basin fills, including thermal history, litho and biofacies analyses, depositional systems, subsurface logs, seismic reflection, provenance history, evolution, sedimentation and subsidence history.

GEOL 5400 PRINCIPLES OF EARTH SCIENCE (3) LEC. 2, LAB. 2 A special course for in-service and future teachers only. Internal and surficial geologic processes, meteorology and oceanography. Pr., departmental approval.

GEOL 5600 APPLIED GEOPHYSICS (4) LEC. 3, LAB. 2 Pr., (GEOL 1100 or GEOL 3150) and (MATH 1620 or MATH 1627) and PHYS 1510 Overview of geophysical methods with applications to tectonic and environmental analyses. Seismic refraction and reflection, gravity, magnetics, electrical and electromagnetic methods will be included. Pr., departmental approval.

GEOL 6060 INVERTEBRATE PALEONTOLOGY (4) LEC. 3, LAB. 2 Pr., GEOL 3200 and (BIOL 1030 or BIOL 1037) In-depth coverage of the invertebrate fossil record, focusing on the systematics and evolutionary history of major groups. Laboratory/discussion sessions and field trips included. Pr., departmental approval.

GEOL 6100 HYDROGEOLOGY (3) LEC. 2, LAB. 2 Pr., GEOL 1100 and CHEM 1030 and MATH 1610 and (GEOG 5830 or GEOG 6830) and PHYS 1500 Fundamentals of groundwater flow in porous media, hydrodynamic dispersion, determination of aquifer properties and geological aspects of groundwater occurrences. Pr., departmental approval.

GEOL 6240 COASTAL GEOMORPHOLOGY (2) LEC. 5, LAB. 4 Introduction to coastal sediment processes and applied coastal geomorphology; emphasis on waves, tides, sediments and their impact of anthropogenic influences. Taught only at Dauphin Island Sea Lab. Summer. Pr., departmental approval.

GEOL 6300 BASIN ANALYSIS (3) LEC. 2, LAB. 2 Pr., GEOL 4010 Study of analytical techniques of sedimentary basin fills, including thermal history, litho and biofacies analyses, depositional systems, subsurface logs, seismic reflection, provenance history, evolution, sedimentation and subsidence history. Pr., departmental approval.

GEOL 6400 PRINCIPLES OF EARTH SCIENCE (3) LEC. 2, LAB. 2 A special course for in-service and future teachers only. Internal and surficial geologic processes, meteorology and oceanography. Pr., departmental approval.

GEOL 6600 APPLIED GEOPHYSICS (4) LEC. 3, LAB. 2 Pr., (GEOL 1100 or GEOL 3150) and MATH 1620 and PHYS 1510 Overview of geophysical methods with applications to resource, tectonic and environmental analyses. Seismic refraction and reflection, gravity, magnetics, electrical and electromagnetic methods will be included. Pr., departmental approval.

GEOL 7100 GEOCOMMUNICATION (3) LEC. 3 Instruction and practice in written and oral communication skills necessary for a successful career in the geosciences; emphasis on preparation of scientific articles, technical reports, abstracts, and thesis; preparation and delivery of oral presentations. Pr., departmental approval.

GEOL 7200 TECTONICS (3) LEC. 2, LAB. 2 Pr., GEOL 2050 and GEOL 4010 Emphasis will be placed on plate tectonics and driving forces, evolution of collisional, transform and extensional systems, and dynamic indicators of past and current tectonic processes. Pr., departmental approval.

GEOL 7220 GEOGRAPHIC INFORMATION SYSTEMS AND MARINE RESEARCH (3) LEC. 10, LAB. 15 Introduction to geographical information system (GIS) techniques with a focus on application in the marine environment. Taught only at Dauphin Island Sea Lab. Summer. Pr., departmental approval.
GEOL 7250 GROUNDWATER HYDROGEOLOGIC MODELING (3) LEC. 2, LAB. 2 Pr., GEOL 6100 Overview of groundwater modeling techniques with environmental and geologic applications. Interaction of geology and surficial groundwater flow. Basin hydrology modeling. Practical experience in computer simulations of subsur- face hydrogeologic processes. Pr., departmental approval.

GEOL 7260 AQUEOUS AND ENVIRONMENTAL GEOCHEMISTRY (3) LEC. 2, LAB. 2 Pr., CHEM 1040 and GEOL 2050 Study of water-rock reactions that control the chemical composition of groundwater; aqueous geochemistry of trace ele- ments; groundwater pollution, remediation and geonicrology. Pr., departmental approval.

GEOL 7300 CYCLES THROUGH EARTH HISTORY (3) LEC. 2, LAB. 2 Pr., GEOL 4100 and GEOL 4260 Discussion of the fundamental processes controlling sedi- mentary cycles at different physical, biotic, and temporal scales.

GEOL 7310 ISSUES IN PALEONTOLOGY (3) LEC. 3 Pr., GEOL 3200 Advanced applications of paleontological data to topics that may include taphonomy, biogeochernistry, evolution, asystematic functional morphology, paleoecology, paleoclimatology and biostratigraphy.

GEOL 7400 ADVANCED ECONOMIC GEOLOGY (3) LEC. 2, LAB. 2 Pr., GEOL 4210 The practical and theoretical aspects of economic geology as applied to exploration and development of natural resources. Pr., departmental approval.

GEOL 7410 GEOLOGY OF ORGANIC MATTER (3) LEC. 2, LAB. 2 Pr., GEOL 4110 The origins, classifications, taphonomy of organic matter, modern and ancient processes and environments of deposition of organic-rich strata, including hydrocarbon-source rocks and coals. Laboratory and field trips required. Pr., departmental approval.

GEOL 7450 MINERAL RESOURCES AND THE ENVIRONMENT (3) LEC. 2, LAB. 2 Pr., GEOL 4100 and GEOL 4110 The origins, classifications, taphonomy of organic matter, modern and ancient processes and environments of deposition of organic-rich strata, including hydrocarbon-source rocks and coals. Laboratory and field trips required. Pr., departmental approval.

GEOL 7500 ADVANCED GEOPHYSICAL METHODS (3) LEC. 2, LAB. 2 Pr., GEOL 6600 Advanced treatment of geophysical methods, data interpretation and model- ing. Applications to resource development and environmental assessments will be explored, with emphasis on seismic methods. Pr., departmental approval.

GEOL 7600 PETROLOGY (3) LEC. 2, LAB. 2 Pr., GEOL 2050 and GEOL 4010 The description, classification, formation processes, and petrologic interpretation of igneous, metamorphic and sedimentary rocks. Pr., departmental approval.

GEOL 7610 STRUCTURAL AND METAMORPHIC ANALYSIS (3) LEC. 2, LAB. 2 Pr., GEOL 2050 and GEOL 3400 and GEOL 3650 Quantitative analysis of dynamic, kinematic and chemical responses of rocks and minerals to crustal movements and dynamo thermal metamorphism.

GEOL 7650 FACES ANALYSIS AND SEQUENCE STRATIGRAPHY (3) LEC. 2, LAB. 2 Pr., GEOL 2050 and GEOL 4010 Systematic analysis of trends in depositional facies, and their interpretation in a sequence stratigraphic context. Laboratory and field trips required. Pr., departmental approval.

GEOL 7930 DIRECTED STUDIES (1-3) LEC. 3 Directed studies. May incorporate literature, field and/or laboratory research in any proportion. Subject matter and credit hours shall be determined by student and directing faculty. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

GEOL 7980 CAPSTONE PROJECT (1-3) LEC. 3, SU. Literature, field and/or labora- tory research directed toward completion of capstone project required for non- thesis option. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

GEOL 7990 RESEARCH AND THESIS (1-10) MST. Credit to be arranged. Course may be repeated with change in topic. Pr., departmental approval.

Human Development and Family Studies (HDFS)

Graduate School (GRAD)

George Crandell 844-2125

GRAD 7000 CLEARING REGISTRATION (0) LEC. May be used to register gradu- ate students to graduate who have finished all graduation requirements by the last day of the previous semester but have not yet submitted their complete degrees, or to complete comprehen- sive examination for non-thesis students.

GRAD 7AA0 THESIS COMPLETION (0) IND. Restricted to thesis-option graduate students for a maximum of three semesters. No grade. Coreq., Minimum of 1 hour of 7990. Must not be enrolled in any other didactic course work.

GRAD 8950 PREPARING FUTURE FACULTY SEMINAR I (1) SEM. 14 SU. This course introduces graduate students to a variety of faculty roles and work environ- ments. Seminar participants interact with faculty from partner institutions, prepare professional portfolios, present instruction and job talks, discuss evolving defini- tions of scholarship, and engage in other professional activities. Students partici- pate in seminars and workshops to discuss faculty teaching, research and service roles and responsibilities, campus life and faculty governance at differing types of academic institutions. Fall. Pr., Permission of instructor.

GRAD 8960 PREPARING FUTURE FACULTY SEMINAR II (1) SEM. 14 SU. Pr., GRAD 8950. Continuation of seminar seminar I. Seminar participants interact with faculty from partnering institutions, prepare professional portfolios, present instruction and job talks, discuss evolving definitions of scholarship, and engage in other professional activities. Students participate in seminars and work- shops to discuss faculty teaching, research and service roles and responsibilities, campus life and faculty governance at differing types of academic institutions. Spring. Pr., Permission of instructor.

GRAD 8AA0 DISSERTATION COMPLETION (0) IND. Restricted to doctoral stu- dents for a maximum of six semesters. No grade. Coreq., Minimum of 1 hour of 8990. Must not be enrolled in any other didactic course work.

GRAD 8X00 AU/AUM JOINT PROGRAM IN PUBLIC ADMINISTRATION (0) IND. Joint Program in Public Administration. AU registration for PUB doctoral students who are registered concurrently at AUM. Pr., Enrollment at AUM.

Human Development and Family Studies (HDFS)

Dr. Leanne Lamke - 844-3231

HDFS 1950 CURRENT ISSUES IN HUMAN DEVELOPMENT AND FAMILY STUDIES (3) LEC. 3 Current issues facing families and children evaluated in the light of scientific research.

HDFS 2000 MARRIAGE AND FAMILY IN A GLOBAL CONTEXT (3) LEC. 3 Examination of marriage and family systems, including their interface with the broader socio-cultural context.

HDFS 2010 LIFESPAN HUMAN DEVELOPMENT IN FAMILY CONTEXT (3) LEC. 3 Human development within the context of the family and across the family life cycle with a focus on significant life transitions.

HDFS 2030 PROFESSIONAL DEVELOPMENT AND ETHICS (3) LEC. 3 Appraisal of career potential, formulation of a professional code of ethics, and exploration of career options.

HDFS 3010 CHILD DEVELOPMENT IN THE FAMILY (3) LEC. 3 Pr., HDFS 2010; 2.25 unweighted cumulative GPA. Social, emotional, physical and intellectual devel- opment in early and middle childhood with a special focus on family relationships. Departmental approval.

HDFS 3020 ADOLESCENT AND ADULT DEVELOPMENT IN THE FAMILY (3) LEC. 3 Pr., HDFS 2010; 2.25 unweighted cumulative GPA. Analysis of adolescent and adult development with emphasis on development employing an ecological framework. Emphasis on family context and developmental outcomes.

HDFS 3040 HUMAN SEXUALITY OVER THE FAMILY LIFE CYCLE (3) LEC. 3 Pr., HDFS 2000 or (SOCY 1000 or SOCY 1007) or PSYC 2010; 2.25 unweighted cumula- tive GPA. Human sexuality from a life-cycle perspective, emphasizing development- al, familial and societal factors.

HDFS 3060 PATTERNS OF FAMILY INTERACTION (3) LEC. 3 Pr., HDFS 2000; 2.25 unweighted cumulative GPA. Examination of family process and interaction, emphasizing major conceptual frameworks of family development.

HDFS 3080 DEVELOPMENT OF INTERPERSONAL SKILLS (3) LEC. 3 Pr., HDFS 2000; 2.25 unweighted cumulative GPA. Development of effective interpersonal skills used in professional relationships.

HDFS 3380 STUDY ABROAD OPPORTUNITIES IN HUMAN SCIENCES (1) LEC. 1 Pr., 2.25 unweighted cumulative GPA. Exploration of study abroad opportunities for students interested in the International Minor in Human Sciences.

HDFS 3460 EFFECTIVE GUIDANCE AND INTERACTION WITH YOUNG CHILDREN (3) LEC. 3, LAB. 2 Pr., HDFS 3100; 2.25 unweighted cumulative GPA. Child development knowledge of teacher-child relationships applied to interactions with young children at Auburn University Learning Center.

HDFS 3470 LEARNING EXPERIENCES FOR YOUNG CHILDREN (3) LEC. 3, LAB. 2 Pr., HDFS 3100; 2.25 unweighted cumulative GPA. Child development applied to preschool curriculum planning with supervised participation at Auburn University Early Learning Center.

HDFS 3900 PRACTICUM (1-6) PRA. SU. Directed experience in a professional set- ting. A) Human Development; B) Family Studies; C) Marriage and Family Therapy D) Child Life. Course may be repeated for a maximum of 6 credit hours. Pr., depart- mental approval; 2.25 unweighted cumulative GPA.

HDFS 3930 SERVICE LEARNING IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-6) LEC. SU. Pr., 2.25 unweighted cumulative GPA. Application of HDFS- relevant knowledge to real-life situations through active participation in a directed community service experience, A, Auburn University Early Learning Center; B, Harris Early Learning Center of Birmingham; C) Other Community Placements. Course may be repeated for a maximum of 6 credit hours.

HDFS 3980 UNDERGRADUATE RESCH AND STUDY (1-5) AAB/LEC. SU. Directed research under faculty supervision. Course may be repeated for a maxi- mum of 5 credit hours. Pr., departmental approval.

HDFS 4200 PROGRAM DEVELOPMENT AND EVALUATION (3) LEC. 3 Pr., HDFS 2000 and HDFS 2010 and (HDFS 3010 or HDFS 3030 or HDFS 3060); 2.25 unweighted cumulative GPA. Application of research to the development and evalu- ation of programming for children and families.
HDFS 4300 FAMILY AND SOCIAL POLICY (3) LEC. 3 Pr., (HDFS 3010 or HDFS 3030 or HDFS 3060); 2.25 ungraded cumulative GPA. Examination and critique of social policies from a family perspective.

HDFS 4350 STUDY AND TRAVEL IN HUMAN DEVELOPMENT AND FAMILY STUDIES (2-4) AAB/FLD. Pr., CAHS 2000 and HDFS 2000 and NUFS 2000. Study or work in the United States or internationally. Course may be repeated for a maximum of 6 credit hours. Pr., Human sciences core and departmental approval.

HDFS 4500 HOSPITALIZED CHILDREN AND THEIR FAMILIES (3) LEC. Pr., HDFS 3010. Theories and research about children and their families in hospital settings. Pr., HDFS Major or a major in a related field; 2.25 ungraded cumulative GPA.

HDFS 4501 HOSPITALIZED CHILDREN AND THEIR FAMILIES LABORATORY (1) LAB. 1 Su, Pr., HDFS 3010 Cr., HDFS 4500; 2.25 ungraded cumulative GPA. Practical applications in hospital setting working with children and their families.

HDFS 4670 PARENT EDUCATION (3) LEC. Pr., HDFS 2010; 2.25 ungraded cumulative GPA. Principles of working with parents on individual and group bases.

HDFS 4680 FAMILY IN CROSS-CULTURAL PERSPECTIVE (3) LEC. Pr., HDFS 2000; 2.25 ungraded cumulative GPA. Examination of family function and diversity in cultures and family systems around the world.

HDFS 4700 GENDER ROLES AND CLOSE RELATIONSHIPS (3) LEC. 3 Pr., HDFS 2000 or SOCY 1000 or SOCY 1007 or PSYC 2010; 2.25 ungraded cumulative GPA. Analysis of changing roles and their effects on romantic, marital, and parent-child relationships.

HDFS 4820 INTERNSHIP IN HUMAN DEVELOPMENT AND FAMILY STUDIES (12) INT. Pr., Completion of all required HDFS courses and all HDFS professional concentration courses. Application must be submitted two semesters in advance. A computer and internet access is required. Pr., 2.25 ungraded cumulative GPA; departmental approval.

HDFS 4950 ADVANCED SEMINAR (3) LEC. 3 Topical seminar in HDFS. A) Advanced Research (requires 3.0 GPA in HDFS); B) Child Development; C) Family Studies; D) Marriage and Family Therapy; E) Child Life. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval; 2.25 ungraded cumulative GPA.

HDFS 4960 SPECIAL PROBLEMS IN HDFS (1-3) IND. SU. Supervised readings in one or more topical areas. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval; 2.25 ungraded cumulative GPA.

HDFS 4980 ADVANCED INDEPENDENT RESEARCH IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-5) IND. Pr., Conduct research under the direction of a human development and family studies faculty member on a topic of mutual interest. Course may be repeated for a maximum of 5 credit hours. Pr., departmental approval; 2.25 ungraded cumulative GPA.

HDFS 4997 HONORS THESIS (2-6) IND. SU. Research in specialized topics. Course may be repeated for a maximum of 6 credit hours.

HDFS 7000 ADOLESCENT DEVELOPMENT (3) LEC. 3 Critical examination of theoretical and historical foundations, classic and contemporary therapy models, and integrative frameworks for marriage and family therapy. Pr., departmental approval.

HDFS 7010 ADVANCED CHILD DEVELOPMENT (3) LEC. 3 Survey and critical examination of research on development from birth through adolescence.

HDFS 7020 MARRITAL AND FAMILY DYNAMICS (3) LEC. 3 Theoretical and empirical contributions to the understanding of marital and family processes and dynamics.

HDFS 7030 ADVANCED FAMILY AND SOCIAL POLICY (3) LEC. 3 Analysis of the family as a producing, consuming and managing unit, with emphasis on special policies that affect family well-being.

HDFS 7040 CONCEPTUAL FRAMEWORKS IN HUMAN DEVELOPMENT AND FAMILY STUDIES (3) LEC. 3 Introduction to and critical examination of major conceptual frameworks used in human development and family studies.

HDFS 7050 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY STUDIES (3) LEC. 3 Survey of principles and methods for studying individuals, dyadic relationships, and families. Pr., departmental approval.

HDFS 7060 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY STUDIES II (3) LEC. 3, Pr., HDFS 7050 Cr., HDFS 7060 Survey of principles and advanced methods for studying individuals, dyadic relationships, and families. Pr., departmental approval.

HDFS 7061 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY STUDIES II LABORATORY (1) LAB. 1 Pr., HDFS 7050 Cr., HDFS 7060 Lab devoted to the application of principles and advanced methods for studying individuals, dyadic relationships, and families. Pr., departmental approval.

HDFS 7600 MARRIAGE AND FAMILY THERAPY THEORY I (3) LEC. 3 Overview of theoretical and historical foundations, classic and contemporary therapy models, and integrative frameworks for marriage and family therapy.

HDFS 7601 MARRIAGE AND FAMILY THERAPY THEORY LABORATORY I (1) LAB. 3. Basic clinical skills and self-of-the-therapist issues.

HDFS 7610 MARRIAGE AND FAMILY THERAPY THEORY II (3) LEC. 3 Current theory and conceptual issues in the practice of marriage and family therapy.

History (HIST)

HIST 1010 WORLD HISTORY I (3) LEC. 3 Pr., HDFS 7010 or HDFS 7000. Examination of the development, manifestations, and significance of peer relationships among children and youth.

HIST 1017 HONORS WORLD HISTORY I (3) LEC. 3 Survey of world history from early humanity to the late eighteenth century.

HIST 1020 WORLD HISTORY II (3) LEC. 3 History Core. Survey of world history since the Industrial Revolution.

HIST 1027 HONORS WORLD HISTORY II (3) LEC. 3 History Core. Survey of world history since the Industrial Revolution.

HIST 4120 TECHNOLOGY AND CIVILIZATION I (3) LEC. 3 History Core. Survey of the role of technology in history from prehistoric times to the beginning of the Industrial Revolution.
Indian removal, Old South and slavery, westward movement and political party conflict. Pr., departmental approval.

HIST 5030 SOUTH TO 1877 (3) LEC. 3 Development of the old South, from south-eastern Indians and European contact through Reconstruction including slavery, white social classes, women, and politics. Pr., departmental approval.

HIST 5040 CIVIL WAR ERA: 1850-1877 (3) LEC. 3 Sectional conflict, Civil War, and Reconstruction including sectional differences, political crises, secession, Civil War campaigns, emancipation, and presidential and congressional Reconstruction. Pr., departmental approval.

HIST 5050 THE SOUTH SINCE 1877 (3) LEC. 3 Examination of the South since 1877, with emphasis on social, economic, cultural, political and ideological developments. Pr., departmental approval.

HIST 5060 MAKING MODERN AMERICA: 1877-1929 (3) LEC. 3 Development of the American economy, rise of big business, agrarian and labor protest, immigration, race relations, role of women, and role of government.

HIST 5070 MODERN UNITED STATES HISTORY: 1928 TO THE PRESENT (3) LEC. 3 United States History since 1929 with particular emphasis on the economy, changing role of government, America’s role in world affairs and social changes. Pr., departmental approval.

HIST 5080 20TH CENTURY UNITED STATES DIPLOMACY (3) LEC. 3 Examination of United States diplomatic history since the Spanish-American War. Pr., departmental approval.

HIST 5300 EARLY MODERN EUROPE: 1348-1715 (3) LEC. 3 Major topics in European history for the period 1348-1715 including religious and cultural change and the relationship between state and society. Pr., departmental approval.

HIST 5310 ENLIGHTENMENT/REVOLUTIONARY EUROPE: 1715-1815 (3) LEC. Culture, society and politics of the 18th Century; origins and consequences of the French Revolution; the Napoleonic period. Pr., departmental approval.

HIST 5320 19TH CENTURY EUROPE: 1815-1918 (3) LEC. 3 Cultural, economic and social developments as well as the politics and international relations of the major European states between 1815-1918. Pr., departmental approval.

HIST 5330 20TH CENTURY EUROPE (3) LEC. 3 The history of Europe from the outbreak of World War I to the end of the Cold War. Pr., departmental approval.

HIST 5340 EUROPEAN CULTURAL AND INTELLECTUAL HISTORY (3) LEC. 3 Development of European culture and the interfaces of culture, ideas, and social institutions from the early Enlightenment to the present. Pr., or departmental approval.

HIST 5350 REVOLUTIONARY RUSSIA: 1861-1939 (3) LEC. 3 Analysis of the Revolutions of 1917, beginning with emancipation of serfs and ending with purges of the 1930’s. Pr., departmental approval.

HIST 5360 MEDIEVAL BRITISH HISTORY (3) LEC. 3 This course surveys British history during the Roman and Medieval periods to the advent of the Tudor dynasty. Pr., departmental approval.

HIST 5370 EARLY MODERN BRITISH HISTORY (3) LEC. 3 British history from 1485 to the early 18th century. Pr., departmental approval.

HIST 5380 MODERN BRITISH HISTORY (3) LEC. 3 British history from the political unification of England and Scotland to the present. Pr., departmental approval.

HIST 5500 THE GREAT TRANSFORMATION: THE INDUSTRIAL REVOLUTION (3) LEC. 3 The Industrial Revolution of 18th, 19th and 20th centuries with a major focus on England and the United States with some treatment of Europe and Asia. Pr., departmental approval.

HIST 5580 AFRICA FROM 1800 TO PRESENT (3) LEC. 3 Topics include state formation, ending of Atlantic slave trade and African slave trade and slavery, the rise and fall of colonial rule, and current problems facing independent countries.

HIST 5710 FUNDAMENTALS OF ARCHIVAL THEORY AND PRACTICE (3) LEC. 3 Examines the fundamentals of archival theory and practice; the relationship between archives and records management; and the role of records and archives in society. Pr., departmental approval.

HIST 5970 SPECIAL TOPICS IN HISTORY (3) LEC. 3 Topic vary. Course may be repeated for a maximum of 6 credit hours. Course may be repeated for a maximum of 6 credit hours.

HIST 6000 AMERICAN COLONIAL HISTORY (3) LEC. 3 The development of the North American colonies from European settlement to 1753.

HIST 6010 AMERICAN REVOLUTION AND EARLY NATION: 1763-1800 (3) LEC. 3 The revolution and the foundations of the United States, including struggle with England, Declaration of Independence, Revolutionary War, Confederation Constitution and Federalist-Republican conflicts.

HIST 6020 EARLY AMERICAN REPUBLIC: 1800-1850 (3) LEC. 3 Development of the early nation including Thomas Jefferson, War of 1812, Jackson an democracy, Indian removal, Old South and slavery, westward movement, and political party conflict.

HIST 6030 SOUTH TO 1877 (3) LEC. 3 Development of the Old South, from south-eastern Indians and European contact through Reconstruction including slavery, white social classes, women and politics.

HIST 6040 CIVIL WAR ERA: 1850-1877 (3) LEC. 3 Sectional conflict, Civil War, and Reconstruction including sectional differences, political crises, secession, Civil War campaigns, emancipation, and presidential and congressional Reconstruction.

HIST 6050 THE SOUTH SINCE 1877 (3) LEC. 3 Examination of the South since 1877, with emphasis on social, economic, cultural, political and ideological developments.

HIST 6060 MAKING MODERN AMERICA: 1877-1929 (3) LEC. 3 Development of the American economy, rise of big business, agrarian and labor protest, immigration, race relations, role of women, and role of government.

HIST 6070 MODERN UNITED STATES HISTORY: 1929 TO THE PRESENT (3) LEC. 3 United States history since 1929 with particular emphasis on the economy, changing role of government, America’s role in world affairs, and social changes.

HIST 6080 20TH CENTURY UNITED STATES DIPLOMACY (3) LEC. 3 Examination of United States diplomatic history since the Spanish-American War.

HIST 6300 EARLY MODERN EUROPE: 1348-1715 (3) LEC. 3 Major topics in European history for the period 1348-1715 including religious and cultural change and the relationship between state and society.

HIST 6310 ENLIGHTENMENT/REVOLUTIONARY EUROPE: 1715-1815 (3) LEC. 3 History of Europe from the early Enlightenment to the present. Pr., or departmental approval.

HIST 6320 19TH CENTURY EUROPE: 1815-1918 (3) LEC. 3 Examines cultural, economic and social developments as well as the politics and international relations of the major European states between 1815-1918.

HIST 6330 20TH CENTURY EUROPE (3) LEC. 3 The history of Europe from the outbreak of World War I to the end of the Cold War.

HIST 6340 EUROPEAN CULTURAL AND INTELLECTUAL HISTORY (3) LEC. 3 Development of European culture and the interfaces of culture, ideas, and social institutions from the early Enlightenment to the present.

HIST 6350 REVOLUTIONARY RUSSIA: 1861-1939 (3) LEC. 3 Analysis of the Revolutions of 1917, beginning with emancipation of serfs and ending with purges of the 1930s.

HIST 6360 MEDIEVAL BRITISH HISTORY (3) LEC. 3 This course surveys British history during the Roman and Medieval periods to the advent of the Tudor dynasty. Pr., departmental approval.

HIST 6370 EARLY MODERN BRITISH HISTORY (3) LEC. 3 British history from 1485 to the early 18th century. Pr., departmental approval.

HIST 6380 MODERN BRITISH HISTORY (3) LEC. 3 British history from the political unification of England and Scotland to the present. Pr., departmental approval.

HIST 6500 THE GREAT TRANSFORMATION: THE INDUSTRIAL REVOLUTION (3) LEC. 3 Explores the Industrial Revolution of 18th, 19th, and 20th centuries with a major focus on England and the United States and minor treatment of Europe and Asia.

HIST 6580 TOPICS IN THE HISTORY OF FLIGHT (3) LEC. 3 The history of flight in political, economic, social, and cultural perspective.

HIST 6600 MODERN EAST ASIA (3) LEC. 3 Histories, cultures, and philosophies of China and Japan from 1800 to the present.
HIST 7990 RESEARCH AND THESIS (1-10) MST. Research and writing of the M.A. thesis. Course may be repeated with change in topic.

HIST 8000 READING COURSE IN AMERICAN HISTORY TO 1877 (3) PRL. 3 Selected topics in American History to 1877. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

HIST 8010 READING COURSE IN AMERICAN HISTORY SINCE 1877 (3) PRL. 3 Selected topics in American History since 1877. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

HORT 8300 READING COURSE IN EUROPEAN HISTORY TO 1815 (3) PRL. 3 Selected topics in European History to 1815. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

HORT 8310 READING COURSE IN EUROPEAN HISTORY SINCE 1815 (3) PRL. 3 Selected topics in European History since 1815. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

HORT 8500 READING COURSE IN THE HISTORY OF TECHNOLOGY (3) PRL. 3 Selected topics in the History of Technology. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

HORT 8600 READING COURSE IN LATIN AMERICAN HISTORY (3) PRL. 3 Selected topics in Latin American History. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

HORT 8610 READING COURSE IN WORLD HISTORY (3) LEC. 3 Directed readings in modern world history, focusing on one or two geographic areas or themes.

HORT 8700 HISTORIOGRAPHY AND THEORY OF HISTORY (3) SEM. 3 Explores the nature of history by tracing changing conceptions of historical thought and practice from their origins to the present.

HORT 8710 INTRODUCTION TO THE TEACHING OF HISTORY (1) SEM. 1 SU. Introduction to some of the basic challenges involved in teaching History at the college level.

HORT 8990 RESEARCH AND DISSERTATION (1-10) DSR. Research and writing of the Ph.D. dissertation. Course may be repeated with change in topic.

Horticulture (HORT)
Dr. Dave Williams - 844-3032

HORT 1010 INTRODUCTION TO HORTICULTURE (1) LEC. 1 Introduces scientific and practical aspects of pomology, olericulture, floriculture and landscape horticulture. Also presents the broad scope of career opportunities in the field of horticultural science. Fall.

HORT 2010 FRUIT AND NUT PRODUCTION (4) LEC. 3, LAB. 3 Introductory course in cultural practices and economics associated with commercial fruit and nut production. Fall.

HORT 2020 HORTICULTURE CROP PRODUCTION (4) LEC. 2, LAB. 3 Pr., BIOL 1010 or BIOL 1030 or BIOL 1037. Techniques of plant propagation and cultural methods for successful fruit and vegetable production. Fall.

HORT 2030 VEGETABLE PRODUCTION (3) LEC. 3 Principles, practices, establishment, production, maintenance, harvesting, storage and marketing of commercial vegetable crops.

HORT 2040 ORGANIC GARDENING (3) LEC. 3 Principles, production practices, maintenance, harvesting and marketing of organically and traditionally home-grown vegetables.

HORT 2050 FOOD FOR THOUGHT (3) LEC. 3 Study of history of food plants, including their impact on world culture, variety of uses, economic botany, production systems, and impact on societies. Fall and Summer.

HORT 2210 LANDSCAPE GARDENING (4) LEC. 2, LAB. 4 Principles of landscape gardening applied to residential and small-scale commercial grounds. Involves plant identification and use, basic landscape design, and landscape installation and management concepts. Fall and Summer.

HORT 2240 PLANT PROPAGATION (3) LEC. 2, LAB. 3 Pr., BIOL 1030 or BIOL 1037. Basic principles and practices involved in the propagation of horticultural plants. Fall and Spring.

HORT 2250 INTERIOR PLANTS AND FLORAL DESIGN (3) LEC. 2, LAB. 2 Basic principles, practices and design with foliage plants and flowers in the interior setting. Summer and Fall.

HORT 3000 GROWTH AND DEVELOPMENT OF HORTICULTURAL PLANTS (3) LEC. 3 Pr., (BIOL 1030 or BIOL 1037) and CHEM 1030. Growth and development of plants with concepts applied to the practice of Horticultural Science. Summer and Fall.

HORT 3110 PLANTS AND PEOPLE: A HISTORY OF GARDENS IN CULTURAL CONTEXT (3) LEC. 3 Heritage and traditions influencing the development of public and private garden styles, context, and function including cultural expressions, plant use, and impact of noted designers and horticulturists throughout history.

HORT 3210 SMALL TREES, SHRUBS AND VINES (4) LEC. 2, LAB. 6 Pr., (BIOL 1020 or BIOL 1027) and (BIOL 1030 or BIOL 1037). Identification, culture and landscape use of small trees, shrubs and vines. Spring and Summer.

HORT 3220 ARBORICULTURE (4) LEC. 2, LAB. 6 Pr., BIOL 1030 or BIOL 1037. Identification, culture and use of ornamental trees in landscape plantings. Fall.

HORT 3250 LANDSCAPE CONSTRUCTION (3) LEC. 3, LAB. 4 Principles and practices used in the interpretation and implementation of landscape construction and planting plans. Fall.

HORT 3840 STUDY/TRAVEL IN HORTICULTURE (1-10) FLD. Study of horticultural or fruit and vegetable science, landscape design, nursery and greenhouse management in U.S. or international location. Course may be repeated for a maximum of 10 credit hours.

HORT 3920 HORTICULTURE INTERNSHIP (4) INT. 4 Practical on-the-job training for selected commercial horticultural companies. Course may be repeated for a maximum of 8 credit hours.

HORT 3950 CAREERS IN HORTICULTURE (1) LEC. 1 SU. Current developments and career opportunities in horticulture. Fall.

HORT 4000 PESTICIDE MGT IN HORT (3) LEC. 3 Proper management of pesticides in horticulture; decision making skills in relation to control strategies; environmental issues relevant to horticulture; safety considerations; scouting and application techniques. Summer and Fall.

HORT 4100 HERBACEOUS ORNAMENTALS (4) LEC. 2, LAB. 4 Pr., (BIOL 1020 or BIOL 1027) and (BIOL 1030 or BIOL 1037). Identification, culture, and use of herbaceous perennials, bulbs, herbs, and ornamental grasses. Consideration of flower bed and border preparation, care and maintenance. Spring and Summer.

HORT 4150 RETAIL GARDEN CENTER MANAGEMENT (3) LEC. 3, LAB. 4 Pr., HORT 3210 or HORT 3220. The following objectives will be covered: financing, location, design, stocking, selling, personnel management, advertising and maintaining plants. Summer.

HORT 4250 INTERMEDIATE FRUIT & VEG PROD (3) LEC. 3 Pr., HORT 2040 or HORT 2030. Intermediate horticulture course in which students apply knowledge gained in the classroom to hands-on fruit and vegetable gardening practices.

HORT 4270 INTERMEDIATE LANDSCAPE DESIGN (3) LEC. 2, LAB. 4 Pr., HORT 3210 or HORT 3220 or HORT 4100. Human nature, art and technology and their influence on landscape design. Fall and Spring.

HORT 4280 ADVANCED LANDSCAPE DESIGN (3) LEC. 1, LAB. 4 Pr., HORT 4270. Continuation of HORT 4270 with an emphasis on design projects. Fall.

HORT 4300 COMP AIDED PLANTING DESIGN (3) LEC. 3 Graphic concepts relating to spatial visualization and communication and project cost estimation using computer-aided drafting and project management software developed for landscape professionals. Fall and Spring.

HORT 4900 DIRECTED STUDIES (1-3) IND. Departmental approval. Directed Studies related to research, teaching or outreach educational programs in Horticulture. Course may be repeated for a maximum of 6 credit hours. Course may be repeated for a maximum of 6 credit hours.

HORT 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

HORT 4997 HONORS THESIS (1-3) LEC. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

HORT 5110 TREE FRUIT CULTURE (2) LEC. 2 Pr., HORT 3000. Manipulation of growth and development of tree fruit crops by cultural methods. Summer, odd years.

HORT 5120 SMALL FRUIT AND PECAN CULTURE (3) LEC. 2, LAB. 2 Pr., BIOL 3100 and BIOL 3101. Principles and practices involved in the production and marketing of small fruits and pecans. Spring, even years.

HORT 5130 SUSTAINABLE VEGETABLE CROP PRODUCTION (3) LEC. 2, LAB. 3 Pr., (BIOL 1030 or BIOL 1037) and HORT 3000. Best management practices and quality of vegetable crops. Fall.

HORT 5140 POST-HARVEST BIOLOGY AND TECHNOLOGY (3) LEC. 2, LAB. 3 Pr., PLPA 3000 and HORT 3000. Physiological changes occurring in fruits, vegetables and other horticultural products after harvest. Spring.

HORT 5210 LANDSCAPE BIDDING, INSTALLATION AND MAINTENANCE (4) LEC. 3, LAB. 3 Pr., AGRN 2040 and PLPA 3000. Principles and practices of the bidding, installation and maintenance of commercial and residential landscapes. Spring.

HORT 5220 GREENHOUSE MANAGEMENT SCIENCE (4) LEC. 3, LAB. 2 Pr., HORT 3000 and CHEM 1030 and HORT 2240 and AGRN 2040. Management, culture and economics of commercial greenhouse production. Fall.

HORT 5230 NURSERY MANAGEMENT (3) LEC. 2, LAB. 3 Pr., HORT 2240 and HORT 3000. Factors affecting plant production. Environmental issues related to facilities design and pesticide and nutrient management. Fall.
HRT 6110 TREE FRUIT CULTURE (2) LEC. 2 Pr., HORT 3000 Manipulation of growth and development of tree fruit crops by cultural methods. Summer, odd years.

HRT 6120 SMALL FRUIT AND PEACAN CULTURE (3) LEC. 2, LAB. 2 Pr., BIOL 3100 and BIOL 3101 Principles and practices involved in the production and marketing of small fruits and pecans. Spring, even years.

HRT 6130 SUSTAINABLE VEGETABLE CROP PRODUCTION (3) LEC. 2, LAB. 2 Pr., HRT 3000 Advanced course in best management practices and quality of vegetable crops. Fall.

HRT 6140 POST-HARVEST BIOLOGY AND TECHNOLOGY (3) LEC. 2, LAB. 2 Pr., PLPA 3000 and HRT 3000 Physiological changes occurring in fruits, vegetables and other horticultural products after harvest. Spring.

HRT 6210 LANDSCAPE BIDDING, INSTALLATION AND MAINTENANCE (4) LEC. 3, LAB. 3 Pr., AGRN 2040 and PLPA 3000 Principles and practices of the bidding, installation and maintenance of commercial and residential landscapes. Spring.

HRT 6220 GROWING AND UTILIZING VEGETABLE CROPS IN HORTICULTURE (4) LEC. 3, LAB. 2 Pr., HRT 3000 and CHEM 1030 and HRT 2240 and AGRN 2040 Management, culture and economics of commercial greenhouse production. Fall.

HRT 6230 NURSERY MANAGEMENT (3) LEC. 2, LAB. 3 Pr., HRT 2240 and HRT 3000 Factors affecting plant production. Environmental issues related to facilities design and pesticide and nutrient management. Fall.

HRMT 7010 EXPERIMENTAL METHODS IN HORTICULTURE (4) LEC. 2, LAB. 4 Cr., STAT 7080 Principles and methodologies of horticultural research, experimental design, preparation of project and grant proposals, and development of publication skills. Fall.

HRT 7040 ADVANCED GROWTH AND DEVELOPMENT OF HORTICULTURAL PLANTS (3) LEC. 3 Pr., (HRT 3000 or BIOL 3100) and BIOL 3101 Plant growth and development from seed germination, through maturity and senescence. Summer, even years.

HRT 7050 NUTRITIONAL REQUIREMENTS OF HORTICULTURAL PLANTS (3) LEC. 3, LAB. 2 Pr., HRT 3000 Nutritional requirements of horticulture crops and factors affecting these requirements. Summer, odd years.

HRT 7070 PLANT BIOTECHNOLOGY (4) LEC. 2, LAB. 4 Pr., BIOL 3000 Plant biotechnology, including plant tissue culture technologies and genetic transformation and applications to horticultural crop improvement. Spring, odd years.

HRT 7080 ENVIRONMENTAL PLANT STRESS (3) LEC. 4 Pr., HRT 3000 Mechanisms related to adaptation of plants to environmental stresses.

HRT 7850 URBAN FORESTRY SEMINAR (1) LEC. 3 SU. Presentation and discussion of research, scientific papers and issues related to urban forestry establishment, care and planning. Credit will not be given for HRT 7850 and FORY 7850.

HRT 7950 SEMINAR (1) SEM. 1 SU. Graduate students are required to attend all seminars. Course may be repeated with change in topic.

HRT 7960 SPECIAL PROBLEMS (1-3) IND. Conferences, problems and assigned readings in horticulture. Course may be repeated for a maximum of 3 credit hours.

HRT 7970 ADVANCED SPECIAL PROBLEMS IN HORTICULTURE (1-3) LEC. Principles, methods and techniques involved in gaining an understanding of different horticultural disciplines. Course may be repeated for a maximum of 3 credit hours.

HRT 8990 RESEARCH AND THESES (1-10) MST. Course may be repeated with change in topic.

HRT 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topic.

Hotel and Restaurant Management (HRMT)

Dr. Martin O'Neill - 844-3231

HRMT 1010 INTRODUCTION TO HOSPITALITY MANAGEMENT (2) LEC. 2 Overview of the hotel, restaurant, club, and travel industries and their interaction.

HRMT 2300 HOSPITALITY LAW (3) LEC. Pr., HRMT 1010 Legal systems and laws relevant to the management of restaurants, hotels, private clubs and other hospitality operations. Spring.

HRMT 2400 FOOD PRODUCTION IN HOSPITALITY (4) LEC. 3, LAB. 3 Pr., HRMT 1010 and (NUPS 3000 or NUPS 3000) and BIOL 1000 Skills, competencies and knowledge to manage a variety of food production and service facilities. Fall, Spring.

HRMT 2500 LODGING OPERATIONS (2) LEC., Pr., HRMT 1010, Sophomore standing. Lodging operations management, with emphasis on guest cycle.

HRMT 2940 PROFESSIONAL DEVELOPMENT IN HOSPITALITY (1) LEC., Pr., HRMT 1010, Sophomore standing. Departmental approval. Job-seeking and career development skills, based upon individual needs.

HRMT 3200 HOSPITALITY FINANCIAL MANAGEMENT (3) LEC. 3 Pr., ACCT 2910 and HRMT 1010. HRMT major. Financial systems and statements in the hospitality industry. Spring.

HRMT 3400 HOSPITALITY MARKETING (3) LEC. 3 Pr., HRMT 1010 Service marketing concepts and issues as applied to the global hospitality industry. Spring. HRMT major.

HRMT 3800 HOSPITALITY INFORMATION TECHNOLOGY (3) LEC. 3 Pr. HRMT 2400. HRMT major. Strategic and operational issues surrounding introduction of technology in hospitality.

HRMT 4200 HOSPITALITY FACILITIES MANAGEMENT (3) LEC. 3 Pr., HRMT 2400, HRMT 2500. HRMT major. Departmental approval. Design and operation of hospitality facilities.

HRMT 4300 - FOOD AND BEVERAGE MANAGEMENT (3) LEC. 3 Pr., HRMT 2400, MNGT 3100, MNGT 3910, sophomore and freshman standing. HRMT major. Control system design, implementation, and management in food and beverage operations.

HRMT 4500 ADVANCED RESTAURANT MANAGEMENT (3) LEC. 3 Pr., NUPS 2400 and NUPS 4300 Advanced concepts and managerial issues of restaurant management. Spring.

HRMT 4500 STRATEGIC HOSPITALITY MANAGEMENT (3) LEC. 3 Pr., NUPS 1010 and MNGT 3100 or MNGT 3910. Departmental approval. Development and implementation of strategic management in hospitality.

HRMT 4600 BEVERAGE APPRAISAL (3) LEC. 3 Cr., Departmental approval. Principles and practices regarding the production, selection, service and sensory evaluation of beverages (alcoholic and non-alcoholic) in the hospitality industry. Fall, Pr. 21 years of age. HRMT major.

HRMT 4800 SENIOR LECTURE SERIES (1) LEC. 1 SU. Successful leaders to share their experiences with career development, industry related topics and issues, successful management strategies and leadership. Spring. Departmental approval. Senior Standing HRMT major.

HRMT 4860 HOSPITALITY PRACTICUM (3) LEC. 3 Practical understanding of the basic principles and procedures under the two primary areas of food and beverage operations and lodging operations. Rotation experience at the Auburn University Hotel and Conference Center. Fall, Spring or departmental approval and 400 hours of program approved hospitality work experience. Senior Standing. HRMT major.

HRMT 4920 INTERNSHIP IN HOSPITALITY (10) INT. Pr., 2.2 GPA, NUPS 4300 and NUPS 4500 Application of principles and theories of hospitality in a professional hospitality setting. Departmental approval and 400 hours work experience in hospitality.

HRMT 5460 CATERING AND EVENT MANAGEMENT (3) LEC. 3 Pr., NUPS 2400, departmental approval. Management and organization of menu planning, food knowledge, types of service, customer relations, and production/service techniques in catering and special event situations. Credit will not be given for both HRMT 5460 and HRMT 6460/6466. Course may be repeated for a maximum of 6 credit hours.

HRMT 5530 SCIENCE OF QUALITY SERVICE IN HOSPITALITY (3) LEC. 3 Pr., NUPS 3600 Examination and analysis of the principles of continuous quality improvement and total quality management for the hospitality industry. Credit will not be given for NUPS 5530 and NUPS 6530/6536. Spring.

HRMT 5540 CONFERENCE COORDINATION (3) LEC. 3 Pr., HRMT 1010 Analysis of systems for management of the conference coordination segment of the hospitality industry. Credit will not be given for HRMT 6540/6546 and HRMT 5540. Spring, Junior Standing or departmental approval.

HRMT 5550 CLUB MANAGEMENT (3) LEC. 3 Pr., HRMT 2400, HRMT 2500. Examination of unique features, opportunities and problems associated with club management. Credit will not be given for HRMT 5550 and HRMT 6550/6556. HRMT major.

HRMT 5570 GLOBAL HOSPITALITY (3) LEC. 3 Pr., MNGT 3100 or MNGT 3810 or departmental approval. Contemporary issues confronting the global hospitality industry. Management and marketing operations emphasized. Credit will not be given for HRMT 5570 and HRMT 6570/6576. Junior Standing. HRMT major.

HRMT 5590 RECREATIONAL FOODSERVICE MANAGEMENT (3) LEC. 3 Pr., NUPS 2400 or departmental approval. Methods and systems of managing foodservice operations in recreational facilities. Credit is not allowed for both HRMT 5590 and HRMT 6590/HRMT 6596. Junior Standing. HRMT major.

HRMT 6460 CATERING AND EVENT MANAGEMENT (3) LEC. 3 Pr., departmental approval. Management and organization of menu planning, food knowledge, types of service, customer relations, and production/service techniques in catering and special event situations. Credit will not be given for both HRMT 5460 and HRMT 6460/6466.

HRMT 6530/6536 SCIENCE OF QUALITY FOR HOSPITALITY (3) LEC. 3 Pr., NUPS 3600, departmental approval. The principles of continuous quality improvement and total quality management for the hospitality industry. Credit will not be given for HRMT 6530/6536 and HRMT 5530. Spring.

HRMT 6540/6546 CONFERENCE COORDINATION (3) LEC. 3 Pr., NUPS 3600, departmental approval. Systems for the management of the conference coor-
dimension of the hospitality industry. Credit will not be given for HRMT 6540/6560 and HRMT 5540.

HRMT 6550/6556 CLUB MANAGEMENT (3) LEC. 3 Pr., NUF 3600, departmental approval. Unique features, opportunities, and problems associated with resort and club management. Credit will not be given for HRMT 6550/6556 and HRMT 5550.

HRMT 6570/6576 CULINARY HOSPITALITY (3) LEC. 3 Pr., NUF 3600, departmental approval. Contemporary issues confronting the global hospitality industry. Credit will not be given for HRMT 6570/6576 and HRMT 5570.

HRMT 6590/6596 RECREATIONAL FOOD SERVICE MANAGEMENT (3) LEC. 3 Pr., NUF 3600, departmental approval. Methods and systems of managing food service operations in recreational facilities. Credit will not be given for both HRMT 6590/6596 and HRMT 5590.

HRMT 7920/7926 PROFESSIONAL INTERNSHIP IN HOSPITALITY (1-3) INT. SU., Pr., departmental approval. Application and analysis of principles and theories of hospitality in a professional hospitality setting. No more than three hours may count toward a graduate degree. Course may be repeated for a maximum of 3 credit hours.

HRMT 8860/8866 CURRENT ISSUES IN HOSPITALITY MANAGEMENT (3) LEC. 3 Analysis of current issues in the hospitality industry with emphasis on manage-ment.

Human Sciences (HUSC)
HUSC 2000 HUNGER: CAUSES, CONSEQUENCES, AND RESPONSES (3) LEC. 3 Examine hunger as a complex issue of sustainable human development. Topics include causes and consequences of domestic and global hunger and potential solutions. Credit will not be given for both HUSC 2000 and HUSC 2007.

HUSC 3380 STUDY ABROAD OPPORTUNITIES IN HUMAN SCIENCES (2) LEC. 2 Cr., HUSC 4100 and HUSC 4380 and HUSC 4940 Pre-departure orientation for student participating in the Joseph S. Bruno Aubern Abroad program in Aricia, Italy. May also be taken by students exploring study abroad opportunities through the alternative International Minor in Human Sciences. Pr., Ungapped 2.5 GPA or departmental approval. Junior standing.

HUSC 4010 CHS@AU IN ITALY: INTEGRATED GLOBAL STUDIES (6) LEC. 6 Cr., HUSC 3380 and HUSC 4380 and HUSC 4940 Multi-faceted cultural experience focused on individuals/families in the context of history and Italian culture. Pr., Ungapped 2.5 GPA or departmental approval. Junior standing.

HUSC 4380 STUDY AND TRAVEL IN HUMAN SCIENCES (2) AAB/FLD. 2 Cr., HUSC 3380 and HUSC 4010 and HUSC 4940 Broaden world views, increase awareness and appreciation of cultures, and demonstrate an ability to function in a global community through the Joseph S. Bruno Aubern in program in Aricia, Italy. Pr., Ungapped 2.5 GPA or departmental approval. Junior standing.

HUSC 4940 CHS@AU IN ITALY: DIRECTED FIELD EXPERIENCES (6) AAB/FLD. 6 Cr., HUSC 3380 and HUSC 4010 and HUSC 4380 Supplemental lectures for HUSC 4010 provided through fieldtrips and participation in Italian culture experiences. Pr., Ungapped 2.5 GPA or departmental approval. Junior standing.

Industrial Design (INDD)
Prof. Clark Lundell - 844-2364
Prof. Bret Smith - 844-2364

INDD 1120 INDUSTRIAL DESIGN IN MODERN SOCIETY (3) LEC. 3 Survey of design and its impact upon modern society. Review of methods, products, market-ing, patents, education, and career opportunities.

INDD 1310 SYNTHESIS OF DRAWING (10) LEC. 3, LST. 12, SU. Developing mechanical and production design drawings, with in-depth study of perspective systems. Product design communication with emphasis on drawing, development, presentation.

INDD 1320 PROTOTYPE FABRICATION (3) LEC. 2, LAB. 2 Fabrication of three-dimensional models utilizing various materials and machineries. Includes model making, creative modeling, model studies, presentation models, mock-ups and prototypes.

INDD 2110 TWO DIMENSIONAL INDUSTRIAL DESIGN PRINCIPLES (6) LEC. 2, LST. 10 Pr., INDD 1310 Transference of abstract principles of design to fabrication of simple tools. Emphasis on expression of functional objects.

INDD 2120 COMPUTER AND DESIGN COMMUNICATIONS (3) LEC. 2, LAB. 2 Pr., INDD 1310 Alternative modes of communicating design ideas via computer. Executing design ideas for two-dimensional design fundamentals and mechanical design drawings.

INDD 2130 PRESENTATION RENDERING (3) LEC. 2, LAB. 2 Pr., INDD 1320 and INDD 3100 Concept development using drawing and rendering skills with different media for ideas communication and presentation.

INDD 2210 THREE DIMENSIONAL INDUSTRIAL DESIGN PRINCIPLES (6) LEC. 2, AAB/LST. 10 Pr., INDD 2110 Analysis of design fundamentals through three-dimensional form. Analyzing function, utility, convenience, safety, maintenance and sustainable design.

INDD 2220 ANTHROPOMETRY (3) LEC. 3 Pr., INDD 2110 Body measurements, movements and human capacity in relation to design with introduction to ergonomics with human physiology as it relates to design. Pr., departmental approval.

INDD 2230 HISTORY OF INDUSTRIAL DESIGN (3) LEC. 3 Pr., INDD 2110 Survey humankind's production of artifacts, from prehistory to present. Emphasis on ideas that mass produced artifacts mirror history and everyday culture.

INDD 3110 EXHIBIT AND PACKAGING (6) LEC. 1, LST. 8 Pr., INDD 2120 Display systems using models, concepts development, rendering, packaging, identity programs and professional presentations.

INDD 3120 INDUSTRIAL DESIGN METHODS (3) LEC. 3 Pr., INDD 2220 Introduction to design management. Design methods and organizational procedures in analysis and solutions of design problems. Surveying philosophies and theories of design.

INDD 3130 BASIC PHOTOGRAPHY FOR INDUSTRIAL DESIGN (3) LEC. 2, LAB. 2 Pr., INDD 2120 Photography in design and art environments. Techniques of developing, printing and enlarging. Lighting techniques for portfolio photography, including lighting, studio photography, composition.

INDD 3210 PRODUCT DESIGN (6) LEC. 2, LST. 10 Pr., INDD 2210 Product design utilizing design methodology from proposal to working pre-prototype, including planning, research, development, model-making, manufacturing and documentation.

INDD 3220 MATERIALS AND TECHNOLOGY (3) LEC. 3 Pr., INDD 3120 Characteristics and utility of materials such as plastic, metal, and ceramics in manufacture and the study of machine/tool processes used by industry.

INDD 3230 ADVANCED COMPUTER AIDED DESIGN (3) LEC. 2, LAB. 2 Pr., INDD 2120 Introduction to CAD software emphasizing three-dimensional modeling. Students will learn drawing functions. Concepts of three-dimensional relationship of objects discussed.

INDD 4110 ADVANCED PRODUCT DESIGN (6) LEC. 2, LST. 10 Pr., INDD 3120 and INDD 3210 Design or redesign of products and systems of advanced complexity.

INDD 4210 INDUSTRIAL DESIGN THESIS (6) LEC. 2, AAB/LST. 10 Pr., INDD 4110 Product design projects involving all design phases; including planning, research, development, finalization, specification, and documentation.

INDD 4220 PROFESSIONAL PRACTICE (3) LEC. 3 Pr., INDD 3110 and INDD 3210 Business aspects of industrial design, including property, design contract, letters of agreement, business planning and design marketing.

INDD 4907 HONORS READING (1-3) LEC., departmental approval.

INDD 4997 HONORS THESIS (1-3) LEC., departmental approval.

INDD 5010 HISTORY OF INDUSTRIAL DESIGN II (3) LEC. 3 A survey of human-kind's production of artifacts, from prehistory to contemporary times, with an emphasis on the idea that mass produced artifacts mirror the meanings of historical events and everyday culture.

INDD 5030 CASE STUDIES IN DESIGN (3) LEC. 3 Design projects undertaken by industry studied by examination of artifacts and records, and by class discussion. Focus on the socio-cultural relevancy of the artifacts.

INDD 5120 PROFESSIONAL PORTFOLIO (3) LEC. 3 Pr., INDD 3110 and INDD 3210 Design and development of a portfolio and promotional material presenting the student's work to entry-level professional standards.

INDD 5960 SPECIAL PROBLEMS (1-5) LEC. Development of individual projects. Research, design and reports on approved topics. Course may be repeated for maximum of 15 credit hours. Course may be repeated for a maximum of 15 credit hours.

INDD 6010 HISTORY OF INDUSTRIAL DESIGN II (3) LEC. 3 A survey of human-kind's production of artifacts, from prehistory to contemporary times, with an emphasis on the idea that mass produced artifacts mirror the meanings of historical events and everyday culture.

INDD 6030 CASE STUDIES IN DESIGN (3) LEC. 3 Design projects undertaken by industry studied by examination of artifacts and records, and by class discussions. Focus on the socio-cultural relevancy of the artifacts.

INDD 6120 PORTFOLIO (3) LEC. 3 Preparation of professional portfolio for graduation and employment.

INDD 6960 SPECIAL PROBLEMS (1-5) LEC. Development of individual projects. Research, design and reports on approved topics. Course may be repeated for maximum of 15 credit hours. Course may be repeated for a maximum of 15 credit hours.

INDD 7010 DESIGN ORIENTATION (3) LEC. 3 Introduction to the Industrial Design graduate program: degree options, study directions, research methods, and areas. Students are required to develop a research/project proposal.

INDD 7020 COMPUTER/INDUSTRIAL DESIGN (3) LEC. 3 Synthesizing studies in research, analysis, and application based on interdisciplinary concept. Emphasis on the relation of products and systems to those who use them.
Emphasis on new technology in relation to advertising design, graphic design, site design and motion graphics through a series of problem solving processes.

1720 and ARTS 1730) Exploration of the technical and conceptual aspects of Web development of type and letter forms. Emphasis on presentation and visualization of concepts. Pr., departmental approval. Minimum 2.5 GPA, and 6 hours of University Core Curriculum, and minimum 2.5 University GPA. Course may be repeated for a maximum of 9 credit hours.

Courses in this sequence may not be taken concurrently. Pr., 6 hours of art history courses.

GDES 4860 IMAGE II (4) STU. 12 Pr., (ARTS 3200 or GDES 3200 or 2230) and (ARTS 1710 and ARTS 1720) or (ARTS 1710 and ARTS 1730) Design and production processes, preparation of design for printing, paper, copyright, electronic techniques, and related subjects. Emphasis on presentation and visualization of concepts. Pr., departmental approval, 6 hours of University Core Curriculum, and minimum 2.5 GPA in prerequisite courses. Must be admitted to the graphic design program through normal channels.

GDES 2230 INTR O TO GRAPHIC DESIGN (4) LEC. Pr., ARTS 1710 and ARTS 1720 and ARTS 1730 Design and layout, and image making procedures for problem solving in graphic design, emphasis on presentation, creativity, and visualization. Pr., departmental approval. Portfolio review required for admission.

GDES 2710 HISTORY OF GRAPHIC DESIGN (3) LEC. Pr., GDES 2230 or 3200. A chronological survey of graphic design from its Paleolithic origins to the present. Emphasis on social and cultural contexts, symbolic application, formal characteris- tics, and significant art and design movements. Pr., departmental approval.

GDES 3210 PHOTO DESIGN (4) AAB/STU. 12 Pr., (ARTS 2210 or GDES 2210) and (ARTS 2220 or GDES 2220) and (ARTS 1710 and ARTS 1720) or (ARTS 1710 and ARTS 1730) or (ARTS 1720 and ARTS 1730) Practical applications of typography for design and layout, advertising, and other contemporary formats. Historical and anatomical development of type and letter forms. Emphasis on presentation and visualization of concepts. Pr., departmental approval. Minimum 2.5 GPA, and 6 hours of University Core Curriculum. Must be admitted to the graphic design program through review process.

GDES 4250 GRAPHIC DESIGN II (4) STU. 12 Pr., (ARTS 2710 or GDES 2710) and (ARTS 3200 or GDES 3200 or 2230) and (ARTS 4240 or GDES 4240) Application of communicative procedure and skills necessary to convey messages by means of graphic presentation: problem solving in corporate identity, advertising design, self promotion, etc. Development of student’s individual style. Courses in this sequence may not be taken concurrently.

GDES 4260 IMAGE I (4) STU. 12 Pr., (ARTS 3200 or GDES 3200 or 2230) and (ARTS 1710 and ARTS 1720) or (ARTS 1710 and ARTS 1730) or (ARTS 1720 and ARTS 1730) Application of illustration techniques and concepts to various graphic formats. Development of personal skills and individual style. Courses in this sequence may not be taken concurrently. Pr., 6 hours of art history courses.

GDES 4900 DIRECTED STUDIES FOR GRAPHIC DESIGN (2-3) AAB. Pr., GDES 2210 and GDES 2220 Directed Studies in Graphic Design focuses on individualized study in graphic design. Student must have a 3.0 average in GDES course curriculum and departmental approval. Topics may include Graphic Design, Imaging, Web Design. Course may be repeated for a maximum of 9 credit hours.

GDES 4970 SPECIAL TOPICS FOR GRAPHIC DESIGN (2-3) LEC. 6 Pr., GDES 3200 or 2230 and GDES 2710. Special Topics in Graphic Design focuses on topics in graphic design that are additional to the regular curriculum. Specific course topics are developed by the instructor. Student must have a 3.0 average in GDES course curriculum or departmental approval. Course may be repeated for a maximum of 12 credit hours.

GDES 4990 SENIOR PROJECT FOR GRAPHIC DES (4) STU. 12 Pr., (ARTS 4240 or GDES 4240 and ARTS 4250 or GDES 4250) or (ARTS 4640 or GDES 4640 and ARTS 4650 or GDES 4650) A directed terminal studio project with choice of subject and medium. Project will be exhibited and a faculty committee will award a letter grade. Professional quality color slides of the final project work must be presented to the department before student is cleared for graduation. Pr., Must be taken in student’s final semester.

**Industrial and Systems Engineering (INSY)**

**INSY 3020 OCCUPATIONAL SAFETY ERGONOMICS (3) LEC.** 3 Basic principles of occupational safety engineering and ergonomics in the evaluation and design of occupation work areas and processes that include human operators.

**INSY 3021 METHODS ENGINEERING, WORK MEASUREMENT AND ERGONOMICS LABORATORY (3) LEC.** 2, LAB. 3 Coreq., INSY 3020 Develops the student’s ability to design workplaces and methods while providing an understanding of the work measurements process. Enables students to generate much of the basic methods data utilized in most industrial engineering projects.

**INSY 3030 CAD FOR ENGINEERS WITH INDUSTRIAL APPLICATIONS (1) LAB.** 1 Pr., COMP 1200 or COMP 1210 or COMP 3000 or ENGR 1110 Use of computer technology to aid engineering design in industrial applications, e.g. represent and modify mechanical parts, diagrams, schematics, tools, equipment, office and plant layouts, etc.

**INSY 3400 STATISTICAL OPERATIONS RESEARCH (3) LEC.** 3 Pr., ENGR 1110 and MATH 2660 and STAT 3600 Modeling and analysis of decision-making and operations subject to randomness including decision analysis, stochastic dynamic programming, Markov chains, and queueing theory.

**INSY 3410 DETERMINISTIC OPERATIONS RESEARCH (3) LEC.** 2, LAB. 3 Pr., ENGR 1110 and MATH 2660 Formulation, solution, interpretation, and implementa-
tion of mathematical models in operations research including linear programming, integer programming and network flows.

**INSY 3420 SIMULATION** (3) LEC. 2, LAB. 3 Pr., INSY 3400 and COMP 3010 and STAT 3610 Simulation procedures for solving complex systems analysis problems. Emphasis on simulation processes, model building and construction of computer simulation models.

**INSY 3600 ENGINEERING ECONOMY** (3) LEC. 3 Pr., MATH 2630 and ENGR 1110 Principles required in engineering economic studies.

**INSY 3700 OPERATIONS PLANNING AND CONTROL** (3) LEC. 2, LAB. 3 Pr., INSY 3400 and INSY 3410 and STAT 3610 Analytical methods for operations planning and control, including forecasting systems, production planning, inventory control systems, scheduling systems, and project management.

**INSY 3800 MANUFACTURING PROCESSES** (3) LEC. 2, LAB. 3 Pr., MATL 2100 Materials, measurement and quality assurance. Manufacturing processes (casting, forming, materials removal, joining). Processes and techniques related to manufacturing.

**INSY 4330 STATISTICAL QUALITY DESIGN AND CONTROL** (3) LEC. 3 Pr., STAT 3610 Statistical process control methods and control for quality improvement. Acceptance sampling for attributes and for variables.

**INSY 4500 PROFESSIONAL PRACTICE** (1) LEC. Discussion and activities in current problems, the global context of, professional practice, professional opportunities and lifelong learning in Industrial and Systems Engineering.

**INSY 4700 MANUFACTURING SYSTEMS** (3) LEC. 2 Pr., INSY 3420 and INSY 3600 and INSY 3700 Design and operation of manufacturing systems. Models to design, analyze, operate, and control manufacturing systems. Facility layout and location models.

**INSY 4800 SENIOR DESIGN** (3) Lec. 9 Pr., INSY 3021 and INSY 4700. Capstone course in which undergraduate course-work principles are brought to bear upon a design problem in a cooperating industry or institution.

**INSY 4960 SPECIAL PROBLEMS** (1-5) IND. Individual student endeavor under faculty supervision involving special problems in Industrial and Systems Engineering. Interested student must submit written proposal to department head. Course may be repeated for a maximum of 5 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 5 credit hours.

**INSY 4970 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS** (1-10) LBL. Special topics in Industrial and Systems Engineering. Specific prerequisites will be determined and announced for each offering. Pr., departmental approval. Course may be repeated for a maximum of 10 credit hours.

**INSY 4987 HONORS THESIS** (1-6) IND. Individual student endeavor consisting of direct research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

**INSY 5010 SAFETY ENGINEERING I** (3) LEC. 3 Pr., INSY 3020 Occupational safety engineering and management with emphasis on control of hazardous materials, fire prevention, safety considerations in production facility design, and maintenance, and operation of effective safety programs.

**INSY 5240 PRODUCTION AND INVENTORY CONTROL SYSTEMS** (3) LEC. 3 Pr., INSY 3700 and COMP 3120 and INSY 3130. Theory and practice of production and inventory control systems. Credit will not be given for both INSY 5240 and INSY 6240/6246.

**INSY 5250 SCHEDULING AND PROJECT MANAGEMENT** (3) LEC. 3 Pr., INSY 3700. Sequencing and scheduling methods and models are presented, with special emphasis on scheduling and controlling projects. Credit will not be given for both INSY 5250 and INSY 6250/6256.

**INSY 5330/5336 DATA BASED DECISION MAKING USING SIX SIGMA** (3) LEC. 3 Pr., INSY 3430 Covers statistical tools needed for implementation of "Six Sigma," "Lean Six Sigma," and "Design for Six Sigma". Credit will not be given for both INSY 5330 and INSY 6330/6336.

**INSY 5600 MANUFACTURING AND PRODUCTION ECONOMICS** (3) LEC. 3 Pr., INSY 3600 Fundamentals for modeling, designing, and implementing decision support systems for the operation of manufacturing and service industries. Credit will not be given for both INSY 5600 and INSY 6600/6606.

**INSY 5630/5636 REAL OPTIONS/DECISION ANALYSIS** (3) LEC. 3 Pr. and INSY 3600 and INSY 3700 and INSY 3800 and INSY 3900. Emphasis on the use of real options and decision analysis tools. Credit will not be given for both INSY 5630 and INSY 6630/6636.

**INSY 5800 LEAN PRODUCTION** (3) LEC. 3. Manufacturing system design based on a strategy of linked cells providing a continuous flow of materials. Evaluation strategies and analysis tools are studied.

**INSY 5830 VEHICLE TECHNOLOGY AND TRENDS** (3) LEC. 3. Investigation of the advances in automotive technology and the impact of future technologies on the design and manufacture of the automobile. Credit will not be given for both INSY 5830 and INSY 6830.

**INSY 5840 CONTROL OF THE MANUFACTURING FLOOR AND PROCESSES** (3) LEC. 2. LAB. 3. Students work within multi-disciplinary teams to apply the principles of Computer Aided Manufacturing and the Toyota Production System (TPS) on the modern automated floor. Laboratory features CNC Controls, Robots, Programmable Logic Controllers (PLC) and Kanban system. DELMIA Catia, and MasterCAM. Credit will not be given for both INSY 5840 and INSY 6840.

**INSY 5850 ELECTRONICS MANUFACTURING SYSTEMS** (3) LEC. 3. Introduction to electronics packaging and electronics manufacturing technologies including current and future trends, design and quality, and manufacturing for high volume. Credit will not be given for both INSY 5850 and INSY 6850/6856.

**INSY 6600/6606 MANUFACTURING AND PRODUCTION ECONOMICS** (3) LEC. 3. Continuation of INSY 5600. Emphasis on design economics and cost estimating techniques and applications to various manufacturing and service operations. Credit will not be given for both INSY 6600 and INSY 6660/6666.

**INSY 6830/6836 AUTOMOTIVE MANUFACTURING SYSTEMS** (3) LEC. 3. History of automotive manufacturing and the automotive manufacturing systems for a typical automotive assembly plant. Credit will not be given for both INSY 5860 and INSY 6680/6686.

**INSY 6840/6846 CONTROL OF THE MANUFACTURING FLOOR AND PROCESSES** (3) LEC. 2. LAB. 3. Students work within multi-disciplinary teams to apply the principles of Computer Aided Manufacturing and the Toyota Production System (TPS) on the modern automated floor. Laboratory features CNC Controls, Robots, Programmable Logic Controllers (PLC) and Kanban system. DELMIA Catia and MasterCAM. Credit will not be given for both INSY 6840 and INSY 6840/6840.

**INSY 6850/6856 ELECTRONICS MANUFACTURING SYSTEMS** (3) LEC. 3. Introduction to electronics packaging and electronics manufacturing technologies including current and future trends, design and quality, and manufacturing for high volume. Credit will not be given for both INSY 6850 and INSY 6840/6846.

**INSY 6860/6866 AUTOMOTIVE MANUFACTURING SYSTEMS** (3) LEC. 3. History of automotive manufacturing and the automotive manufacturing systems for a typical automotive assembly plant. Credit will not be given for both INSY 5860 and INSY 6680/6686.
Kinesiology (KINE)

Dr. Mary Rudisill - 844-1458

LEC. 2, LAB. 2 Pr., Admission to Teacher Education. Critical topics in health education and physical education for prospective elementary education teachers. Credit will not be given for both KINE 4360 and KINE 4200.

KINE 4450 PHYSICAL ACTIVITY AND PUBLIC HEALTH 3) LEC. 3 Pr., (HLHP 3020 or KINE 3020) Basic principles of epidemiology; health benefits of physical activity; strategies to promote physical activity at the individual and community levels.

KINE 4610 MOTOR DEVELOPMENT ACROSS THE LIFE SPAN 3) LEC. 3 Pr., (HLHP 3020 or KINE 3020) Understanding principles related to motor development across the life span.

KINE 4620 EXERCISE AND SPORT PSYCHOLOGY 3) LEC. 3 Pr., (HLHP 3020 or KINE 3020) Role of psychological factors in sport, exercise and physical activity.

KINE 4720 MEASUREMENT AND QUANTITATIVE ANALYSIS IN EXERCISE SCIENCE 3) LEC. 3 Pr., (KINE 3020 or HLHP 3020) and STAT 2010; departmental approval. Concepts and statistics related to assessing human performance.

KINE 4760 INTRODUCTION TO EXERCISE SCIENCE RESEARCH 3) LEC. 3 Pr., (HLHP 3020 or KINE 3020) and (HLHP 3620 or KINE 3620) and (HLHP 3650 or KINE 3650) and (HLHP 3680 or KINE 3680) Research literature, experimental design and research interpretation in exercise science.

KINE 4780 EXERCISE SCIENCE RESEARCH 3) LEC. 3 SU., (HLHP 4760 or KINE 4760) Development of a research proposal including the introduction, review of literature, methods, experimental design and statistics.

KINE 4900 DIRECTED STUDIES 1-6 IND. SU. In-depth study of specific topics. Course may be repeated a maximum of 6 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

KINE 4910 PRACTICUM 1-6 PRA. SU. Application of basic concepts to specific work environment. Course may be repeated for a maximum of 6 credit hours.

KINE 4970 SPECIAL TOPICS 1-3 AAB. Advanced presentation of critical issues in physical education, health promotion or exercise science. Course may be repeated with change in topic.

KINE 4997 HONORS THESIS 1-3 LEC. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

KINE 5200 RESEARCH PROJECT IN PHYSICAL EDUCATION 3) LEC. 3 Pr., (HLHP 4200 or KINE 4200) and (HLHP 4300 or KINE 4300) Focus on action research in teaching and learning in physical education in schools.

KINE 5250 INSTRUCTIONAL SUPERVISION FOR PHYSICAL EDUCATION 2) LEC. 2 Pr., (HLHP 4200 or KINE 4200) and (HLHP 4300 or KINE 4300) Development of systematic observation systems for providing feedback to teachers and strategies for monitoring progress.

KINE 5300 ADVOCACY PHYSICAL EDUCATION 2) LEC. 2 Pr., (HLHP 4200 or KINE 4200) and (HLHP 4300 or KINE 4300) Strategies for development of advocacy programs in physical education.

KINE 5400 EXERCISE PRESCRIPTION FOR NORMAL AND SPECIAL POPULATIONS 3) LEC. 3 Pr., (HLHP 3680 or KINE 3680) Principles of exercise prescription for normal and special populations with emphasis on specific exercise strategies in elderly, obese, hypertensive and hyperlipidemic populations. Pr., CPR certification.

KINE 5500 EXERCISE TECHNOLOGY I: PRINCIPLES OF EXERCISE TESTING AND INTERPRETATION 4) LEC. 2, LAB. 4 Pr., KINE 3020 or HLHP 3020 Concept and skill development in physiologic testing, test selection, and interpretation in normal and special populations. CPA certification must be obtained prior to or during course. ADDITIONAL PREREQUISITE: HLHP 3680 or KINE 3680 must be taken prior to or during course. KINE 5550 must be taken with course.

KINE 5550 EXERCISE TECHNOLOGY II: APPLIED EXERCISE TESTING AND INTERPRETATION 4) LEC. 1, LAB. 6 Pr., (HLHP 5550 or KINE 5550) Practical experience in cardiovascular and musculoskeletal exercise evaluation and prescription; interpretation of exercise test results for exercise prescription and health risk stratification. Coreq., CPR certification.

KINE 5600 PHYSIOLOGICAL BASIS OF TRAINING AND CONDITIONING 3) LEC. 2, LAB. 2 Pr., (HLHP 3680 or KINE 3680) Physiological adaptations to training and conditioning for optimizing sport performance.

KINE 5820 SPORT MANAGEMENT 3) LEC. 3 This course is designed to give students critical skills in understanding and analyzing a number of social issues as they relate to sport.

KINE 5920 INTERNSHIP 1-12 INT. SU. Supervised work experiences in schools, fitness or rehabilitation settings. Two hours of work experience per week for each hour course credit. Course may be repeated for a maximum of 12 credit hours.

KINE 6200 RESEARCH PROJECT IN PHYSICAL EDUCATION 3) LEC. 3 Pr., (HLHP 4200 or KINE 4200) and (HLHP 4300 or KINE 4300) Focus on action research in teaching and learning in physical education in schools.
KINE 6250 INSTRUCTIONAL SUPERVISION FOR PHYSICAL EDUCATION (2) LEC. 2 Pr., (HLHP 4200 or KINE 4200) and (HLHP 4300 or KINE 4300) Development of systematic observation systems for providing feedback to teachers and strategies for monitoring progress.

KINE 6300 ADVOCACY IN PHYSICAL EDUCATION (2) LEC. 2 Pr., (HLHP 4200 or KINE 4200) and (HLHP 4300 or KINE 4300) Strategies for development of advocacy programs in physical education.

KINE 6400/6406 EXERCISE PRESCRIPTION FOR NORMAL AND SPECIAL POPULATIONS (3) LEC. 3 Pr., (HLHP 3680 or KINE 3680) Principles of exercise prescription for normal and special populations with emphasis on specific exercise strategies in elderly, obese, hypertensive and hyperlipidemic populations.

KINE 6500 EXERCISE TECHNOLOGY I: PRINCIPLES OF EXERCISE TESTING AND INTERPRETATION (4) LEC. 2, LAB. 4 Pr., (HLHP 3680 or KINE 3680) Concept and skill development in physiologic testing, test selection, and interpretations in normal and special populations. CPR certification must be obtained prior to or during course. Pr., HLHP 3680 or KINE 3680 must be taken prior to course or KINE 3680 must be taken with course.

KINE 6550 EXERCISE TECHNOLOGY II: APPLIED EXERCISE TESTING AND INTERPRETATION (4) LEC. 1, LAB. 6 Pr., HLHP 5500 or (KINE 6500 or HLHP 6500) Practical experience in cardiovascular and musculoskeletal exercise evaluation and prescription; interpretation of exercise test results for exercise prescription and health risk stratification. CPR certification must be obtained prior to this course.

KINE 6600 PHYSIOLOGICAL BASIS OF TRAINING AND CONDITIONING (3) LEC. 2, LAB. 2 Pr., (HLHP 3680 or KINE 3680) Physiological adaptations to training and conditioning for sport performance.

KINE 6620 SPORT MANAGEMENT (3) LEC. 3 This course is designed to give students critical skills in understanding and analyzing a number of social issues as they relate to sport.

KINE 6920 INTERNSHIP (1-12) IND. SU. Supervised work experiences in schools, fitness or rehabilitation settings. Pr., departmental approval.

KINE 7010 RESEARCH METHODS IN PHYSICAL ACTIVITY (3) LEC. 3 Study of research methods and analysis of current research in physical education, health promotion, and exercise science.

KINE 7200 CURRICULUM AND TEACHING IN PHYSICAL EDUCATION (3) LEC. 3 Issues in developing and critiquing curricula in physical education.

KINE 7250 EVALUATION OF PROGRAMS AND ASSESSMENT OF STUDENTS IN PHYSICAL EDUCATION (3) LEC. 3 Development of tools for assessment of student learning and evaluation of physical education programs.

KINE 7290 INDIVIDUALS WITH DISABILITIES IN PHYSICAL EDUCATION (3) LEC. 3 Developing inclusive physical activity programs for children and adolescents with disabilities in physical education.

KINE 7290 NATURALISTIC INQUIRY IN PHYSICAL ACTIVITY SETTINGS (3) LEC. 3 Pr., (HLHP 7010 or KINE 7010) Exploration of naturalistic inquiry in physical activity and educational settings.

KINE 7300 CONTENT AND PEDAGOGY IN PHYSICAL EDUCATION (3) LEC. 3 Instructional strategies and content for elementary and secondary physical education.

KINE 7350 ORGANIZATION AND ANALYSIS OF INSTRUCTION IN PHYSICAL EDUCATION (3) LEC. 3 Focus on the teaching-learning process in physical education.

KINE 7380 INTEGRATING CLASSROOM CONCEPTS (3) LEC. 3 Relationship of developmental foundations of young children and programming of physical activities.

KINE 7570 EXERCISE ELECTROCARDIOGRAPHY (3) LEC. 3 Pr., (HLHP 3680 or KINE 3680) Electrocardiography from a exercise scientist’s perspective; recognition of normal and abnormal electrocardiographic patterns at rest and during exercise.

KINE 7620 PRINCIPLES OF BIOMECHANICS IN HUMAN MOVEMENT (3) LEC. 3 Pr., (HLHP 3620 or KINE 3620) Biomechanical principles and laws with applications to human movement in sport, exercise and daily activities. Pr., departmental approval.

KINE 7650 ADVANCED MOTOR LEARNING AND PERFORMANCE (3) LEC. 3 Pr., (HLHP 3650 or KINE 3650) Theories, experimental studies, and current issues in the acquisition, performance, and retention of motor skills. Pr., OR departmental approval.

KINE 7660 BIOMECHANICS OF SPORT INJURY AND REHABILITATION (3) LEC. 3 Pr., (HLHP 7620 or KINE 7620) Biomechanical properties of the human body as related to injuries and rehabilitation in sport and daily activities.

KINE 7760 LAB TECHNIQUES IN BIOMECHANICS (4) LEC. 1, LAB. 2 Pr., (HLHP 7620 or KINE 7620) Study of equipment and standing practices utilized by a biomechanist in measuring and analyzing motion.

KINE 7860 ADVANCED PHYSIOLOGY OF EXERCISE (3) LEC. 3 Pr., (HLHP 3680 or KINE 3680) Physiological responses to exercise and control of metabolism, the cardiovascular system, and the respiratory system during acute exercise and training. Pr., departmental approval.

KINE 7700 ADVANCED PHYSIOLOGY OF EXERCISE II (3) LEC. 3 Pr., (HLHP 3680 or KINE 3680) Temperature regulation and endocrine response to exercise; physiological responses and adaptations to aerobic training, strength training, and environmental extremes; limiting factors and fatigue in exercise.

KINE 7710 LAB TECH IN EXERCISE PHYSIO (3) LEC. 1, LAB. 4 Pr., (HLHP 7680 or KINE 7680) Techniques for measuring and evaluating physical performance.

KINE 7730 NEUROMOTOR CONTROL (3) LEC. 3 Pr., (HLHP 3650 or KINE 3650) Structure and function of the central and peripheral systems underlying human motor control. Pr., departmental approval.

KINE 7740 ADVANCED MOTOR DEVELOPMENT (3) LEC. 3 Pr., (HLHP 4610 or KINE 4610) Examination of theoretical and empirical issues in motor development across the life span. Pr., departmental approval.

KINE 7750 ADVANCED SPORT PSYCHOLOGY (3) LEC. 3 Pr., (HLHP 4620 or KINE 4620) Examination of psychological factors that influence athletic performance. Pr., or equivalent, or departmental approval.

KINE 7780 EXERCISE MOTIVATION AND ADHERENCE (3) LEC. 3 Pr., (HLHP 4620 or KINE 4620) Theoretical foundations and recent research in exercise motivation and adherence. Pr., equivalent.

KINE 7790 MOTOR BEHAVIOR OF INDIVIDUALS WITH DISABILITIES (3) LEC. 3 Pr., (HLHP 7650 or KINE 7650) Examination of motor behavior characteristics of individuals with disabilities.

KINE 7900 DIRECTED STUDIES (1-3) IND. SU. In-depth study of specific topics. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

KINE 7910 PRACTICUM (1-3) PRA. Application of concepts to specific work environment. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

KINE 7920 INTERNSHIP (1-10) INT. SU. Supervised work experiences in schools, fitness or rehabilitation settings. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

KINE 7930 DIRECTED FIELD EXPERIENCES (1-10) FLD. SU. Field studies away from campus. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

KINE 7950 SEMINAR (1-3) SEM. SU. Course may be repeated for a maximum of 3 credit hours.

KINE 7960 SPECIAL PROBLEMS (1-3) IND. SU. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 3 credit hours. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

KINE 7970 SPECIAL TOPICS (1-3) LEC. Advanced presentation of critical issues in physical education, health promotion, or exercise science. Course may be repeated with change in topic.

KINE 7990 RESEARCH AND THESIS (1-10) IND. Course may be repeated with change of topic. Course may be repeated with change in topics.

KINE 8710 SCIENTIFIC COMMUNICATION IN EXERCISE SCIENCE (3) LEC. 3 Pr., (HLHP 7010 or KINE 7010) In-depth analysis of the major formats for scientific communication and the peer-review process in exercise science. Pr., equivalent.

KINE 8750 THREE-DIMENSIONAL ANALYSIS OF HUMAN MOVEMENT (3) LEC. 3 Pr., (HLHP 7620 or HLHP 7620) Three-dimensional nature of body segments in human movement, with emphasis on data processing and modeling techniques.

KINE 8760 PHYSICAL ACTIVITY EPIDEMIOLOGY (3) LEC. 3 Pr., (HLHP 7680 or KINE 7680) Development of analytic skills to evaluate and/or conduct population-based research related to physical activity and disease.

KINE 8770 NEUROMUSCULAR ASPECTS OF EXERCISE AND TRAINING (3) LEC. 3 Pr., (HLHP 7680 or KINE 7680) and (HLHP 7700 or KINE 7700) Examination of neuromuscular mechanisms that allow humans to perform work, including energy output, neural integration, energy metabolism and adaptations to training. Pr., departmental approval.

KINE 8780 BIOCHEMISTRY OF EXERCISE (3) LEC. 3 Pr., (HLHP 7680 or KINE 7680) and (HLHP 7700 or KINE 7700) Regulation of the metabolic pathways of energy metabolism with emphasis on the energetic response to acute exercise and exercise training. Pr., departmental approval.

KINE 8900 DIRECTED STUDIES (1-3) IND. SU. In-depth study of specific topics. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

KINE 8910 PRACTICUM (1-3) PRA. Application of basic concepts to specific work environments. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

KINE 8920 INTERNSHIP (1-10) INT. SU. Supervised work experiences in schools, fitness and rehabilitation settings. Course may be repeated for a maximum of 10 credits. Pr., departmental approval. Course may be repeated for a maximum of 10 credit hours.
PHED 1860 VARSITY MEN'S SPORTS: GOLF (1) LEC. 1 SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1870 VARSITY MEN'S SPORTS: TENNIS (1) LEC. 1 SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1880 VARSITY MEN'S SPORTS: BASEBALL (1) LEC. 1 SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1900 VARSITY WOMEN'S SPORTS: SOCCER (1) LEC. 1 SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1910 VARSITY WOMEN'S SPORTS: GYMNASTICS (1) LEC. 1 SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1920 VARSITY WOMEN'S SPORTS: BASKETBALL (1) LEC. 1 SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1930 VARSITY WOMEN'S SPORTS: TRACK (1) LEC. 1 SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1940 VARSITY WOMEN'S SPORTS: CROSS COUNTRY (1) LEC. 1 SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1950 VARSITY WOMEN'S SPORTS: SWIMMING AND DIVING (1) LEC. 1 SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1960 VARSITY WOMEN'S SPORTS: GOLF (1) LEC. 1 SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1970 VARSITY WOMEN'S SPORTS: TENNIS (1) LEC. 1 SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1980 VARSITY WOMEN'S SPORTS: SOFTBALL (1) LEC. 1 SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1990 VARSITY WOMEN'S SPORTS: VOLLEYBALL (1) LEC. 1 SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

Mathematics (MATH)

Dr. Michel Smith - 844-4290

MATH 1000/1003 COLLEGE ALGEBRA (3) LEC. 3 Fundamental concepts of algebra, equations and inequalities, functions and graphs, polynomial and rational functions. Does not satisfy the core requirement in mathematics. Students who have previous credit in any higher-numbered math course may not receive credit. Pr., High school geometry and second year high school algebra.

MATH 1100 FINITE MATH AND APPLICATIONS (3) LEC. 3 Mathematics Core. Overview of finite mathematics and its applications. Graph theory, matrices, finite and conditional probability; descriptive and inferential statistics, voting methods, game theory.

MATH 1120/1123 PRE-CALCULUS ALGEBRA (3) LEC. 3 Mathematics Core. Algebra of functions including polynomial, rational, exponential and logarithmic functions. Systems of equations and inequalities, quadratic inequalities, the binomial theorem. Students who have previous credit in any higher-numbered math course may not receive credit. Pr., High school geometry and second-year high school algebra.

MATH 1130 PRE-CALCULUS TRIGONOMETRY (3) LEC. 3 Mathematics Core. Preparatory course for the calculus sequence. Basic analytic and geometric properties of the trigonometric functions. Complex numbers, de Moivre’s theorem, polar coordinates. Students who have previous credit in any higher-numbered math course may not receive credit. Pr., High school geometry and second-year high school algebra.

MATH 1150 PRE-CALCULUS ALGEBRA AND TRIGONOMETRY (4) LEC. 4 Mathematics Core. Algebraic functions, Exponential Logarithmic functions. Analytic and geometric properties of trigonometric functions. Students who have previous credit in any higher-numbered math course may not receive credit. Pr., High school geometry and second year high school algebra. Students are further required to have a appropriate score on the mathematics placement exam or to have passed MATH 1000 with a C or better.

MATH 1151 MATHXCEL PRECALCULUS WORKSHOP (2) LEC. 2 SU. Coreq., MATH 1150 Workshop for MATH 1150. Two 2-hour sessions per week, Fall, Spring. Pr., Appropriate score on the mathematics placement exam or grade of C or better in MATH 1000.

MATH 1610 CALCULUS I (4) LEC. 4 Mathematics Core. Limits, the derivative of algebraic, trigonometric, exponential, logarithmic functions. Applications of the derivative, antiderivatives, the definite integral and applications to area problems, the fundamental theorem of calculus. Students may receive credit for only one of MATH 1610, MATH 1617, or MATH 1710. High school trigonometry and second year high school algebra.

MATH 1611 MATHXCEL CALCULUS WORKSHOP I (2) LEC. SU. Coreq., MATH 1610 Workshop for Math 1610. Two 2-hour sessions per week. Pr., Appropriate score on mathematics placement exam.

MATH 1617 HONORS CALCULUS I (4) LEC. 4 Mathematics Core. This course covers the same material as MATH 1610 but in a greater depth appropriate for honors students. Credit will not be given for both MATH 1617 and MATH 1680. Students may receive credit for only one of MATH 1610, MATH 1617, or MATH 1710. Pr., Membership in Honors College.

MATH 1620 CALCULUS II (4) LEC. 4 Pr., MATH 1610 or MATH 1617 or MATH 1710 Techniques of integration, applications of the integral, parametric equations, polar coordinates, Vectors, lines and planes in space. Infinite sequences and series. Students may receive credit for only one of MATH 1620, MATH 1627, or MATH 1720.

MATH 1621 MATHXCEL CALCULUS WORKSHOP II (2) LEC. 2 SU. Coreq., MATH 1620 Workshop for MATH 1620. Two 2-hour sessions per week.

MATH 1627 HONORS CALCULUS II (4) LEC. 4 Pr., MATH 1617 The same material as MATH 1620, but in greater depth appropriate for honors students. Students may receive credit for only one of MATH 1620, MATH 1627 or MATH 1720. Pr., Membership in the Honors College.

MATH 1680 CALCULUS WITH BUSINESS APPLICATIONS I (3) LEC. 3, LEC. 2 For students in the College of Business, Mathematics Core. Differentiation and integration of exponential and logarithmic functions and applications to business. Functions of several variables, partial derivatives, and multiple integrals. Pr., Appropriate score on Math Placement Exam. Second year high school algebra.

MATH 1681 MATHXCEL BUSINESS CALCULUS WORKSHOP I (2) LEC. 2 SU. Coreq., MATH 1680 Workshop for MATH 1680. Two 2-hour sessions per week. Pr., or appropriate score on Math Placement Exam.

MATH 1690 CALCULUS WITH BUSINESS APPS II (3) LEC. 3 Pr., MATH 1680 or MATH 1610 or MATH 1617 Probability, random variables, probability distributions. Further topics in calculus: integration, functions of several variables, applications to probability. Applications to business and related areas. Credit will not be given to majors in Engineering or Math or Physics. Pr., with departmental approval.

MATH 1691 MATHXCEL BUSINESS CALCULUS WORKSHOP II (2) LEC. 2 SU. Coreq., MATH 1690 Workshop for MATH 1690. Two 2-hours sessions per week. Pr., appropriate score on the mathematics placement Exam.

MATH 1710 CALCULUS FOR ENGINEERING AND SCIENCE I (4) LEC. 4 Mathematics Core. Vector algebra, limits, derivatives and antiderivatives of real and vector valued functions and applications. The fundamental theorem of calculus. MATH 1710 and MATH 1720 include and re-order the material of MATH 1610 and MATH 1620, and MATH 1720 may be substituted for MATH 1620. MATH 1710 is not a prerequisite for MATH 1620. Credit will not be given for only one of MATH 1610, MATH 1617, or MATH 1710. Credit will not be given for both MATH 1680 and MATH 1710. Second year high school algebra and high school trigonometry.

MATH 1720 CALCULUS FOR ENGINEERING AND SCIENCE II (4) LEC. 4 Pr., MATH 1710 Exponents and logarithms, separation of variables, L'Hopital's rule. Techniques of integration, work and energy, line integrals, the gradient and directional derivatives, the curl. Credit will be given for only one of MATH 1620, MATH 1627, or MATH 1720.

MATH 2630 CALCULUS III (4) LEC. 4 Pr., MATH 1620 or MATH 1627 or MATH 1720 Multivariate calculus: vector-valued functions, partial derivatives, multiple integration, vector calculus. Credit will be given for only one of MATH 2630, MATH 2637, or MATH 2730.

MATH 2637 HONORS CALCULUS III (4) LEC. 4 Pr., MATH 1620 or MATH 1627 or MATH 1720 The same material as MATH 2630, but in greater depth appropriate for honors students. Credit will be given for only one of MATH 2630, MATH 2637, or MATH 2730. Pr., Membership in Honors College.

MATH 2650 LINEAR DIFFERENTIAL EQUATIONS (3) LEC. 3, LEC. 2 For students in the College of Business, Mathematics Core. Linear differential equations, bases and dimension, eigenvalues, inner product spaces, diagonalization of symmetric matrices.

MATH 2730 CALCULUS FOR ENGINEERING AND SCIENCE III (4) LEC. 4 Pr., MATH 1720 Optimization and Lagrange multipliers, Linear, spherical, cylindrical, polar transformations. The Jacobian. Surface integrals and integrals over solids. Divergence, Stokes’ Theorem, Gauss’ Theorem. Credit will only be given for one of MATH 2730, MATH 2630, or MATH 2637.

MATH 2790 MATHEMATICS OF INTEREST THEORY (3) LEC. 3 Pr., MATH 1620 or MATH 1627 or MATH 1720 Mathematical foundations of the theory of interest
necessary as preparation for the Society of Actuaries examination on the theory of interest.

MATH 2850 MATHEMATICS FOR ELEMENTARY EDUCATION I (3) LEC. 3 Pr., MATH 1130-5000 Mathematical insights for elementary school teachers. Sets, the structure of the number system (integers, fraction, decimals). Pr., Elementary Education majors or departmental approval.

MATH 2860 MATHEMATICS FOR ELEMENTARY EDUCATION II (3) LEC. 3 Pr., MATH 2850 Mathematical insights for elementary school teachers. Probability, informal geometry, measurement. Pr., Elementary Education majors or departmental approval.

MATH 2870 MATHEMATICS FOR ELEMENTARY EDUCATION III (3) LEC. 3 A reexamination of the number system, geometry, probability, graph theory and discrete phenomena with emphasis on multiple problem solving techniques. Open for credit only for elementary education majors except by special permission of the mathematics department. Spring, Fall.

MATH 3010 HISTORY OF MATHEMATICS (3) LEC. 3 Pr., MATH 1620 or MATH 1627 or MATH 1720 The evolution of modern mathematics from its motivational roots in the physical sciences; the lives and contributions of outstanding mathematicians; the parallel development of mathematics and western culture. Pr., departmental approval.

MATH 3100 INTRODUCTION TO ADVANCED MATHEMATICS (3) LEC. 3 Pr., MATH 2630 or MATH 2637 or MATH 2730 Teaching of the fundamental abilities necessary for the pursuance of mathematical studies. Logic and set theory, mathematical induction, basic number theory, basic analysis. Credit will not be given for both MATH 3100 and MATH 3710.

MATH 3710 DISCRETE MATHEMATICS (3) LEC. 3 Pr., MATH 2660 Methods of proof, induction, counting, inclusion-exclusion, discrete probability, relations, partial orders, graphs, trees, languages, grammars, finite state machines, automata. Credit will not be given for both MATH 3710 and Math 3700.

MATH 4790 ACTUARIAL SEMINAR IN THE MATHEMATICS OF FINANCE (3) LEC. 3 Pr., MATH 2790 Intensive seminar in the mathematical aspects of finance, and the theory of interest primarily intended as preparation for the Society of Actuaries Course 2 exam.

MATH 4820 ACTUARIAL SEMINAR IN PROBABILITY (3) LEC. 3 Pr., STAT 3600 Intensive seminar in calculus, probability, and risk theory primarily intended as preparation for the Society of Actuaries Course 1 examination, Pr., or equivalent.

MATH 4930 DIRECTED STUDIES (1-3) IND. Study of individual problems or topics of interest to students. Course may be repeated for a maximum of 3 credit hours.

MATH 4970 SPECIAL TOPICS (1-4) IND. An individual problems course. Each student will work under the direction of a staff member on a problem of mutual interest. Course may be repeated for a maximum of 4 credit hours. Pr., departmental approval.

MATH 4987 HONORS THESIS (1-6) IND. Course may be repeated for a maximum of 6 credit hours. Pr., Membership in Honors College. Course may be repeated for a maximum of 6 credit hours.

MATH 5000 MATH MODELING (3) LEC. 3 Pr., MATH 2650 and MATH 2660 Introduction to mathematical models and related techniques. Includes general principles involving continuous deterministic problems and a detailed, specific term-project. Pr., Programming ability.

MATH 5010 VECTOR CALCULUS (3) LEC. 3 Pr., MATH 2630 and MATH 2660 Vector-valued functions, vector fields, Gradient, divergence, curl. Integral theorems: Green’s Theorem, Stoke’s Theorem, Gauss’ Theorem. Tensors and differential forms. Applications. Pr., departmental approval.

MATH 5030 COMPLEX VARIABLES WITH APPLICATIONS I (3) LEC. 3 Pr., MATH 2650 Complex functions and their elementary mapping properties; contour integration and residues; Laurent series; applications to real integrals. MATH 6030-6040 are appropriate for students of engineering or science.

MATH 5040 COMPLEX VARIABLES WITH APPLICATIONS II (3) LEC. 3 Pr., MATH 6030 Linear fractional transformations; conformal mappings; harmonic functions; applications to boundary value problems; analytic continuation; entire functions. MATH 5030-5040 are appropriate for students of engineering or science.

MATH 5050 MATRIX THEORY AND APPLICATIONS (3) LEC. 3 Pr., MATH 2660 Canonical forms, determinants, linear equations, characteristic value problems.

MATH 5060 ELEMENTARY PARTIAL DIFFERENTIAL EQUATIONS (3) LEC. 3 Pr., MATH 2650 First and second order linear partial differential equations with emphasis on the method of eigenfunction expansions.

MATH 5120 INFORMATION THEORY (3) LEC. 3 Pr., MATH 2630 or MATH 2637 or MATH 2730 Information and entropy, information rate optimization and channel capacity, variable-length codes, data compression (Kraft-McMillan inequality, Huffman’s algorithm), maximum likelihood decoding, Shannon’s Noisy Channel Theorem.

MATH 5130 CALCULUS OF VARIATION (3) LEC. 3 Pr., MATH 2650 Fundamental concepts of extrema of functions and functionals; first and second variations; generalizations; sufficient conditions; constrained functionals; the general Lagrange Problem; optimal control.

MATH 5140 DATA COMPRESSION (3) LEC. 3 Pr., MATH 1620 or MATH 1627 or MATH 1720 Lossless compression methods, including static, dynamic, and higher order Huffman and arithmetic encoding, interval and recursion rank encoding, and dictionary methods; lossy transform methods (JPEG).

MATH 5150 ALGEBRAIC CODING THEORY (3) LEC. 3 Linear codes, Hamming and Golay codes, BCH codes, cyclic codes. Random error detection and correction. Burst-error correction. Decoding algorithms. Credit will not be given for both MATH 5150 and MATH 6150.

MATH 5160 INTRODUCTION TO APPLIED MATHEMATICS (3) LEC. 3 Pr., MATH 2650 and MATH 2660 Fourier transforms, Z-transforms, Function spaces, eigenfunction methods. Conservation laws, diffusion, equilibrium states, wave phenomena, classical transform methods, energy integrals and conservation, maximum principles.

MATH 5180 CRYPTOGRAPHY (3) LEC. 3 Pr., MATH 2660 Classical cryptosystems, the Data Encryption Standard, one-way functions and relevant number theoretic problems (factoring, primality testing, discrete logarithm problem), RSA and other public key cryptosystems.

MATH 5190 INTRODUCTION TO APPROXIMATION THEORY (3) LEC. 3 Pr., MATH 2650 Approximation of functions by polynomials, spline functions or trigonometric function, expansions in series. MATH 6180 is appropriate for students of engineering and science.

MATH 5200 ANALYSIS I (3) LEC. 3 Pr., MATH 3100 The real number system, theorems concerning number sets, sequences, graphs of functions. Pr., analogous course subject to departmental approval.

MATH 5210 ANALYSIS II (3) LEC. 3 Pr., MATH 5200 The real number system, theorems concerning number sets, sequences, graphs of functions; Riemann-Stieltjes integration, continuity, the derivative and functions of bounded variation; functions whose domains are in Euclidean spaces.

MATH 5240 FOURIER ANALYSIS (3) LEC. 3 Pr., MATH 2650 Convergence and oscillation theorems for Fourier Series. Gibbs phenomenon. Fourier transforms. Fast Fourier transform.

MATH 5280 SYSTEMS OF DIFFERENTIAL EQUATIONS AND APPLICATIONS (3) LEC. 3 Pr., MATH 2650 and MATH 2660 Linear systems of differential equations, stability, phase portraits; non-linear systems, linearization, qualitative properties of orbits, Poincare-Bendixson Theorem; numerical methods; applications.

MATH 5300 THEORY OF DIFFERENCE EQUATIONS (3) LEC. 3 Pr., MATH 2660 Linear difference equations, initial value problems, Green’s functions, boundary value problems, systems, periodic solutions, nonlinear difference equations, models.

MATH 5310 INTRODUCTION TO ABSTRACT ALGEBRA I (3) LEC. 3 Pr., MATH 3100 Groups, Groups of Permutations, isomorphisms and homomorphisms; Cyclic Groups, Quotient Groups, The Fundamental Homomorphism Theorem. Pr., departmental approval.

MATH 5320 INTRODUCTION TO ABSTRACT ALGEBRA II (3) LEC. 3 Pr., MATH 5310 Theory of rings and fields, Ideals and Homomorphisms, Quotient Rings, Rings of Polynomials, Extensions of Fields, Galois Theory.

MATH 5330 COMPUTATIONAL ALGEBRA (3) LEC. 3 Pr., MATH 5310 Introduction to computation in multivariate polynomial rings and finite fields. Topics include Berlekamp’s Algorithm, Groebner bases, Buchberger’s Algorithm, kinematic/robotics problems, symbolic manipulation software.

MATH 5370 LINEAR ALGEBRA (3) LEC. 3 Pr., MATH 2660 Linear transformations, matrix algebra, finite-dimensional vector spaces.

MATH 5380 INTERMEDIATE EUCLIDEAN GEOMETRY I (3) LEC. 3 Pr., MATH 2630 or MATH 2637 or MATH 2730 Fundamental concepts and theorems of Euclidean geometry, introduction to higher dimensions. Regular polygons and polyhedra, symmetry groups, convexity, geometric extremum problems. Geometric transformations and their invariants.

MATH 5390 INTERMEDIATE EUCLIDEAN GEOMETRY II (3) LEC. 3 Pr., MATH 5380 Planar graphs and Euler’s theorem. The symmetry group of a set, homotheties and similarities, path, arcs and length of curves, advanced theorems on the circle.

MATH 5470 DYNAMICAL SYSTEMS I (3) LEC. 3 Pr., MATH 2650 One dimensional dynamics. The logistic equation, bifurcation theory, chaos, hyperbolicity, symbolic dynamics, Sarkovski’s Theorem, maps of the circle, homoclinic points and the theory of kneading sequences.

MATH 5480 DYNAMICAL SYSTEMS II (3) LEC. 3 Pr., MATH 5470 Higher dimensional and complex dynamics. Lorenz map, Henon map, toral automorphisms, stable and unstable manifolds, strange attractors, quadratic maps of the complex plane, Julia sets, Mandelbrot set.

MATH 5500 INTRODUCTION TO TOPOLOGY (3) LEC. 3 Pr., MATH 3100 Metric spaces, topological spaces, continuity, compactness, connectedness, product and quotient spaces and local properties. Pr., departmental approval.

MATH 5620 MATHEMATICAL COMPUTATION AND SCIENTIFIC VISUALIZATION (3) LEC. 3 Pr., MATH 2650 An introduction to the computational modeling process, numerical programming tools for large-scale scientific computation, parallel and cluster computing, and to scientific visualization techniques. Pr., MATH 2650 and a programming language, or departmental approval.
MATH 5630 INTRODUCTION TO NUMERICAL ANALYSIS I (3) LEC. 3 Pr., MATH 2650 Numerical solution of equations, polynomial approximation, numerical differentiation and integration, numerical solutions of ordinary differential equations, error analysis. Written programs using algorithms, Pr., Programming ability.

MATH 5640 INTRODUCTION TO NUMERICAL ANALYSIS II (3) LEC. 3 Pr., MATH 2660 Numerical solutions of systems of linear equations, numerical computation of eigenvalues and eigenvectors, error analysis. Written programs using the algorithms, Pr., Programming ability.

MATH 5650 THEORY OF NONLINEAR OPTIMIZATION (3) LEC. 3 Pr., MATH 2650 and MATH 2660 Kuhn-Tucker conditions, quadratic programming, search methods and gradient methods, Lagrangean and penalty function methods.

MATH/STAT 5670 PROBABILITY AND STOCHASTIC PROCESS I (3) LEC. 3 Pr., MATH 2630 or MATH 2637 Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both MATH 5670 and STAT 5670.

MATH/STAT 5690 INTRODUCTION TO CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3 Pr., MATH 1620 or MATH 1627 or MATH 1720 Stochastic properties of random phenomena in computational complexity, data analysis, chaotic nonlinear systems. Computer simulation and experimenting within Mathematical, supported by Internet resources. Credit will not be given for both MATH 5690 and STAT 5690.

MATH 5710 LINEAR OPTIMIZATION (3) LEC. 3 Pr., MATH 2660 Theory and algorithms for standard linear optimization problems. Simplex algorithm and duality, shortest paths, network flows, min-cost flows and circulations, out-of-kilter method, assignments and matchings.

MATH 5730 ENUMERATION (3) LEC. 3 Pr., MATH 2630 or MATH 2637 or MATH 2730 Using generating functions and Polya theory to do sophisticated counting. Permutations and combinations, inclusion-exclusion, partitions, recurrence relations, group actions, Polya theory with applications.

MATH 5750 GRAPH THEORY (3) LEC. 3 Pr., MATH 2660 Algorithmic and theoretical aspects of graph theory: matchings, colorings, scheduling problems, Hamilton cycles. Euler tours, spanning trees, network reliability, connectivity, extremal graphs, planar graphs, disjoint paths.

MATH 5770 COMBINATORIAL DESIGNS (3) LEC. 3 Pr., MATH 1620 or MATH 1627 or MATH 1720 Latin squares, mutually orthogonal latin squares, orthogonal and perpendicular arrays, Steiner triple systems, block designs, difference sets and finite geometries.

MATH 5800 ACTUARIAL MATHEMATICS I (3) LEC. 3 Pr., MATH 2790 and STAT 3600 A development of the mathematical theory of life insurance and annuities. Utility functions, mortality models, life tables, insurance plans, premiums.

MATH 5810 ACTUARIAL MATHEMATICS II (3) LEC. 3 Pr., MATH 5800 A development of the mathematical theory of life insurance and annuities. Utility functions, mortality models, life tables, insurance plans, premiums.

MATH 5840 FOUNDATIONS OF NUMBER THEORY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3 Pr., MATH 2630 or MATH 2637 or MATH 2730 Divisibility, Diophantine equations, congruencies.

MATH 5850 NUMERICAL ANALYSIS FOR SECONDARY TEACHERS (3) LEC. 3 Pr., MATH 2630 or MATH 2637 or MATH 2730 The numerical solutions of selected problems arising in calculus and algebra along with the programming techniques. Pr., Computer familiarity.

MATH 5860 FOUNDATIONS OF NON-EUCLIDEAN GEOMETRY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3 Pr., MATH 2630 or MATH 2637 or MATH 2730 B.L. geometry, hyperbolic geometry, absolute geometry, parallel postulates.

MATH 5970 SPECIAL TOPICS (1-3) IND. Topics may vary as needed. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

MATH 6000 MATHEMATICAL MODELING (3) LEC. 3 Introduction to mathematical models and related techniques. Includes general principles involving continuous deterministic problems and a detailed, specific term-project. Pr., Programming ability.

MATH 6010 VECTOR CALCULUS (3) LEC. 3 Pr., MATH 2630 or MATH 2637 and MATH 2660 Vector-valued functions, vector fields. Gradient, divergence, curl. Integral theorems: Green’s Theorem, Stoke’s Theorem, Gauss’ Theorem. Tensors and differential forms. Applications. Departmental approval.

MATH 6030/6036 COMPLEX VARIABLES WITH APPLICATIONS I (3) LEC. 3 Complex functions and their elementary mapping properties; contour integration and residues; Laurent series; applications to real integrals. MATH 6030-6040 are appropriate for students of engineering or science.

MATH 6040 COMPLEX VARIABLES WITH APPLICATIONS II (3) LEC. 3 Pr., MATH 6030 or MATH 6036 Linear fractional transformations; conformal mappings; harmonic functions; applications to boundary value problems; analytic continuation; entire functions. MATH 6030-6040 are appropriate for students of engineering or science.

MATH 6050 MATRIX THEORY AND APPLICATIONS (3) LEC. 3 Canonical forms, determinants, linear equations, characteristic value problems.

MATH 6060 ELEMENTARY PARTIAL DIFFERENTIAL EQUATIONS (3) LEC. 3 First and second order linear partial differential equations with emphasis on the method of eigenfunction expansions.

MATH 6120 INFORMATION THEORY (3) LEC. 3 Information and entropy, information rate optimization and channel capacity, variable-length codes, data compression (Kraft-McMillan inequality, Huffman’s algorithm), maximum likelihood decoding, Shannon’s Noisy Channel Theorem.

MATH 6130 CALCULUS OF VARIATION (3) LEC. 3 Pr., MATH 2650 Fundamental concepts of extremum functions and functionals; first and second generalizations; sufficient conditions; constrained functionals; the general Lagrange problem; optimal control.

MATH 6140 DATA COMPRESSION (3) LEC. 3 Lossless compression methods, including static, dynamic, and higher order Huffman and arithmetic encoding, interval and run-length encoding, and dictionary methods; lossy transform methods (JPEG).

MATH 6150 ALGEBRAIC CODING THEORY (3) LEC. 3 Linear codes, Hamming and Golay codes, BCH codes, cyclic codes. Random error detection and correction. Burst-error correction. Decoding algorithms. Credit will not be given for both MATH 5150 and MATH 6150.

MATH 6160 INTRODUCTION TO APPLIED MATHEMATICS (3) LEC. 3 Fourier transforms, Z-transforms, Function spaces, eigenfunction methods. Conservation laws, diffusion, equilibrium states, waves, wave phenomena, classical transform methods, energy integrals and conservation, maximum principles.

MATH 6180 CRYPTOGRAPHY (3) LEC. 3 Classical ciphers, the Data Encryption Standard, one-way functions and relevant number theoretic problems (factoring, primality testing, discrete logarithm problem), RSA and other public key cryptosystems.

MATH 6190 INTRODUCTION TO APPROXIMATION THEORY (3) LEC. 3 Pr., MATH 2650 Approximation of functions by polynomials, spline functions or trigonometric function, expansions in series. MATH 5180 is appropriate for students of engineering and sciences.

MATH 6200 ANALYSIS I (3) LEC. 3 The real number system, theorems concerning number sets, sequences, graphs of functions. Pr., analogous course subject to departmental approval.

MATH 6210 ANALYSIS II (3) LEC. 3 Pr., MATH 6200 The real number system, theorems concerning number sets, sequences, graphs of functions; Riemann-Stieltjes integrations, continuity, the derivative and functions of bounded variation; functions whose domains are in Euclidean spaces.

MATH 6240 FOURIER ANALYSIS (3) LEC. 3 Pr., MATH 2650 Convergence and oscillation theorems for Fourier Series. Gibbs phenomenon. Fourier transform. Fast Fourier transform.

MATH 6280 SYSTEMS OF DIFFERENTIAL EQUATIONS AND APPLICATIONS (3) LEC. 3 Linear systems of differential equations, stability, phase portraits; non-linear systems, linearization, qualitative properties of orbits, Poincare-Bendixon Theorem; numerical methods; applications.

MATH 6300 THEORY OF DIFFERENCE EQUATIONS (3) LEC. 3 Linear difference equations, initial value problems. Green’s functions, boundary value problems, systems, periodic solutions, nonlinear difference equations, models.

MATH 6310 INTRODUCTION TO ABSTRACT ALGEBRA I (3) LEC. 3 Groups, Groups of Permutations, isomorphisms and homomorphisms; Cyclic Groups, Quotient Groups, The Fundamental Homomorphism Theorem. Pr., departmental approval.

MATH 6320 INTRODUCTION TO ABSTRACT ALGEBRA II (3) LEC. 3 Pr., MATH 6310 Theory of rings and fields, ideals and Homomorphisms, Quotient Rings, Rings of Polynomials, Extensions of Fields, and Galois Theory.

MATH 6330 COMPUTATIONAL ALGEBRA (3) LEC. 3 Pr., MATH 6310 Introduction to computation in multivariate polynomial rings and finite fields. Topics include Berlekamp’s Algorithm, Groebner bases, Buchberger’s Algorithm, kinematic/robotics problems, and symbolic manipulation software.

MATH 6370 LINEAR ALGEBRA (3) LEC. 3 Linear transformations, matrix algebra, finite-dimensional vector spaces.

MATH 6380 INTERMEDIATE EUCLIDEAN GEOMETRY I (3) LEC. 3 Fundamental concepts and theorems of Euclidean geometry, introduction to higher dimensions. Regular polygons and polyhedra, symmetry groups, convexity, geometric extremum problems. Geometric transformations and their invariants.

MATH 6390 INTERMEDIATE EUCLIDEAN GEOMETRY II (3) LEC. 3 Pr., MATH 6380 Planar graphs and Euler’s theorem. The symmetry group of a set, homotheties and similarities, path, arcs and length of curves, and advanced theorems on the circle.
MATH 6470 DYNAMICAL SYSTEMS I (3) LEC. 3 Pr., MATH 2650 One dimensional dynamics. The logistic equation, bifurcation bifurcation theory, chaos, hyperbolicity, symbolic dynamics, Sarkovskii’s Theorem, maps of the circle, homoclinic points and the theory of kneading sequences.

MATH 6480 DYNAMICAL SYSTEMS II (3) LEC. 3 Pr., MATH 6470 Higher dimensional and complex dynamics. Lorenz map, Henonmap, toral automorphisms, stable and unstable manifolds Ids, strange attractors, quadratic maps of the complex plane, Julia sets, Mandelbrot set.

MATH 6500 INTRODUCTION TO TOPOLOGY (3) LEC. 3 Metric spaces, topological spaces, continuity, compactness, connectedness, product and quotient spaces and local properties. Pr., departmental approval.

MATH 6620 MATHEMATICAL COMPUTATION AND SCIENTIFIC VISUALIZATION (3) LEC. 3 An introduction to the computational modeling process, numerical programming tools for large-scale scientific computation, parallel and cluster computing, and to scientific visualization techniques.

MATH 6630/6636 INTRODUCTION TO NUMERICAL ANALYSIS I (3) LEC. 3 Numerical solution of equations, polynomial approximation, numerical differentiation and integration, numerical solutions of ordinary differential equations, error analysis. Written programs using algorithms. ADDITIONAL PREREQUISITES: Programming ability.

MATH 6640/6646 INTRODUCTION TO NUMERICAL ANALYSIS II (3) LEC. 3 Numerical solutions of systems of linear equations, numerical computation of eigenvalues and eigenvectors, error analysis. Written programs using the algorithms. Pr., Programming ability.

MATH 6650 THEORY OF NONLINEAR OPTIMIZATION (3) LEC. 3 Kuhn-Tucker conditions, quadratic programming, search methods and gradient methods, Lagrangean and penalty function methods.

MATH/STAT 6670/6676 PROBABILITY AND STOCHASTIC PROCESS I (3) LEC. 3 Random variables, discrete and absolutely continuous distributions, Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both MATH 6670 and STAT 6670.

MATH/STAT 6680/6686 PROBABILITY AND STOCHASTIC PROCESS II (3) LEC. 3, Pr., MATH 6670 or STAT 6670 Multivariate distributions. Central Limit Theorem, Laplace transforms, convolutions, simulation, renewal processes Continuous-time Markov Chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both MATH 6680 and STAT 6680.

MATH 6690 INTRODUCTION TO CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3 Pr., MATH 1620 Stochastic properties of random phenomena in computational complexity, data analysis, chaotic nonlinear systems. Computer simulation and experimenting within Mathematical, supported by Internet resources. Credit will not be given for both MATH 6690 and STAT 6690.

MATH 6710 DISCRETE GEOMETRY AND CONVEXITY I (3) LEC. 3 Geometric objects and configurations with discrete symmetry groups. Regular polygons and polyhedra. Regular arrangements. Plane tilings and patterns. Pr., departmental approval.

MATH 6712 DISCRETE GEOMETRY AND CONVEXITY II (3) LEC. 3 Pr., MATH 7110 Convexity and related geometric extremum problems. Packing and covering. Arrangements of extreme density.

MATH 6713 LINEAR PROGRAMMING (3) LEC. 3 Pr., MATH 6710 Linear programming. Theory and algorithms for linear optimization problems. Simplex algorithm and duality, shortest paths, network flows, min-cost flows and circulations, out-of-kilter method, assignments and matchings.

MATH 6720 ENUMERATION (3) LEC. 3 Generating functions and Polya theory to do sophisticated counting. Permutations and combinations, inclusion-exclusion, partitions, recurrence relations, group actions, Polya theory with applications.

MATH 6730 GRAPH THEORY (3) LEC. 3 Algorithmic and theoretical aspects of graph theory: matchings, colorings, scheduling problems, Hamilton cycles. Euler tours, spanning trees, network reliability, connectivity, extremal graphs, planar graphs, disjoint paths.

MATH 6750 GROUP THEORY (3) LEC. 3 Pr., MATH 6740 or MATH 6750/6756 APPROXIMATION THEORY II (3) LEC. 3 Introduction and theory of approximation by interpolation, rates of convergence and methods of estimating error. Simultaneous approximation of functions and their derivatives; spline function interpolation; curve and surface fitting. Pr., departmental approval.

MATH 7070 INTERPOLATION I (3) LEC. 3 Techniques of approximation by interpolation, theory of convergence and methods of estimating error. Simultaneous approximation of functions and their derivatives; spline function interpolation; curve and surface fitting. Pr., departmental approval.

MATH 7110 DISCRETE GEOMETRY AND CONVEXITY I (3) LEC. 3 Geometric objects and configurations with discrete symmetry groups. Regular polygons and polyhedra. Regular arrangements. Plane tilings and patterns. Pr., departmental approval.

MATH 7120 DISCRETE GEOMETRY AND CONVEXITY II (3) LEC. 3 Pr., MATH 7110 Convexity and related geometric extremum problems. Packing and covering. Arrangements of extreme density.

MATH 7150 AXIOMATIC SET THEORY I (3) LEC. 3 Introduction to modern set theory. The axioms of ZFC, ordinals and cardinals, closed unbounded sets, the constructible universe L, Martin’s Axiom. Pr., departmental approval.

MATH 7160 AXIOMATIC SET THEORY II (3) LEC. 3 Pr., MATH 7150 Introduction to forcing, independence results, iterated forcing, consistency of Martin’s Axiom.

MATH 7170 ALGORITHMS DISCRETE OPTIMIZATION (3) LEC. 3 Pr., MATH 6750 Theory and practice of discrete algorithms: complexity class classes, reductions, approximate algorithms, greedy algorithms, search techniques, heuristics, randomized algorithms, and numeric algorithms.


MATH 7200 REAL ANALYSIS I (3) LEC. 3 Sigma algebras, measures, measurable functions, integrability, properties of Lebesgue’s measure, density, Lusin’s theorem, Egoroff’s theorem, product measures, Fubini’s theorem. Limit theorems involving pointwise convergence and integration. Pr., departmental approval.


MATH 7230 INTRODUCTION TO COMPLEX VARIABLES I (3) LEC. 3 Complex numbers, analytic functions, derivatives, Cauchy integral theorem and formulae, Taylor and Laurent series, analytic continuation, residues, maximum principles, Riemann surfaces. Pr., departmental approval.

MATH 7240 INTRODUCTION TO COMPLEX VARIABLES II (3) LEC. 3 Pr., MATH 7230 Conformal mapping, families of analytic functions and harmonic analysis.
MATH 7280 ADVANCED THEORY OF ORDINARY DIFFERENTIAL EQUATIONS (3) LEC. 3 Existence and continuation theorems for ordinary differential equations, continuity and differentiability with respect to initial conditions, linear systems, differential inequalities. Pr., departmental approval.

MATH 7290 ADVANCED THEORY OF ORDINARY DIFFERENTIAL EQUATIONS II (3) LEC. 3 Pr., MATH 7280 Stability theory, periodic solutions, boundary value problems, disconjugacy of linear equations, Green's functions, upper and lower solutions, a priori bounds methods, current research.

MATH 7310 ALGEBRA I (3) LEC. 3 Groups, Lagrange's Theorem, normal subgroups, factor groups, Isomorphism and Correspondence Theorems. Symmetric groups, alternating groups, free groups, torsion groups. Introduction to rings, correspondence theorems. Pr., departmental approval.

MATH 7320 ALGEBRA II (3) LEC. 3 Pr., MATH 7310 Rings, modules, vector spaces, and semi-simple modules. Commutative rings; prime and primary ideals, PID's are UFD, factorizations in integral domains, field extensions, the Galois Correspondence Theorem.

MATH 7330 LINEAR REPRESENTATIONS OF FINITE GROUPS (3) LEC. 3 Pr., MATH 7320 Maschke's Theorem, characters, orthogonality relations, induced modules, Frobenius reciprocity, Clifford's Theorem, Mackey's Subgroup Theorem, Burnside's theorem on solvability.

MATH 7340 RING THEORY (3) LEC. 3 Pr., MATH 7320 Topics on: commutative rings (Cohen-Seidenberg theorems, Krull Intersection Theorem, Dedekind domains), or noncommutative rings (projective modules over Artinian algebras, representation type, Noether-Skolem Theorem, division algebras).

MATH 7350 ABELIAN GROUPS (3) LEC. 3 Pr., MATH 7320 Torsion groups: Decompositions, Ulm's theorem, uniqueness theorem for Axiom 3 groups, Torsion-free groups: Completely decomposable groups, Butler groups, p-local groups, Warfield groups, splitting criteria. Homological topics.

MATH 7370 MATRICES I (3) LEC. 3 Jordon form, functions of a matrix, spectral theorem, singular values, norms, quadratic forms, field of values, enertia; topics of current interest. Pr., departmental approval.

MATH 7380 MATRICES II (3) LEC. 3 Pr., MATH 7370 Matrix stability and inertia, inequalities for matrix eigenvalues and singular values, The Kronecker and Hadamard matrix products, the exponential and logarithm matrix map; topics of current interest.

MATH 7400 FUNCTIONAL ANALYSIS I (3) LEC. 3 Pr., MATH 7210 Bounded linear transformations and functionals on Banach and Hilbert spaces, weak topologies, linear operators, adjoints, compact operators. Banach algebras, spectral theory, Gelfand transform. Pr., departmental approval.

MATH 7410 FUNCTIONAL ANALYSIS II (3) LEC. 3 Pr., MATH 7400 C*-algebras, Hermitian, self adjoint elements, functional calculus for commutative algebras. Normal operators on Hilbert space, spectral theorem, applications, symmetric and self-adjoint operators, normal operators, the spectral theorem.

MATH 7440 PARTIAL DIFFERENTIAL EQUATIONS I (3) LEC. 3 Second order linear elliptic and hyperbolic equations stressing non-linear and numerical problems, characteristics domains of dependence, energy integrals, finite difference schemes, Sobolev spaces, maximum principle. Pr., departmental approval.

MATH 7450 PARTIAL DIFFERENTIAL EQUATIONS II (3) LEC. 3 Pr., MATH 7440 Parabolic and hyperbolic equations, stressing numerical problems, characteristics, domains of dependence, energy integrals, reaction-diffusion problems, Navier-Stokes equations, fixed-point and Galerkin methods.

MATH 7500 TOPOLOGY I (3) LEC. 3 Separation and countability axioms, covering properties, completeness, connectedness, metric spaces and metrizability, product and quotient spaces, function spaces. Pr., departmental approval.

MATH 7510 TOPOLOGY II (3) LEC. 3 Pr., MATH 7500 Homotopy, elementary properties of retracts, fundamental groups, covering spaces, computations of fundamental groups.

MATH 7520 DIMENSION THEORY (3) LEC. 3 Pr., MATH 7500 or MATH 6500 Topological study of dimension in separable metric spaces. Topological invariance of dimension of Euclidean spaces. Dimension and measure. Pr., departmental approval.

MATH 7530 CONTINUUM THEORY I (3) LEC. 3 Pr., MATH 7510 Topics such as inverse limits, decompositions, hyperspaces, special mappings, topological structures from the pathological (indecomposable continua), to the straightforward (Peano continua). Pr., departmental approval.

MATH 7540 CONTINUUM THEORY II (3) LEC. 3 Pr., MATH 7530 Continuum theory such as confluent mappings, epi-limit mappings, chains, to-the-boundary theorems, relationship to inverse limits, advanced topics.

MATH 7550 SET THEORETIC TOPOLOGY I (3) LEC. 3 Pr., MATH 7510 Compactifications, covering properties, metrization theorems and generalized metrizable spaces, topological groups. Pr., departmental approval.

MATH 7560 SET THEORETIC TOPOLOGY II (3) LEC. 3 Pr., MATH 7550 Topological Groups, Cardinal invariants, use of set-theoretic axioms such as Martin's Axiom, independence results, advanced topics.

MATH 7570 EUCLIDEAN TOPOLOGY I (3) LEC. 3 Pr., MATH 7510 An introduction to concepts basic in algebraic and geometric topology through the study of simple objects such as polyhedra, manifolds, retracts, and the Brower fixed point theorem.

MATH 7580 EUCLIDEAN TOPOLOGY II (3) LEC. 3 Pr., MATH 7570 Further study of basic geometric topology. Retracts, absolute neighborhood retracts, maps into spheres, invariance of domain.

MATH 7600/7606 ADVANCED NUMERICAL MATRIX ANALYSIS (3) LEC. 3 Topics selected from: discretization matrices, sparse matrices, QR-algorithm, symmetric eigenvalue problems, singular value decomposition, pseudo-inverses, simplex method, matrix algorithms for vector computers. Pr., departmental approval.

MATH 7610/7616 NUMERICAL SOLUTION OF PARTIAL DIFFERENTIAL EQUATIONS I (3) LEC. 3 The numerical solution of partial differential equations using finite difference and finite element methods. Pr., departmental approval.

MATH 7620 OPTIMIZATION THEORY (3) LEC. 3 Unconstrained problems: basic descent, conjugate gradient and quasi-Newton methods. Constrained problems: gradient projection, penalty, cutting plane and Lagrange methods. Credit will not be given for both MATH 7620 and INSY 8420. Pr., An ability to program in high-level language.

MATH 7650 HARMONIC ANALYSIS I (3) LEC. 3 Fourier series, Fourier transforms, maximal functions, singular integral theory, introduction to function spaces. Pr., departmental approval.

MATH 7660 HARMONIC ANALYSIS II (3) LEC. 3 Pr., MATH 7650 Function spaces and interpolation, Calderon's reproducing formulas, wavelets, frames, connections to function spaces applications.

MATH 7680/7686 ADVANCED TOPICS IN NUMERICAL ANALYSIS (3) LEC. 3 Topics include: sparse systems of equations, parallel and vector algorithms, nonlinear and singular partial differential equations, calculation of eigenvalues and eigenvectors, pseudo-random numbers, filtering techniques. Pr., departmental approval.

MATH 7710 COMPUTATIONAL GEOMETRY (3) LEC. 3 Design and time-complexity of computer algorithms for geometry problems studying the geometric ideas needed for computer-aided design, computer graphics and robotics. Pr., departmental approval.

MATH 7720 INTRODUCTION TO CODING THEORY (3) LEC. 3 Introduction to methods and algorithms for reliable communications through error control coding. BCH, Reed-Solomon, Reed-muller codes, convolutional codes, Berlekamp-Massey, Viterbi, and iterated decoding algorithms. Pr., its equivalent.

MATH 7730 ADVANCED TOPICS IN CODING THEORY (3) LEC. 3 Pr., MATH 7720 Structure and theoretical properties of codes and related algorithms. Relations to other combinatorial and algebraic objects stressed. Pr., departmental approval.

MATH 7740 ADVANCED COMBINATORIAL DESIGNS (3) LEC. 3 Topics of current interest and research in combinatorial design theory. Areas included: Latin squares, embeddings, Wilson's constructions, quadruple systems, Hadamard designs, graph designs, orthogonal arrays.

MATH 7750 ADVANCED TOPICS IN GRAPH THEORY (3) LEC. 3 Pr., MATH 6750 Topics of current interest and recent research in graph theory. May include edge colorings, algebraic graph theory, network flows, factor theory.

MATH 7760 INTRODUCTION TO ALGEBRAIC TOPOLOGY I (3) LEC. 3 Pr., MATH 7510 Homology of chain complexes, the axioms of homology and their verification, computations of homology groups. Pr., departmental approval.

MATH 7770 INTRODUCTION TO ALGEBRAIC TOPOLOGY II (3) LEC. 3 Pr., MATH 7780 Homology with coefficients and universal coefficient theorem theorems. Cohomology and universal coefficient theorems, homology of products of spaces, cup and cap products, duality in manifolds.

MATH 7780 ADVANCED ALGEBRAIC TOPOLOGY I (3) LEC. 3 Advanced topics in homology, cohomology, and duality with relations to and further study of homotopy theory Applications to and further study of manifolds and geometric topology. Pr., departmental approval.

MATH 7780 ADVANCED ALGEBRAIC TOPOLOGY II (3) LEC. 3 Pr., MATH 7780 Continuation of MATH 7780, advanced topics in homology, cohomology, and duality with relations to and further study of homotopy theory. Applications to and further study of manifolds and geometric topology.

MATH 7810/7816 MODERN STOCHASTIC PROCESSES I (3) LEC. 3 Classical and modern topics in stochastic processes (Markov chains, Poisson process, Brownian motion). Applications and stochastic models (queues, stationary processes, random walks, Brownian motion). Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos, finances). Credit will not be given for both MATH 7810 and STAT 7810.

MATH 7820/7825 MODERN STOCHASTIC PROCESSES II (3) LEC. 3 Pr., MATH 7810 or STAT 7810 Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion). Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos, finances). Credit will not be given for both MATH 7820 and STAT 7820.

MATH 7870 REAL FUNCTIONS AND DESCRIPTIVE SET THEORY I (3) LEC. 3 Pr., MATH 7210 or MATH 7500 Borel classification of sets, the Baire classification of
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MATH 7800 REAL FUNCTIONS AND DESCRIPTIVE SET THEORY II (3) LEC. 3 Pr., MATH 7870 Analytic and coanalytic sets. Lebesgue measurable, universally measurable, and Suslin measurable sets and functions. Baire properties. Singular sets. Category analogs to real analysis.

MATH 7950 SEMINAR I (1-3) SEM. SU. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

MATH 7960 SPECIAL PROBLEMS (1-10) IND. Topics may vary as needed. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

MATH 7970 SPECIAL TOPICS (1-10) IND. Topics may vary as needed. Course may be repeated with change in topic. Pr., departmental approval.

MATH 7980 RESEARCH AND SPECIAL PROJECT IN APPLIED MATHEMATICS (1-10) RES. SU. For students working on the Master of Applied Mathematics degree with concentration in numerical analysis. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

MATH 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

MATH 8310 HOMOLOGICAL ALGEBRA I (3) LEC. 3 Pr., MATH 7320 Homology and cohomology. Horn and Tensor functors; the adjoint isomorphisms, injective/projective modules, flat modules; the classification of certain rings using homological tools. Pr., departmental approval.

MATH 8320 HOMOLOGICAL ALGEBRA II (3) LEC. 3 Pr., MATH 8310 Localizations of modules, nonsingular rings and modules, the Goldie dimension, homological classification of modules; Whitehead modules, reflexive modules, R-modules as modules over their rings of endomorphisms.

MATH 8400 ADVANCED FUNCTIONAL ANALYSIS I (3) LEC. 3 Pr., MATH 7210 and MATH 7400 Topics concerning bounded and unbounded linear operators in Banach and Hilbert spaces; theory of distributions and topological vector spaces with applications, current research.

MATH 8410 ADVANCED FUNCTIONAL ANALYSIS II (3) LEC. 3 Pr., MATH 8400 Topics from the theory of bounded and unbounded linear operators in Banach and Hilbert spaces; elements of nonlinear functional analysis, topics of current research interest.

MATH 8600 ADVANCED PROBABILITY I (3) LEC. 3 Processes, distributions, independence, Random sequences, series, averages, characteristic functions. Classical limits theorems, conditioning. Pr., Some experience with graduate level mathematics, preferably in the areas of analysis and topology.

MATH 8610 ADVANCED PROBABILITY II (3) LEC. 3 Pr., MATH 8600 Martingales, Markov chains, random walks, renewal theory, Poisson processes and ergodic theory.

MATH 8630 ADVANCED STOCHASTIC PROCESSES I (3) LEC. 3 Pr., MATH 8610 Gaussian processes, Brownian motion, invariance principles, convergence of random processes, measures and sets, stochastic integrals and quadratic variation.

MATH 8640 ADVANCED STOCHASTIC PROCESSES II (3) LEC. 3 Pr., MATH 8630 Continuous martingales and Brownian motion, stochastic differential equations and martingale problems, local time, excursions, one-dimensional SDE’s and diffusions.

MATH 8700 FINITE GEOMETRY I (3) LEC. 3 Pr., MATH 5370 Projective and affine spaces over finite fields. Inverse planes. Relationship with linear algebra over finite fields and permutation groups. Applications to combinatorial designs.

MATH 8710 FINITE GEOMETRY II (3) LEC. 3 Pr., MATH 8700 Projective and affine spaces over finite fields. Inverse planes. Relationship with linear algebra over finite fields and permutation groups. Applications to combinatorial designs.

MATH 8960 SPECIAL PROBLEMS (1-10) IND. Topics may vary as needed. Course may be repeated for a maximum of 15 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 15 credit hours.

MATH 8970 SPECIAL TOPICS (1-10) IND. Topics may vary as needed. Course may be repeated with change in topic. Course may be repeated for a maximum of 15 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 15 credit hours.

MATH 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topic.

Materials Engineering (MATL)

Dr. Jeffrey Fergus - 844-3405

MATL 2100 INTRODUCTION TO MATERIALS SCIENCE (3) LEC. 3 The science of solid materials and the relationship between this science and material properties.

MATL 3100 ENGINEERING MATERIALS - METALS (3) LEC. 3, Pr., MATH 2100 The relationship among processing, microstructure, properties and engineering applications of metallic materials.

MATL 3101 METALLOGRAPHY LABORATORY (1) LAB. 3 Cr., MATL 3100 The use of microstructural characterization to understand the relationship between microstructure and properties of metallic materials.

MATL 3200 ENGINEERING MATERIALS POLYMERS (3) LEC. 3 Pr., CHEM 1040 The synthesis, processing, structure and properties of polymers and polymer matrix composites.

MATL 3201 POLYMER AND COMPOSITES LABORATORY (1) LAB. 3 Cr., MATL 3200 A hands-on lab course on the synthesis, processing, structure and properties of polymers and polymer matrix composites.

MATL 3300 ENGINEERING MATERIALS - CERAMICS (3) LEC. 3 Pr., MATL 2100 The engineering of ceramic materials. Structural property relationships of crystalline and glassy ceramics will be included.

MATL 4500 MATERIALS PROPERTIES AND SELECTION (4) LEC. 3, LAB. 3, Pr., ENGR 2070 and MATL 3100 and MATL 3200 Methods for microstructure control. Design of processing sequences, statistical and economical analysis.

MATL 4930 DIRECTED STUDIES (1-6) IND. SU. Areas of interest within Materials Engineering. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

MATL 4980 SENIOR DESIGN PROJECT (3) LEC. 1, LAB. 6 Students select, design, schedule, fabricate and perform an engineering design project related to Materials Engineering.

MATL 4997 HONORS THESIS (1-6) IND. Individual student directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

MATL 5100 THERMODYNAMICS OF MATERIALS SYSTEMS (3) LEC. 3, PR., CHEM 1040 and ENGR 2200 Application of thermodynamics to describe phase stability, crystal imperfections, solubility, oxidation, surface, and interface energy and transformations. Pr., departmental approval.

MATL 5200 CRYSTALLOGRAPHY (2) LEC. 2 Pr., PHYS 1610 Principles of crystallography, reciprocal lattice X-ray diffraction techniques. Pr., departmental approval.

MATL 5201 XRAY DIFFRACTION LABORATORY (1) LAB. 3 Cr., MATL 5200 Laboratory on the use of X-ray diffraction for materials characterization.

MATL 5300 PHASE TRANSFORMATIONS IN MATERIAL PROCESSING (3) LEC. 3, Pr., MATH 2450 and ENGR 2070 Principles that govern phase transformations in materials systems and control of nucleation and growth, microstructure and morphology. Pr., departmental approval.

MATL 5400 PHYSICS OF SOLIDS (3) LEC. 3, PHYS 1610 The physics of solid-state materials, including the electronic, optical and magnetic properties of materials. Pr., departmental approval.

MATL 5500 NUMERICAL SIMULATION OF MATERIALS PROCESSING (3) LEC. 3 Pr., MATL 5100 and MATL 5300 Fundamental principles and applications of computer-aided simulation of transport phenomena in materials processing systems. Pr., departmental approval.

MATL 5700 BIOMATERIALS (3) LEC. 3 Interactions between materials and proteins, cells, and tissue as related to medicine and biotechnology including tissue culture, cardiovascular, drug delivery, tissue engineering and other applications. Thermodynamics of protein adsorption. Cell biology of adhesion. Analytical methods, sterilization, and regulations. Pr., departmental approval.

MATL 5750 MICROSTRUCTURE AND MECHANICS OF SKELETAL TISSUES (3) LEC. 3 Pr., MATH 2100 and (ENGR 2070 or MECH 3130) Molecular and cellular microstructural influence over the viscoelastic deformation of the skeletal tissues of bone muscle, ligament, tendon and cartilage; mechanics of failure and biomechanical injury mechanisms; consideration of the physiological processes of adaptive remodeling and healing of tissues; recent developments in orthopedic implant materials.

MATL 5970 INTERMEDIATE SPECIAL TOPICS (1-3) LEC. 1-3 Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topic. Pr., departmental approval.

MATL 6100/6106 THERMODYNAMICS OF MATERIALS SYSTEMS (3) LEC. 3 Application of thermodynamics to describe phase stability, crystal imperfections, solubility, oxidation, surface and interface energy and transformations. Pr., departmental approval.

MATL 6200/6206 CRYSTALLOGRAPHY (2) LEC. 2 Principles of crystallography, reciprocal lattice X-ray diffraction techniques. Pr., departmental approval.

MATL 6201 XRAY DIFFRACTION LABORATORY (1) LAB. 3 Cr., MATL 6200 Laboratory on the use of X-ray diffraction for materials characterization.

MATL 6300/6306 PHASE TRANSFORMATIONS IN MATERIAL PROCESSING (3) LEC. 3 Principles that govern phase transformations in materials systems and control of nucleation and growth, microstructure, and morphology. Departmental approval.

MATL 6400/6406 PHYSICS OF SOLIDS (3) LEC. 3 The physics of solid-state materials, including the electronic, optical, and magnetic properties of materials. Pr., departmental approval.

MATL 6500/6506 NUMERICAL SIMULATION OF MATERIALS PROCESSING (3) LEC. 3 Fundamental principles and applications of computer-aided simula-
tion of transport phenomena in materials processing systems. Pr., departmental approval.

MATL 6600/6606 CORROSION (3) LEC. 3 Pr., CHEM 1040 Fundamentals of chemical degradation of materials. Types and methods for prevention and minimization of corrosion. Credit will not be given for both MATL 5600 and MATL 6600/6606.

MATL 6700/6706 BIOMATERIALS (3) LEC. 3 Interactions between materials and proteins, cells, and tissue as related to medicine and biotechnology including tissue culture, cardiovascular, drug delivery, tissue engineering and other applications. Thermodynamics of protein adsorption. Cell biology of adhesion. Analytical methods, sterilization and regulations. Pr., departmental approval.

MATL 6750/6756 MICROSTRUCTURE AND MECHANICS OF SKELETAL TISSUES (3) LEC. 3 Molecular and cellular microstructural influence over the viscoelastic deformation of the skeletal tissues of bone, muscle, ligament, tendon and cartilage; mechanics of failure and biomechanical injury mechanisms; consideration of the physiological processes of adaptive remodeling and healing of tissues; recent developments in orthopedic implant materials. Pr., departmental approval.

MATL 6970/6976 INTERMEDIATE SPECIAL TOPICS IN MATERIALS ENGINEERING (1-3) LEC. 3 Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Pr., departmental approval. Course may be repeated with change in topics.

MATL 7050/7056 DEFORMATION AND FAILURE OF ENGINEERING MATERIALS (3) LEC. 3 Cr., MATL 6200 Theoretical presentation of the fundamental principles of deformation and failure in materials systems. Pr., departmental approval.

MATL 7110/7116 PHYSICAL METALLURGY AND APPLICATIONS IN METAL FABRICATION (3) LEC. 3 The physical metallurgy underlying processing-structure-property relationships in metals and alloys, with examples from joining processes. Pr., departmental approval. Pr., departmental approval.

MATL 7120/7126 ADVANCED CERAMIC MATERIALS (3) LEC. 3 Processing, structure-property relationships and applications of advanced ceramics. Structural and functional applications of ceramics. Pr., departmental approval.

MATL 7130/7136 ADVANCED POLYMER SCIENCE AND TECHNOLOGY (3) LEC. 3 Recent developments in both functional and structural polymers including approaches to synthesis, processing techniques, high-strength materials, electronic polymers, optic polymers, and medical polymers. Departmental approval.

MATL 7140/7146 ADVANCED COMPOSITE MATERIALS (3) LEC. 3 Processing, mechanics structure and properties of composite materials. Emphasis will be placed on an understanding of processing-structure-property relationships in polymer-, ceramic-, and metal-matrix composites. Pr., departmental approval.

MATL 7150/7156 NANOSCALE SCIENCE AND TECHNOLOGY (3) LEC. 3 Synthesis and properties of nanomaterials and nanostructures including: nano-grained materials and carbon nanotubes. Nanotechnology including: nanolithography self-assembly, single atom manipulation, nanoelectromechanical devices. Pr., departmental approval.

MATL 7210/7216 PLASTIC DEFORMATION AND STRENGTHENING OF METALLIC MATERIALS (3) LEC. 3 Mechanisms of plastic deformation and strengthening in metals and alloys. The role of dislocations in plastic deformation. Pr., departmental approval.

MATL 7220/7226 RADIATION EFFECTS ON MATERIALS (3) LEC. 3 Theoretical and experimental treatment of the radiation effects and damage in materials as related to nuclear reactor, nuclear rocket, nuclear reactor, nuclear power. Pr., departmental approval.

MATL 7230/7236 HIGH TEMPERATURE MATERIALS PERFORMANCE (3) LEC. 3 Theoretical and experimental treatment of the behavior of materials at high temperatures. Pr., departmental approval.

MATL 7310/7316 SOLIDIFICATION PROCESSING (3) LEC. 3 Theoretical science and engineering principles that apply to semiconductor crystal growth, ingot solidification, metal casting, welding and rapid solidification processes. Pr., departmental approval.

MATL 7320/7326 THIN FILM SCIENCE AND TECHNOLOGY (3) LEC. 3 Structure, properties, characterization, processing and application of thin films. Pr., departmental approval.

MATL 7410/7416 CHEMICAL SENSORS (3) LEC. 3 Fundamentals and application of chemical sensors. Includes electrolyte, semiconductor and acoustic wave-based sensors. Pr., departmental approval.

MATL 7420/7426 SMART MATERIALS AND STRUCTURES (3) LEC. 3 An introduction to the principles and applications of various sensor, actuator and functionality smart material systems and structures. Pr., departmental approval.

MATL 7430/7436 DIELECTRIC MATERIALS AND DEVICES (3) LEC. 3 Pr., (MATL 6100 or MATL 6106) and MATL 6400 Processing, structure, properties, and application of dielectrics; including physics of dielectrics, material/ device design/ fabrication processes, and application of dielectric materials in high-technological industry. Pr., departmental approval.

MATL 7440/7446 MATERIALS PROCESSES MICRO AND NANOSYSTEMS (3) LEC. 3 Materials, processes, and principles involved in manufacturing of micro and nanoelectromechanical systems. Properties of materials used in micromachined transducers as related to current and potential micro and nanofabrication processes. Pr., departmental approval.

MATL 7450/7456 HIGH TEMPERATURE ELECTROCHEMICAL DEVICES (3) LEC. 3 Principles of solid-state electrochemistry, application to temperature devices including chemical sensors, fuel cells and batteries. Pr., departmental approval.

MATL 7510/7516 ELECTRON MICROSCOPY (3) LEC. 3 Theory, instrumentation, techniques and applications of scanning and transmission electron microscopy. Pr., departmental approval.

MATL 7511 ELECTRON MICROSCOPY LABORATORY (1) LAB. 3 Cr., MATL 7510 Laboratory on the use of electron microscopy for materials characterization.

MATL 7600/7606 BIOSENSORS: PRINCIPLES AND APPLICATIONS (3) LEC. 3 The fundamentals and applications of biological sensor. Physical and chemical transducers, biorecognition. Biosensor materials, technology, and fabrication. Pr., departmental approval.

MATL 7610/7616 ENGINEERING ASPECTS OF BIOLOGICAL AND CHEMICAL DETECTION (3) LEC. 3 Biological and chemical scientific concepts related to biological and chemical threat agents. Existing and developing detection technologies, trends and needs for the future detection systems. Physical principles behind the detection technologies. Evaluation of detection device or system performance. Pr., departmental approval.

MATL 7620/7626 NANO/MICRO FLUIDIC SYSTEMS (3) LEC. 3 Basic understanding of nano/microfluidics (typical volumes are nanoliters or picoliters) and practical applications in materials science and engineering, biotechnology, and other inter-disciplinary fields of engineering and science. Pr., departmental approval.

MATL 7630/7636 NANOMATERIALS FOR BIOTECHNOLOGY (3) LEC. 3 Basic understanding of nanobiotechnology and practical applications in the interdisciplinary fields of Materials Science and Engineering and biotechnology/medicine including nanostructured biomaterials and bioarrays as well as biomolecular electronics. Pr., departmental approval.

MATL 7950 MATERIALS ENGINEERING SEMINAR (0) SEM.SU. Required during each semester of residency, but cannot be used toward minimum requirements for graduate degree in Materials Engineering. Content changes each semester and consists of off-campus speakers and presentations by graduate students and faculty.

MATL 7960/7966 DIRECTED READINGS IN MATERIALS ENGINEERING (1-6) IND.SU. May be taken more than one semester. Up to 6 hours may count toward the minimum degree requirements. Course may be repeated with change in topic. Pr., departmental approval.

MATL 7970/7976 SPECIAL TOPICS IN MATERIALS ENGINEERING (1-3) LEC. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topic. Pr., departmental approval.

MATL 7980/7986 MASTER MATERIALS ENGINEERING PROJECT (3) LEC. 3SU. Special design project report directed by major faculty. Topics to be determined by the student’s graduate committee.

MATL 7990 RESEARCH AND THESIS (1-15) MST. Course may be repeated with change in topic.

MATL 8890 RESEARCH AND DISSERTATION (1-15) DSR. Course may be repeated with change in topic.

Mechanical Engineering (MECH)

Dr. Sushil Bhavnani - 844-3303

MECH 2110 STATICS AND DYNAMICS (4) LEC. 3, LAB. 3 Pr., (MATH 1620 or MATH 1627) and PHYS 1600 VECTORS, FORCES, MOMENTS AND FREE BODY DIAGRAMS. SYSTEMS IN MECHANICAL EQUILIBRIUM. PARTICLES IN MOTION.

MECH 2120 KINEMATICS AND DYNAMICS OF MACHINES (4) LEC. 3, LAB. 3 Pr., MATH 2630 and C or better in MECH 2110 Kinematics and kinetics of rigid bodies. Kinematics and dynamics of mechanisms, cams and gears.

MECH 2220 COMPUTER-AIDED ENGINEERING (3) LEC. 2, LAB. 3 Pr., ENGR 1110 and COMP 1200; P/C MATH 2650 The computer as a tool in mechanical engineering.

MECH 2AAO ENGINEERING PROGRESS ASSESSMENT I (0) TST.SU. Progress Assessment Examination in: multivariate calculus, differential equations, chemistry, physics, statics, dynamics.

MECH 3020 THERMODYNAMICS II (3) LEC. 3 Pr., C or better in ENGR 2010 Gas and Vapor power cycles, Refrigeration cycles, Gas and gas-vapor mixtures, Chemical reactions, Chemical and phase equilibrium, Thermodynamic property relations.

MECH 3030 FLUID MECHANICS (3) LEC. 3 Pr., MATH 2650 and C or better in MECH 2110 and C or better in ENGR 2010; P/C MATH 3130 Fluid properties; fluid statics; mass conservation; momentum equation; external and internal flows; Euler and Bernoulli equations; dimensional analysis; viscous flows; boundary layers; compressible flow.

MECH 3040 HEAT TRANSFER (3) LEC. 3 Pr., MECH 3020 and MECH 3030 Fundamentals of heat transfer by conduction, convection, and radiation. Introduction to heat exchangers.
MECH 2120 and MECH 3220 An introduction to machinery diagnostics through
MECH 4520 MACHINERY NOISE AND VIBRATION DIAGNOSTICS (3)
LEC. 3 Pr.,
LEC. 4440 Team-based fabrication, testing, modification and operation of a ground vehicle;
MECH 4450 AUTOMOTIVE DESIGN EXPERIENCE II (2)
Pr., departmental approval.
subsystem; design evaluation and modification; oral and written communication.
and MECH 4430) Team-based design of a ground vehicle, both whole-vehicle and
MECH 4430 VEHICLE DESIGN (3)
LEC. 3 Pr., MECH 3020 and MECH 3050; P/C (MECH 3040 and MECH 3140) or (Pr.,
MECH 4420 COMPREHENSIVE DESIGN II (2) LEC. 1, LAB. 3, (Pr., (MECH 4240 and
MECH 2220 or MECH 3220) The mechanical design process, project based, with teamwork, project management and communication.
MECH 4440 AUTOMOTIVE DESIGN EXPERIENCE I (2) LEC. 1, LAB. 3 Pr.,
MECH 4440 TEAM-BASED AUTOMOTIVE DESIGN (2) LEC. 3 Pr., MECH 2120 and
MECH 2320 and strain concepts, stress-strain relationships, applications,
uniaxially loaded members, torsion, normal and shear stresses in beams, beam deflections, buckling, stress concentration, combined loading, failure theories, strain energy, impact and loading, cyclic loading.
MECH 3140 SYSTEM DYNAMICS AND CONTROLS (3) LEC. 3 Pr., MECH 2120 and
MECH 2650 System dynamics and automatic control theory.
MECH 3200 CONCEPTS IN DESIGN AND MANUFACTURING (2) LEC. 2 Pr., C
or better in MECH 2110; P/C (MECH 2220 or MECH 3220) The mechanical design
design, structural integrity, earthquake response.
MECH 3040 and ELEC 3810 Thermal issues in electronics, review of heat transfer thermal resistance networks, design of thermal heat sinks, numerical analysis of electronics cooling, advanced thermal management strategies.
MECH 5230 FRICTION, WEAR AND LUBRICATION (3) LEC. 3 Pr., MECH 3030 and
MECH 3140) or (MECH 4240 and MECH 3050) and MECH 3050); P/C (MECH 3040 and MECH 3140) or (Pr.,
MECH 3050 and MECH 3140) or (Pr., MECH 3130 Basic
MECH 5430 BASICS SENSOR APPLICATIONS (3) LEC. 3 Pr., MECH 3130 and
MECH 3230 Planning, analysis, design and plane strain concepts, generalized
Hooke’s law, stress function approach applications to 2-D problems, axisymmetric problems bending of curved members, torsion of prismatic members, stress concentration problems.
MECH 5310 MECHANICS OF ELECTRONIC PACKAGING (3) LEC. 3 Pr., MECH 3130 and ELEC 3810 Stress and strain analysis of microelectronic packages and electronic assemblies using analytical, experimental and numerical methods.
MECH 5390 FUNDAMENTALS OF THE FINITE ELEMENT METHOD (3) LEC. 2, LAB. 3 Pr.,
MECH 3040 and MATH 2660 Introduction to the fundamentals of the finite element method.
MECH 5410 DYNAMICS OF ROTATING MACHINERY (3) LEC. 3 Pr., MECH 3140 Issues involved in the analysis and design of high-speed rotating machinery. Modeling, resonance, balancing, bearings, condition monitoring.
MECH 5420 DYNAMICS OF MULTIBODY SYSTEMS (3) LEC. 3 Pr., MECH 3140 Concepts in dynamics of multibody systems such as kinematics analysis, Newton Euler, Lagrange and Kane equations of motion, collisions, and vibrations of flexible links.
MECH 5430 BASICS SENSOR APPLICATIONS (3) LEC. 3 Pr., MECH 3130 Basic
criteria for control, noise measuring instrumentation, issues involved in the design of machinery for minimum noise, noise ordinances and regulations.
MECH 4520 MACHINERY NOISE AND VIBRATION DIAGNOSTICS (3) LEC. 3 Pr.,
MECH 2120 and MECH 3220 An introduction to machinery diagnostics through noise and vibration signatures. Fundamental principles and applications of predictive maintenance of machinery.
MECH 4700 INTEGRATED ENGINEERING THEORY AND PRACTICE (5) LEC. 3 Pr.,
MECH 3200 Real world engineering management decision making, case studies from industry.
MECH 4930 DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) INT.
Individual or small group study of a specialized area of Mechanical Engineering under faculty direction. Pr., departmental approval. Course may be repeated for a maximum of 3 credit hours.
MECH 4970 SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) LEC.
Regular course addressing a specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.
MECH 4997 HONORS THESIS (1-6) IND. Individual student directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval, membership in Honors College, MECH major.
MECH 5010 COMPRESSIBLE FLUID FLOW (3) LEC. 3 Pr., MECH 3020 and
MECH 3030 Properties of ideal gases; General one-dimensional wave motion; Isentropic flow with area change; Normal shock waves; Flow with friction (Fanno Flow) and heat transfer (Rayleigh Flow); Method of characteristics.
MECH 5110 INTERMEDIATE HEAT TRANSFER (3) LEC. 3 Pr., MECH 3040
Introduction to the analytical treatment of heat transfer by conduction, convection, and radiation. Suitable for those that require general coverage of advanced theory but whose primary research interest may lie elsewhere.
MECH 5120 COMBUSTION (3) LEC. 3 Pr., MECH 3040 Thermodynamics and chemical kinetics of combustion processes, premixed and diffusion flames, ignition, characterization and combustion of gaseous, liquid, and solid fuels, environmental aspects of combustion.
MECH 5210 ELECTRONICS THERMAL MANAGEMENT (3) LEC. 3 Pr., MECH 3040 and ELEC 3810 Thermostatic devices, review of heat transfer thermal resistance networks, design of thermal heat sinks, numerical analysis of electronics cooling, advanced thermal management strategies.
MECH 5230 FRICTION, WEAR AND LUBRICATION (3) LEC. 3 Pr., MECH 3030 and
MECH 3230 or INSY 3800 Friction, wear, and lubrication in design of machine components and other surface interactions, with emphasis on optimizing tribological performance. May count MECH 5230 or MECH 6230/6236.
MECH 5300 ADVANCED MECHANICS OF MATERIALS (3) LEC. 3 Pr., MECH 3130 and ELEC 3810 Linear and nonlinear elasticity, plane stress and strain analysis, plane strain concepts, generalized
development.
MECH 4310 HEATING, VENTILATING, AIR CONDITIONING AND REFRIGERATION (3) LEC. 3 Pr., MECH 3040 Theory and practice of modern heating, ventilation, air conditioning and refrigeration systems; concepts, equipment, and systems design.
MECH 4320 APPLIED CFD AND HEAT TRANSFER (3) LEC. 3 Pr., MECH 3040 and
MATHEMATICAL FLUID FLOW (3) LEC. 3 Pr., MATH 2650 The fundamentals of the finite element method.
MECH 5390 FUNDAMENTALS OF THE FINITE ELEMENT METHOD (3) LEC. 2, LAB. 3 Pr.,
MECH 3040 and MATH 2660 Introduction to the fundamentals of the finite element method.
MECH 5410 DYNAMICS OF ROTATING MACHINERY (3) LEC. 3 Pr., MECH 3140 Issues involved in the analysis and design of high-speed rotating machinery. Modeling, resonance, balancing, bearings, condition monitoring.
MECH 5420 DYNAMICS OF MULTIBODY SYSTEMS (3) LEC. 3 Pr., MECH 3140 Concepts in dynamics of multibody systems such as kinematics analysis, Newton Euler, Lagrange and Kane equations of motion, collisions, and vibrations of flexible links.
MECH 5430 BASICS SENSOR APPLICATIONS (3) LEC. 3 Pr., MECH 3130 Basic
criteria for control, noise measuring instrumentation, issues involved in the design of machinery for minimum noise, noise ordinances and regulations.
MECH 5450 NON-DESTRUCTIVE EVALUATION OF MATERIALS AND STRUCTURES (3) LEC. 3 Pr., MECH 3130 Non-destructive testing fundamentals. Ultrasonic, acoustic, vibration and eddy current techniques. Case studies.
MECH 5510 ENGINEERING ACOUSTICS (3) LEC. 3 Pr., MATH 2650 The fundamentals of acoustics. Vibration of strings, bars, plates. Acoustic plane waves, architectural acoustics and noise control will be emphasized.
MECH 5610 MECHANICAL VIBRATION (3) LEC. 3 Pr., MECH 2120 and MATH 2650 and MATH 2660 Modeling of lumped dynamic systems, free and forced vibration of single degree freedom systems, response to arbitrary excitation, analysis of two and multiple degrees of freedom systems.
MECH 5620 STABILITY AND VIBRATION OF DISCRETE SYSTEMS (3) LEC. 3 Pr., MECH 5610 Principles of advanced dynamics, linear systems with multiple degrees of freedom, stability and boundedness, free and forced response of linear systems, parameter identification.
MECH 5710 KINETIC AND DYNAMICS OF ROBOTS (3) LEC. 3 Pr., MECH 3140 Basic concepts in robotics such as kinematic analysis, coordinate transformation, Lagrange and Newton Euler equations of motion.
MECH 5720/5726 CONTROL OF ROBOTIC MOTION (3) LEC. 3 Pr., MECH 3140
Application of various algorithms for robot manipulators.
Mechanical Engineering (MECH)

MECH 5810/5816 MECHATRONICS (3)LEC. 3 Pr., MECH 2120 and ELEC 3810Introduction to the integration of mechanisms, sensors, controllers and actuators for machines, and design of automatic machinery.

MECH 5820/5826 INTRODUCTION TO OPTIMAL SYSTEMS (3)LEC. 3 Introduction to the mathematical fundamentals of optimization. Application to multiple solution engineering problems in thermo-fluid and mechanical systems.

MECH 5970 INTERMEDIATE SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3)LEC. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

MECH 6010/6016 COMPRESSIBLE FLUID FLOW (3)LEC. 3 Properties of ideal gases; General one-dimensional wave motion; Isentropic flow with area change; Normal shock waves; Flow with friction (Fanno Flow) and heat transfer (Rayleigh Flow); Method of characteristics.

MECH 6110/6116 INTERMEDIATE HEAT TRANSFER (3)LEC. 3 Introduction to the analytical treatment of heat transfer by conduction, convection, and radiation. Suitable for those that require general coverage of advanced theory but whose primary research interest may lie elsewhere.

MECH 6120/6126 CONVECTION (3)LEC. 3 Thermodynamics and chemical kinetics of combustion processes, premixed and diffusion flames, ignition, characterization, and combustion of gaseous, liquid, and solid fuels, environmental aspects of combustion.

MECH 6210/6216 ELECTRONICS THERMAL MANAGEMENT (3)LEC. 3 Thermal issues in electronics, review of heat transfer thermal resistance networks, design of finned heat sinks, numerical analysis of electronics cooling, advanced thermal management strategies.

MECH 6230/6236 FRICTION, WEAR AND LUBRICATION (3)LEC. 3 Friction, wear, and lubrication in design of machine components and other surface interactions, with emphasis on optimizing tribological performance. May count MECH 5230 or MECH 6230/6236.

MECH 6300/6306 ADVANCED MECHANICS OF MATERIALS (3)LEC. 3 Stress and strain analysis, plane stress and plane strain concepts, generalized Hooke's law, stress function approach applications to 2-D problem, axisymmetric problems, bending of curved members, torsion of prismatic members, stress concentration problems.

MECH 6310/6316 MECHANICS OF ELECTRONIC PACKAGING (3)LEC. 3 Stress and strain analysis of Microelectronic packages and electronic assemblies using analytical, experimental and numerical methods.

MECH 6390/6396 FUNDAMENTALS OF THE FINITE ELEMENT METHOD (3)LEC. 2, LAB. 3 Introduction to the fundamentals of the finite element method.

MECH 6410/6416 DYNAMICS OF ROTATING MACHINERY (3)LEC. 3 Issues involved in the analysis and design of high-speed rotating machinery. Modeling, resonance, balancing, bearings, condition monitoring.

MECH 6420/6426 DYNAMICS OF MULTIBODY SYSTEMS (3)LEC. 3 Concepts in dynamics of multibody systems such as kinematics analysis, Newton Euler, Lagrange and Kane equations of motion, collisions, and vibrations of flexible links.

MECH 6430/6436 BASICS OF SENSOR APPLICATIONS (3)LEC. 3 Basic concepts, fabrication and operation of micro machined semiconductor, piezoelectric, piezoresistive, capacitive and fiber-optic sensors.

MECH 6450 NON-DESTRUCTIVE EVALUATION OF MATERIALS AND STRUCTURES (3)LEC. 3 Non-destructive testing fundamentals. Ultrasonic, acoustic, vibration, and eddy current techniques. Case studies.

MECH 6510/6516 ENGINEERING ACOUSTICS (3)LEC. 3 The fundamentals of acoustics. Vibration of strings, bars, plates. Acoustic plane waves, architectural acoustics, and, noise control will be emphasized.

MECH 6610/6616 MECHANICAL VIBRATION (3)LEC. 3 Modeling of lumped dynamic systems, free and forced vibration of single degree of freedom systems, response to arbitrary excitation, analysis of two and multiple degrees of freedom.

MECH 6620/6626 STABILITY AND VIBRATION OF DISCRETE SYSTEMS (3)LEC. 3 Pr., MECH 6610 Principles of advanced dynamics, linear systems with multiple degrees of freedom, stability and boundedness, free and forced response of linear systems, parameter identification.

MECH 6710/6716 KINEMATICS AND DYNAMICS OF ROBOTS (3)LEC. 3 Basic concepts in robotics such as kinematics analysis, coordinate, Lagrange and Newton Euler equations of motion.

MECH 6720/6726 CONTROL OF ROBOTIC MOTION (3)LEC. 3 Application of various algorithms for robot manipulators.

MECH 6810/6816 MECHATRONICS (3)LEC. 3 Introduction to the integration of mechanisms, sensors, controllers and actuators for machines and design of automatic machinery.

MECH 6820/6826 INTRODUCTION TO OPTIMAL SYSTEMS (3)LEC. 3 Introduction to the mathematical fundamentals of optimization. Application to multiple solution engineering problems in thermo-fluid and mechanical systems.

MECH 6930/6936 INTERMEDIATE DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3)LEC. Individual or small group study of an advanced, specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

MECH 6970/6976 INTERMEDIATE SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3)LEC. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

MECH 7010/7016 ADVANCED THERMODYNAMICS (3)LEC. 3 Classical and statistical treatment of the laws and properties of thermodynamic systems; applications.


MECH 7120/7126 ADVANCED FLUID MECHANICS II (3)LEC. 3 Pr., MECH 7110 or MECH 7116 Schwarz-Christoffel Transformation; Hodograph Method; Three-Dimensional Potential Flows; Interface Waves; Low Reynolds Number Solutions; Oseen Approximation; Stability of Laminar Flows.

MECH 7130/7136 BOUNDARY LAYER THEORY (3)LEC. 3 Pr., MECH 7110 or MECH 7116 Mass Conservation; Momentum Equation; Energy Equation; Dimensional Analysis; Fully-Developed Laminar Flows; Similarity Solutions; Boundary layer Approximation; Stability of Laminar Flows.

MECH 7140/7146 TURBULENCE (3)LEC. 3 Pr., MECH 7130 or MECH 7136 Properties of Turbulence; Governing Conservation, Momentum and Energy Equations; Time-averaging, Vorticity Equation, Turbulence Models; Shear Flows; Jets, Wakes and Boundary Layers; Experimental Techniques.

MECH 7150/7156 FLUID MECHANICS OF PROCESSING (3)LEC. 3 Pr., MECH 7130 or MECH 7136 Properties of Flows; Governing Equations; Dimensional analysis; Particle-Laden Flows; Applications to specific processing problems such as liquid metal flows, polymers, surface deposition.

MECH 7210/7216 DIFFUSIVE TRANSFER (3)LEC. 3 Formulations and analytical solutions of steady, periodic, and unsteady heat and mass diffusion problems in one, two, and three dimensions.

MECH 7220/7226 CONVECTION HEAT TRANSFER (3)LEC. 3 Advanced topics in free and forced convection transport within the laminar, transitional and turbulent regimes; confined and external flows.

MECH 7230/7236 THERMAL RADIATION (3)LEC. 3 Fundamental of thermal radiation heat transfer including: absorption, emission, and reflection from solids; absorption, emission, and scattering by gases; combined mode and conjugate heat transfer; exact and approximate solution methodologies.

MECH 7240/7246 NUMERICAL METHODS IN HEAT TRANSFER (3)LEC. 3 Advanced topics in finite element and finite difference methods; solution techniques, stability and convergence.

MECH 7250/7256 BOILING AND CONDENSATION (3)LEC. 3 Hydrodynamics of vapor-liquid flow, pool boiling, forced convective boiling, condensation, instabilities in two-phase systems, augmentation of boiling and condensation.

MECH 7300/7306 FRACTURE MECHANICS (3)LEC. 3 Stress and strain analysis of cracked bodies, energy release rate, Griffith problem, modes of fracture, crack tip fields, stress intensity factors, small scale crack tip yielding, the J-integral, HRR equations, experimental and numerical methods for fracture parameter estimation.

MECH 7310/7316 SOLID MECHANICS (3)LEC. 3 Stress and strain analysis in 3-D, constitutive behavior of elastic solids, orthotropy and isotropy, stress compatibility equations, Navier's equation, stress functions, applications.

MECH 7320/7326 CONTINUUM MECHANICS AND TENSOR ANALYSIS (3)LEC. 3 Pr., MECH 6300 or MECH 6306 Cartesian and curvilinear tensor analysis with applications to the mechanics of continuous media. Constitutive equations for solids and fluids.

MECH 7330/7336 EXPERIMENTAL MECHANICS (3)LEC. 3 Experimental methods for measurement of stress, strain and displacement. Strain gauges, transducers, and brittle coatings. Transmission photoelasticity, and photelastic coatings. Introduction to moiré and coherent optical techniques.

MECH 7340/7346 INELASTIC STRESS ANALYSIS (3)LEC. 3 Pr., MECH 6300 or MECH 6306 Introduction to modeling material behavior of non-elastic materials. Theories of plasticity, linear and non-linear viscoelasticity, and viscoplasticity. Applications to modern engineering materials and simple structural members.

MECH 7360/7366 MECHANICS OF COMPOSITE MATERIALS (3)LEC. 3 Properties and mechanical behavior of fiber-reinforced composite materials. Anisotropic stress-strain relations, orthotropic elasticity and laminated plate theories, failure criteria, applications.

MECH 7370/7376 ANALYSIS OF PLATES AND SHELLS (3)LEC. 3 Theories for the bending and stretching of plate and shell structures. Transverse loading, buckling, vibration, and thermal stress problems. Introduction to energy methods, numerical techniques, and large deflection theories.
MILS 2010 INTRODUCTION/TEAM MILITARY TACTICS (1) LEC. 1. Introduction to individual and team aspects of military training in small unit operations.

MILS 2220 SURVIVAL SKILLS (1) LEC. 1. Series of classes designed to develop basic knowledge and skills to improve one's chances of survival in any situation. Major topics include: first aid, fire and shelter building, land navigation, and food procurement.

MILS 3021 LEADING SMALL ORGANIZATIONS II LABORATORY (1) LEC. 2 Pr., MILS 3020 and MILS 3011 Series of practical opportunities to lead small groups, receive performance assessments and coaching, and lead again in situations of increasing complexity.

MILS 4010 LEADERSHIP CHALLENGES AND GOAL-SETTING (2) LEC. 2 Pr., MILS 3020 and MILS 3021 Plan, conduct and evaluate training and organizational cohesion.

MKTG 3310 PRINCIPLES OF MARKETING (3) LEC. 3. Pr., Junior standing, ECON 2027, 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Study of functions, institutions, and basic problems in marketing of goods and services in a global economy. Credit will not be given for both MKTG 3310 and MKTG 3810.

MKTG 3317 HONORS PRINCIPLES OF MARKETING (3) LEC. 3. Pr., ECON 2027, 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Study of functions, institutions, and basic problems in marketing of goods and services in a global economy.

MKTG 3410 CONSUMER BEHAVIOR (3) LEC. 3. Pr., grade of C or better in MKTG 3310 or MKTG 3317, and 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Analysis of the buying process as it is affected by environmental and institutional forces. Credit will not be given for both CAHS 3860 and MKTG 3410.

MKTG 3810 FOUNDATIONS OF BUSINESS MARKETING (3) LEC. 3. Pr., 2.0 GPA or higher. Foundations of Business Marketing is a broad based introductory course that will focus on marketing functions and applications of marketing principles. This course is not open to undergraduates majoring in business. Credit will not be given for both MKTG 3310 and MKTG 3810.

MKTG 4320 PROMOTION STRATEGY (3) LEC. 3. Pr., grade of C or better in MKTG 3310 or MKTG 3317, and 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Examination of promotional objectives, strategy and tactics in marketing.

MKTG 4330 RETAIL MANAGEMENT (3) LEC. 3. Pr., grade of C or better in MKTG 3310 or MKTG 3317, and 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Principles of retail operation: facility location, layout, purchasing, pricing and merchandise control. Credit will not be given for more than one of the following: MKTG 4330, CAHSS5610, and CAHSS 6610.

MKTG 4350 SERVICES MARKETING (3) LEC. 3. Pr., grade of C or better in MKTG 3310 or MKTG 3317, and 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Examination of marketing in service industries and implementation of service marketing strategies.

MKTG 4360 MARKETING RESEARCH (3) LEC. 3. Pr., grade of C or better in MKTG 3410 and STAT 2610, and 2.2 cumulative GPA or College of Business
Academic Excellence Initiative requirements. Research methods in marketing and their application to marketing problems.

**MKTG 4370 SALES MANAGEMENT (3)** LEC. 3 Pr., grade of C or better in MKTG 3310 or MKTG 3317, and 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Principles and practices of organization and administration of sales organizations.

**MKTG 4380 MARKETING CHANNEL SYSTEMS (3)** LEC. 3 Pr., grade of C or better in MKTG 3310 or MKTG 3317, and 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Designing channels of distribution: Objectives, constraints, and alternatives: Motivating, evaluating and controlling channel members.

**MKTG 4390 PERSONAL SELLING (3)** LEC. 3 Pr., grade of C or better in MKTG 3310 or MKTG 3317, and 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Ethical and strategic use of electronic media and the Internet for marketing strategy.

**MKTG 4400 GREEN MARKETING (3)** LEC. 3 Pr., grade of C or better in MKTG 3310 or MKTG 3317, and 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Marketing viewed from an environmental protection perspective and resulting green market strategies.

**MKTG 4700 REAL ESTATE MARKETING (3)** LEC. 3 Pr., grade of C or better in MKTG 3310 or MKTG 3317, and 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Selling strategy for real property, brokerage, management and marketing of real estate.

**MKTG 4900 DIRECTED STUDIES (3)** IND. 3 SU., grade of C or better in MKTG 3310 or MKTG 3317, and departmental approval and 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Provides a relevant and meaningful learning experience offering advanced research, reading and study in marketing.

**MKTG 4920 MARKETING STUDENT INTERNSHIP PROGRAM (3)** INT. 3 SU., grade of C or better in MKTG 3310 or MKTG 3317, and departmental approval and 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Provides relevant experience in a marketing or marketing-related business, industry or organization.

**MKTG 4980 MARKETING STRATEGY (3)** LEC. 3 Pr., grade of C or better in MKTG 4360 and 6 hours of marketing electives; 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Strategic perspectives of market dynamics in different competitive environments across organizational levels.

**MKTG 4997 HONORS THESIS (1-3)** IND. Pr., departmental approval and 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements. Provides honor's students with the opportunity to conduct in-depth research. Thesis/research topics will be based on mutual agreement between committee and student. Course may be repeated for a maximum of 3 credit hours. Course may be repeated for a maximum of 3 credit hours.

**MKTG 7050/7056 SOCIAL AND LEGAL ENVIRONMENT OF MARKETING (3)** LEC. 3 Pr., MKTG 3310 or MKTG 3317; departmental approval. The influence of the social, legal, political, and economic environments on marketing operations.

**MKTG 7310/7316 MARKETING MANAGEMENT (3)** LEC. 3 Pr., (BUSI 7110 or BUSI 7716) and BUSI 7120; departmental approval. In-depth analysis of concepts and techniques pertinent to executive decision-making in marketing.

**MKTG 7320/7326 ADVERTISING AND PROMOTION STRATEGY (3)** LEC. 3 Pr., MKTG 3310 or MKTG 3317; departmental approval. Managerial perspective of the marketing communication process.

**MKTG 7350/7356 SERVICES MARKETING (3)** LEC. 3 Pr., MKTG 3310 or MKTG 3317; departmental approval. Examination of marketing in service industries and implementation of service marketing strategies.

**MKTG 7360/7366 MARKETING RESEARCH: METHODOLOGY AND APPLICATIONS (3)** LEC. 3 Pr., (MNGT 6040 or MNGT 6046) and (MKTG 3310 or MKTG 3317); departmental approval. Marketing research design, implementation and data analysis for marketing managers.

**MKTG 7370/7376 SALES MANAGEMENT (3)** LEC. 3 Pr., MKTG 3310 or MKTG 3317, departmental approval. In-depth study of sales management strategy and tactics.

**MKTG 7390/7396 DATABASE, DIRECT MARKETING AND SALES PROMOTION (3)** LEC. 3 Pr., MKTG 3310 or MKTG 3317; departmental approval. Fundamental concepts, tools and applications of data base, direct marketing and sales promotion to marketing problems.

**MKTG 7400/7406 GLOBAL MARKETING AND DISTRIBUTION (3)** LEC. 3 Pr., MKTG 3310 or MKTG 3317; departmental approval. A strategic managerial perspective of global marketing and distribution operations.

**MKTG 7410/7416 ANALYSIS OF CONSUMER BEHAVIOR (3)** LEC. 3 Pr., MKTG 3310 or MKTG 3317; departmental approval. Psychological, sociological, and anthropological foundation of consumer and industrial purchase behavior and their application to marketing decisions.

**MKTG 7500/7506 ELECTRONIC MARKETING (3)** LEC. 3 Pr., MKTG 3310 or MKTG 3317; departmental approval. Ethical and strategic use of electronic media and the Internet for marketing communications and strategy.

**MKTG 7600/7606 ENVIRONMENTALLY CONSCIOUS MARKETING MANAGEMENT (3)** LEC. 3 Pr., STAT 2610 and MKTG 3310 or MKTG 3317; departmental approval. Advanced marketing strategies with an environmental focus.

**MKTG 7720/7726 NEW PRODUCTS DEVELOPMENT AND MANAGEMENT (3)** LEC. 3 Pr., MKTG 3310 or MKTG 3317; departmental approval. Marketing in the process of developing innovative products and services.

**MKTG 7940 INTERNATIONAL MARKETING ABROAD PROGRAM (3-6)** FLD. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

**MKTG 7970/7976 SPECIAL STUDIES IN MARKETING (3)** LEC. 3 Variable content in the marketing area. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

**Management (MNGT)**

Dr. Sharon Oswald - 844-4071

**MNGT 2010 INTRODUCTION TO DC ELECTRICITY AND CIRCUITS FOR MANAGERS (3)** LEC. 1, INTAB. 2. Foundational knowledge of basic DC electronics and circuit theory from a managerial perspective.

**MNGT 2020 INTRODUCTION TO AC POWER AND CIRCUITS FOR MANAGERS (3)** LEC. 1, INTAB. 2. Foundational knowledge of basic AC electronics and circuit theory from a managerial perspective.

**MNGT 3100 PRINCIPLES OF MANAGEMENT (3)** LEC. 3 Management functions and the applications of management principles in organization. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

**MNGT 3107 HONORS PRINCIPLES OF MANAGEMENT (3)** LEC. 3 Management functions and the applications of management principles in organization. Pr., 2.2 cumulative GPA or College of Business Academic Excellence Initiative requirements.

**MNGT 3460 ORGANIZATIONAL BEHAVIOR (3)** LEC. 3 Pr., MNGT 3100. Pr./Coreq., MNGT 3810. Study, analysis and application of theories and techniques for understanding, predicting and managing human behavior in the organizational context. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

**MNGT 3810 MANAGEMENT FOUNDATIONS (3)** LEC. 3 Management Foundations is a broad-based introductory course that will focus on management functions and applications of management principles. This course is not open to undergraduates majoring in business. Pr., 2.00 GPA or College of Business Academic Excellence Initiative Requirements. Credit will not be given for both MNGT 3100 and MNGT 3810.

**MNGT 4010 TECHNICAL SYSTEMS STUDIO FOR MANAGERS (6)** LEC. 2, LAB. 4. Pr., MNGT 2010 and MNGT 2020 and MNGT 3010 The studio is an experiential workshop designed to help students comprehend foundational knowledge needed to understand practical technical systems applications in a realistic industry context. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

**MNGT 4100 MANAGEMENT IN GLOBAL BUSINESS ENVIRONMENT (3)** LEC. 3 Pr., MNGT 3100 or MNGT 3107; 3460 and MNGT 3420. The complexities involved in implementing change in organizations. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

**MNGT 4400 ORGANIZATIONAL DEVELOPMENT AND CHANGE (3)** LEC. 3 Pr., MNGT 3100 or MNGT 3107 and MNGT 3460. The complexities involved in implementing change in organizations. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

**MNGT 4600 COMMUNITY SERVICE PROJECT (1)** LEC. 1 Pr., 2.2 GPA. Application of applying business principles to applications learned from working with local or regional businesses/community issues. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

**MNGT 4610 INTERNATIONAL FIELD ANALYSIS PROJECT COURSE (3)** LEC. 3 Field analysis team projects with local or multinational organizations in a foreign country. Course will be taught in conjunction with COB International Studies.
implementing manufacturing and technology strategies through case analyses and research.

MNGT 7200 OPERATIONS AND TECHNOLOGY STRATEGY (3) LEC. 3 Pr., BUSI 7220 Development of upper management decision skills for developing and implementing manufacturing and technology strategies through case analyses and a field project.

MNGT 7310/7316 SEMINAR IN MANAGEMENT (3) LEC. 3 Pr., BUSI 7120 Introduction to business-decision structuring and aiding, including multiple criteria and group-decision making methodology. Pr., BUSI 7120 or equivalent.

MNGT 7970 SEMINAR IN MANAGEMENT (3) LEC. 3 Current topics in management. Departmental approval.

MNGT 8010/8016 MIS RESEARCH SEMINAR I (3) SEM. 3 Preparation in conceptualization, conduct, and presentation of MIS research. Pr., departmental approval.

MNGT 8020/8026 MIS RESEARCH SEMINAR II (3) SEM. 3 Preparation in conceptualization, conduct, and presentation of applied and case studies research in MIS. Pr., departmental approval.

MNGT 8030 SEMINAR METHODS IN MANAGEMENT I (3) LEC. 3 Pr., MNGT 8400 or departmental approval. Research methodologies used in conducting research with emphasis on empirical organizational behavior research methods. Pr., A graduate-level course taken in major field, and working knowledge of SPSS or SAS.

MNGT 8040 SEMINAR METHODS IN MANAGEMENT II (3) LEC. 3 Pr., MNGT 8030 or departmental approval. Development of research skills and experience in writing an empirical research article based on research proposal developed in MNGT 8030.

MNGT 8300 SEMINAR IN ADVANCED ORGANIZATION THEORY (3) LEC. 3. Advanced study of theories and research in organization theory. Departmental approval.

MNGT 8310 SEMINAR IN ADVANCED ORGANIZATIONAL BEHAVIOR (3) LEC. 3 Advanced study of theories and research in organizational behavior. Overcoming organizational behavior paradigms and theoretical perspectives and research findings at the individual and group levels of analysis. Pr., departmental approval.

MNGT 8320 SEMINAR IN STRATEGY IMPLEMENTATION (3) LEC. 3 Review of the major theoretical perspectives and the empirical literature supporting the research field of strategic management with an emphasis on strategy implementation. Pr., departmental approval.

MNGT 8330 SEMINAR IN STRATEGY FORMULATION (3) LEC. 3 Review of the major theoretical perspectives and the empirical literature supporting the research field of strategic management with an emphasis on strategy formulation. Departmental approval.

MNGT 8400 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT I (3) LEC. 3 Pr., STAT 7000 Study of the application of linear regression analysis to business research. First advanced course in applied linear statistics models. Pr., STAT 7000 or approved equivalent.

MNGT 8410 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT II (3) LEC. 3 Pr., MNGT 8400 Introduction to multivariate techniques in business research. Study of the theory and applications of ANOVA, ANCOVA, MANOVA, MANCOVA, Discriminate Analysis & Polytomous Logistic Regression. Pr., departmental approval.

MNGT 8420 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT III (3) LEC. 3 Pr., STAT 7000 and MNGT 8400 and MNGT 8410 or departmental approval. Third course in statistical modeling. Emphasis on applications of Principal Component Analysis, and Structural Equation Modeling to management research. Pr., STAT 7100, MNGT 8400, MNGT 8410 or approved equivalents.

MNGT 8500 ADVANCED MITI RESEARCH SEMINAR I (3) SEM. 3 Theoretical foundations and research directions in the management of technology and technological innovation, with the primary focus on information technology and research. Pr., departmental approval.

MNGT 8660 ADVANCED MITI RESEARCH SEMINAR II (3) LEC. 3 Theoretical foundations and research directions in the alignment of information technology strategy to business objectives and goals. Pr., departmental approval.

MNGT 8700 SEMINAR IN ADVANCED HUMAN RESOURCE MANAGEMENT (3) LEC. 3 Examination of empirical issues and technical considerations pertaining to the human resource management function in organizations or departmental approval.

MNGT 8740 COMPENSATION THEORY (3) LEC. 3 An examination of compensation theory, design technology, and research methodologies used in developing and analyzing compensation systems.

MNGT 8800 APPRAISAL AND DEVELOPMENT OF HUMAN RESOURCES (3) LEC. 3 Examination of empirical issues pertaining to the performance appraisal and human resource development functions of organizations. Pr., departmental approval.

MNGT 8820 ORGANIZATIONAL CHANGE RESEARCH METHODS (3) LEC. 3 Pr., MNGT 7150 or departmental approval. The study and application of research methods to conduct organizational diagnoses and to assess organizational effectiveness. Special emphasis is placed on qualitative methods.

MNGT 8850 ADVANCED HUMAN RESOURCE SELECTION (3) LEC. 3 Pr., MNGT 7080 Study of the technical considerations involved in the implementation of employee selection programs. Pr., departmental approval; graduate statistics course.
ENFB 4140 ESSENTIALS OF ENTREPRENEURSHIP (3) LEC. 3 Pr., MNGT 3100 and MKTG 3130 and FINC 3610 and ECON 2030 The application of basic business principles to the entrepreneurial environment. Pr., 2.2 GPA or College of Business Academic Excellence Requirements.

ENFB 4160 FAMILY BUSINESS MANAGEMENT (3) LEC. 3 Pr., MNGT 3100 or MNGT 3107 Cr., ENFB 4140 and MNGT 4140 Study of aspects of managing an established family business, on a day-to-day basis, and of planning for succession to the next generation. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ENFB 4170 MANAGING ENTREPRENEURIAL START-UPS (3) LEC. 3 Pr., MNGT 3100 Cr., ENFB 4140 and MNGT 4140 Study of aspects of managing and marketing ing concepts and processes that can be utilized to launch new ventures or a new division within an existing business. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ENFB 4180 GROWTH STRATEGIES FOR EMERGING COMPANIES (3) LEC. 3 Pr., MNGT 4140 or ENFB 4140 Application of the important aspects of starting and managing a franchise business. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ENFB 4190 NEW VENTURE CREATION (3) LEC. 3 Pr., (MNGT 4140 or ENFB 4140) Analysis of industrial, competitive, market and financial aspects of starting a business. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ENFB 4200 BUSINESS PLAN FOR THE NEW VENTURE (3) LEC. 3 Pr., MNGT 4140 or ENFB 4140 Application of entire business education and experience to a practical, hands-on project. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ENFB 4210 CORPORATE VENTURING-ENTREPRENEURS IN ORGANIZATIONS (3) LEC. 3 Pr., (MNGT 4140 or ENFB 4140) and (MNGT 4190 or ENFB 4190) Study of the entrepreneurial process as it applies to the operations of a department or functional area within an established organization. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ENFB 4920 INTERNSHIP (1-6) INT. SU. Course may be repeated for a maximum of 6 credit hours. Pr., Approval by departmental intern program committee; 2.2 GPA required or College of Business Academic Excellence Initiative Requirements. Course may be repeated for a maximum of 6 credit hours.

ENFB 4950 SEMINAR IN ENTREPRENEURSHIP AND FAMILY BUSINESS (1-10) SEM. Course may be repeated for a maximum of 10 credit hours. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements. Course may be repeated for a maximum of 10 credit hours.

ENFB 5900 DIRECTED STUDIES (1-3) IND. SU. Independent study on current topics in management. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements. Course may be repeated for a maximum of 6 credit hours.

ENFB 5960 SPECIAL PROBLEMS (1-3) IND. Independent study investigating current literature in management. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements. Course may be repeated for a maximum of 6 credit hours.

ENFB 6900/6906 DIRECTED STUDIES (1-3) IND. SU. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

ENFB 6960/6966 SPECIAL TOPICS (3) IND. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

HUMAN RESOURCE MANAGEMENT (HRMN)

Dr. William Giles - 844-6528

HRMN 3420 HUMAN RESOURCE MANAGEMENT (3) LEC. 3 Pr., MNGT 3100. Pr./Coreq., MNGT 3810. Management of human resources dealing with selection, training, placement, appraisal, compensation, and employee representation. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

HRMN 4430 LABOR RELATIONS (3) LEC. 3 General survey of the development of collective bargaining, major provisions of labor law, and bargaining issues of craft and industrial unions. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.
HRMN 7990 RESEARCH AND THESIS (1-10) MSTR. Research on thesis or research project. Course may be repeated with a change in topic. Pr., departmental approval. Course may be repeated with change in topics.

INFORMATION SYSTEMS MANAGEMENT (ISMN) Dr. Nelson Ford - 844-6503

ISMN 3040 BUSINESS TELECOM MANAGEMENT (3) LEC. 3 Pr., ISMN 3140. Voice communications and technology and data communications (LAN, WAN, internet broadband), networks, protocols, standards, legislation and project development and management. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ISMN 3070 BUSINESS COMPUTER APPLICATIONS (3) LEC. 3 Pr., MNGT 3070 or ISMN 3070 Visual and object-oriented business programming languages are introduced and explored. 2.2 GPA required.

ISMN 3140 INTRODUCTION TO MANAGEMENT INFORMATION SYSTEMS (2) LEC. 2 The fundamental principles of the structure and management of information systems. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ISMN 3830 DATABASE MANAGEMENT SYSTEMS (3) LEC. 3 Pr., (MNGT 3070 or ISMN 3070) Business applications software in a database environment, complex data, and file structures, systems design consideration of global and distributed databases. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ISMN 4090 ANALYSIS AND DESIGN OF BUSINESS INFORMATION SYSTEMS (3) LEC. 3 Pr., (MNGT 3830 or ISMN 3830) General systems techniques, development methodologies, database considerations, project planning, and control, system integration. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ISMN 4850 COMPETITIVE STRATEGIES THROUGH INFORMATION (3) LEC. 3 Emphasizes how competitive strategies for companies are formulated and implemented using a combination of information technologies. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ISMN 4870 DATABASE SERVER FUNDAMENTALS (3) LEC. 3 Cr., ISMN 3830 and MNGT 3830 Database servers as core components of developing n-Tier information technology are discussed. Practical exercises used to demonstrate the process of using QSQL to manage database through data manipulation language and data definition language. Advanced database objects are introduced. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ISMN 4880 MGT INFO SYSTEMS PROJECTS (3) LEC. 3 Cr., ISMN 3830 and MNGT 3830 Synthesizes theory and principles of management information systems (MIS) using real-life, hands-on projects. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ISMN 4920 INTERNSHIP (1-6) INT. SU. Course may be repeated for a maximum of 6 credit hours. Pr., Approval by departmental intern program committee; 2.2 GPA or College of Business Academic Excellence Initiative Requirements. Course may be repeated for a maximum of 6 credit hours.

ISMN 4950 SEMINAR IN INFORMATION SYSTEMS MANAGEMENT (1-10) SEM. Course may be repeated for a maximum of 10 credit hours. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements. Course may be repeated for a maximum of 10 credit hours.

ISMN 5040 ADVANCED BUSINESS DATA COMMUNICATIONS (3) LEC. 3 Pr., (MNGT 3140 or ISMN 3140) Experienced-based class building on domain knowledge of client-side Internet programming using technologies such as HTML, JavaScript, Cascading Style Sheets, and XML. 2.2 GPA required.

ISMN 5270 CURRENT ISSUES IN IS FOR ORGS (3) LEC. 3 This course covers current issues in Information Systems Management and Technology. As such, topics may differ from semester to semester. The objective of the course is to allow students to become familiar with issues such as emerging technologies, information systems and their role in vertical portals, and the role of information systems in industry. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ISMN 5280 INFORMATION SYSTEMS ARCHITECTURE IN THE SMALL-AND MEDIUM-SIZE ENTERPRISE (3) LEC. 3 Pr., (MNGT 3040 or ISMN 3040) and (MNGT 3070 or ISMN 3070) This course is an exposure into the current business applications of open source software. The course consists of 1) A research component focusing on current trends and practices within the culture of Open Source Software as well as the current and potential impact on business and 2) a hands-on laboratory component in which students explore the application of Open Source Software as a business tool. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ISMN 5370/5373 PROJECT MANAGEMENT (3) LEC. 3 Tools and techniques of information technology project management including leading project management software. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ISMN 5560 CLIENTSIDE INTERNET PGM (3) LEC. 3 Fundamentals of client-side Internet programming using technologies such as HTML, JavaScript, Cascading Style Sheets, and XML. 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ISMN 5561 SERVERSIDE INTERNET PGM (3) LEC. Fundamentals of server-side Internet programming using technologies such as PHP, MySQL, and XML. 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ISMN 5565 ADVANCED OBJECT-ORIENTED AND INTERNET PROGRAMMING (3) LEC. 3 Pr., MNGT 3070 Fundamentals of developing object-oriented, component-based and Internet business applications. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ISMN 5567 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3 This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality, and ethics. Organizational issues of security and methodologies for information assurance will be discussed from a managerial perspective. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ISMN 5580 ADVANCED DATABASE ADMINISTRATION AND DEVELOPMENT (3) LEC. 3 Pr., MNGT 3830 Key tasks and functions required of a database administrator in a business environment. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ISMN 5590 KNOWLEDGE MANAGEMENT AND ORGANIZATIONAL LEARNING (3) LEC. 3 Introduction to knowledge management and its role in organizational decision-making and learning. Studies of issues related to management, creation, and use of knowledge as well as issues related to system design and implementation. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ISMN 5710/5713 INFORMATION RISK ANALYSIS (3) LEC. 3 In-depth instruction on the range of skills required of persons engaged in the performance of risk analysis functions. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements.

ISMN 5900 DIRECTED STUDIES (1-3) IND. SU. Independent study on current topics in management. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements. Course may be repeated for a maximum of 6 credit hours.

ISMN 5960 SPECIAL PROBLEMS (3) IND. Independent study investigating current literature in management. Pr., 2.2 GPA or College of Business Academic Excellence Initiative Requirements. Course may be repeated for a maximum of 6 credit hours.

ISMN 6040/6046 ADVANCED BUSINESS DATA COMMUNICATIONS (3) LEC. 3 Pr., (MNGT 7120 or ISMN 7120) or (MNGT 3140 or ISMN 3140) Experienced-based class building on domain knowledge of client-side Internet programming using technologies such as HTML, JavaScript, Cascading Style Sheets, and XML. Pr., 2.2 GPA required.

ISMN 6270/6276 CURRENT ISSUES IN INFORMATION SYSTEMS FOR ORGANIZATIONS (3) LEC. 3 This course covers current issues in Information Systems Management and Technology. As such, topics may differ from semester to semester. The objective of the course is to allow students to become familiar with issues such as emerging technologies, information systems and their role in vertical portals, and the role of information systems in industry.

ISMN 6280/6286 INFORMATION SYSTEMS ARCHITECTURE IN THE SMALL LAND MEDIUM-SIZE ENTERPRISE (3) LEC. 3 Pr., (MNGT 3040 or ISMN 3040) and (MNGT 3070 or ISMN 3070) This course is an exposure into the current business applications of open source software. The course consists of 1) A research component focusing on current trends and practices within the culture of Open Source Software as well as the current and potential impact on business and 2) a hands-on laboratory component in which students explore the application of Open Source Software as a business tool. Pr., equivalent courses at the graduate level.

ISMN 6370/6376 PROJECT MANAGEMENT (3) LEC. 3 Tools and techniques of information technology project management including leading project management software. Pr., 2.2 GPA required.

ISMN 6630/6656 CLIENTSIDE INTERNET PGM (3) LEC. 3 Fundamentals of client-side Internet programming using technologies such as HTML, JavaScript, Cascading Style Sheets, and XML.

ISMN 6640/6646 SERVERSIDE INTERNET PGM (3) LEC. 3 Fundamentals of server-side Internet programming using technologies such as PHP, MySQL, and XML.

ISMN 6650/6656 ADVANCED OBJECT-ORIENTED AND INTERNET PROGRAMMING (3) LEC. 3 Pr., MNGT 3070 Fundamentals of developing object-oriented, component-based and Internet business applications.
ISMN 6670/6676 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3 This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality and ethics. Organizational issues of security and methodologies for information assurance will be discussed from a managerial perspective.

ISMN 6680/6686 ADVANCED DATA BASE ADMINISTRATION AND DEVELOPMENT (3) LEC. 3 Pr., (MNGT 3830 or ISMN 3830) or (MNGT 7830 or ISMN 7830) Key tasks and functions required of a database administrator in a business environment.

ISMN 6690/6696 KNOWLEDGE MANAGEMENT AND ORGANIZATIONAL LEARNING (3) LEC. 3 Introduction to knowledge management and its role in organizational decision-making and learning. Studies of issues related to management, creation, and use of knowledge as well as issues related to system design and implementation.

ISMN 6710/6716 INFORMATION RISK ANALYSIS (3) LEC. 3 In-depth instruction on the range of skills required of persons engaged in the performance of risk analysis functions. Pr., major or minor College of Business or departmental approval.

ISMN 6900/6906 DIRECTED STUDIES (1-3) IND. SU. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

ISMN 6960/6966 SPECIAL PROBLEMS (3) IND. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

ISMN 7020/7026 BUSINESS TELECOMMUNICATIONS AND NETWORKS (3) LEC. 3 Provides an understanding of voice and data communications, e.g., networks (LAN, internet), protocols, standards, legislation and project development, so that managers, might utilize telecommunications effectively.

ISMN 7360/7366 INTEGRATING THEORY AND PRACTICE FOR TECHNOLOGY MANAGERS (3) LEC. 3 A study of the technical and non-technical forces that influence the decision-making process in companies by the use of innovative instructional material.

ISMN 7370/7386 INTEGRATING INFORMATION TECHNOLOGIES TO PROVIDE COMPETITIVE ADVANTAGE (3) LEC. 3 How to integrate effectively information technologies in formulating and implementing competitive strategies for companies.

ISMN 7660/7666 INFORMATION SYSTEMS ANALYSIS AND DESIGN (3) LEC. 3 General systems theory, information systems logical and physical analysis, structured and object-oriented methodologies and prototyping, system documentation, general design and use of CASE tools.

ISMN 7670/7676 ELECTRONIC COMMERCE (3) LEC. 3 The tools, skills, technologies, and business and social implications of the emergence of electronic commerce in cyberspace.

ISMN 7730/7736 MANAGEMENT OF INNOVATION (3) LEC. 3 Pr., BUSI 7220 The process of product and service innovation on two levels: managing product design and general strategies for managing multiple innovation streams.

ISMN 7760/7766 QUANT METHODS IN OPS MGT (3) LEC. 3

ISMN 7830/7836 ADVANCED DATABASE MANAGEMENT SYSTEMS PROJECTS (3) LEC. 3 Database management systems using database methodologies to support business applications, including requirements for distributed databases.

ISMN 7870/7876 EXPERT SYSTEMS IN BUSINESS (3) LEC. 3 Pr., BUSI 7220 Study of expert systems and other knowledge-based systems in the organization, including relevant concepts, methodologies, architectures, strategies, and issues.

ISMN 7880/7886 ADVANCED MANAGEMENT INFOR SYST (3) LEC. 3 In-depth inquiry and analysis of advanced information technologies in organizations.

ISMN 7890/7896 INFORMATION RESOURCE MGT (3) LEC. 3 Pr., BUSI 7220 Management of information systems resources, unique management problems in a computer information systems environment. Strategic and competitive analysis of information technology.

ISMN 7980/7986 MMIS PROJECT (1-10) IND. SU. Independent exploration of an approved topic/problem that allows the student to demonstrate the application of knowledge and capabilities gained during the program. Approval of the project and assessment of its deliverables by the student's advisory committee is required. Course may be repeated for a maximum of 12 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 10 credit hours.

ISMN 7990 RESEARCH AND THESIS (1-10) MST. Research on thesis or research project. Course may be repeated with a change in topic. Pr., departmental approval. Course may be repeated with change in topics.

Music (MUSI)

Music (MUSI)
Dr. Sarah Lyn Baird - 844-4164

APPLIED MUSIC (MUAP)

MUAP 1010 PERFORMANCE (0) PRL. Remedial performance instruction to be taken on a limited basis by Music Education majors and Music minors. May be repeated only upon departmental approval and unusual circumstances. One half-hour private lesson per week. Pr., departmental approval.

MUAP 1110 PERFORMANCE (1) PRL Instruction in major performance medium for the freshman Music Education major. One half-hour private lesson per week. Pr., departmental approval; successful audition.

MUAP 1210 PERFORMANCE (1) PRL. 1 Pr., MUAP 1110 Instruction in major performance medium for the freshman Music Education major. One half-hour private lesson per for Mus. Ed.; one hour private lesson per week. Pr., departmental approval; successful audition.

MUAP 1310 PERFORMANCE (1) PRL. 1 Instruction in major performance medium for the Music minor or secondary performance medium for the Music Education major. One half-hour private lesson per week. Pr., departmental approval; successful audition.

MUAP 1410 PERFORMANCE (1) PRL. 1 Pr., MUAP 1310 Instruction in major performance medium for the Music minor or secondary performance medium for the Music Education major or Bachelor of Arts in Music Performance major. One half-hour private lesson per week. Pr., departmental approval; successful audition.

MUAP 1520 PERFORMANCE (1) PRL. 1 Instruction in major performance medium for the freshman BA/MULA major. (Performance option). One hour private lesson per week. Successful audition and departmental approval.

MUAP 1530 PERFORMANCE (1) PRL. 1 Instruction in major performance medium for the first-year music theatre major. Two half-hour private lessons per week. Successful audition and departmental approval.

MUAP 1620 PERFORMANCE (1) PRL. 1 Pr., MUAP 1520 Instruction in major performance medium for the freshman BA/MULA major (Performance option). One hour private lesson per week. Successful audition and departmental approval.

MUAP 1630 PERFORMANCE (1) PRL. 1 Pr., MUAP 1530 Instruction in major performance medium for the first-year music theatre major. Two half-hour private lessons per week. Successful audition and departmental approval.

MUAP 2110 PERFORMANCE (1) PRL. 1 Pr., MUAP 1210 Instruction on major performance medium for the sophomore Music Education major or Bachelor of Arts in Music Performance major. One half-hour private lesson per week for Mus. Ed.; one hour per week for BA in Mus. Perf. Pr.; departmental approval; successful audition.

MUAP 2210 PERFORMANCE (1) PRL. 1 Pr., MUAP 2110 Instruction on major performance medium for the sophomore Music Education major. One half-hour private lesson per week. Successful audition and departmental approval.

MUAP 2310 PERFORMANCE (1) PRL. 1 Pr., MUAP 1410 Instruction in major performance medium for the Music minor or secondary performance medium for the Music Education major. One half-hour private lesson per week. Pr., departmental approval.

MUAP 2410 PERFORMANCE (1) PRL. 1 Pr., MUAP 2310 Instruction in major performance medium for the Music minor or secondary performance medium for the Music Education major or Bachelor of Arts in Music Performance major. One half-hour private lesson per week. Pr., departmental approval; successful audition.

MUAP 2520 PERFORMANCE (1) PRL. 1 Pr., MUAP 1620 Instruction in major performance medium for the sophomore BA/MULA major (Performance option). One hour private lesson per week. Successful audition and departmental approval.

MUAP 2530 PERFORMANCE (1) PRL. 1 Pr., MUAP 1630 Instruction in major performance medium for the second-year music theatre major. Two half-hour private lessons per week. Successful audition and departmental approval.

MUAP 2620 PERFORMANCE (1) PRL. 1 Pr., MUAP 2520 Instruction in major performance medium for the sophomore BA/MULA major (Performance option). One hour private lesson per week. Successful audition and departmental approval.

MUAP 2630 PERFORMANCE (1) PRL. 1 Pr., MUAP 2530 Instruction in major performance medium for the second-year music theatre major. Two half-hour private lessons per week. Successful audition and departmental approval.

MUAP 3120 PERFORMANCE (1) PRL. 1 Pr., MUAP 2210 Instruction in major performance medium for the junior Music Education major. One hour private lesson per week. Pr., departmental approval; successful audition.

MUAP 3220 PERFORMANCE (1) PRL. 1 Pr., MUAP 3120 Instruction in major performance medium for the junior Music Education major. One hour private lesson per week. Successful audition and departmental approval.

MUAP 3520 PERFORMANCE (2) PRL. 1 Pr., MUAP 2620 Instruction in major performance medium for the junior BA/MULA major (Performance option). One hour private lesson per week. Successful audition and departmental approval.
MUAP 3530 PERFORMANCE (1) PRL. 1 Pr., MUAP 2630 Instruction in major performance medium for the third-year music theatre major. Two half-hour instruction per week. Successful audition and departmental approval.

MUAP 3620 PERFORMANCE (2) PRL. 1 Pr., MUAP 3520 Instruction in major performance medium for the third-year music theatre major. One hour private lesson per week. Successful audition and departmental approval.

MUAP 3630 PERFORMANCE (1) PRL. 1 Pr., MUAP 3530 Instruction in major performance medium for the third-year music theatre major. Two half-hour private lessons per week. Successful audition and departmental approval.

MUAP 4120 PERFORMANCE (1) PRL. 1 Pr., MUAP 3220 Instruction in major performance medium for the senior Music Education major. One hour private lesson per week. Pr., departmental approval; successful audition.

MUAP 4220 PERFORMANCE (1) PRL. 1 Pr., MUAP 4120 Instruction in major performance medium for the senior Music Education major. One hour private lesson per week. Departmental approval; successful audition.

MUAP 4520 PERFORMANCE (2) PRL. 1 Pr., MUAP 3620 Instruction in major performance medium for the senior BA(MULA) major (Performance option). One hour private lesson per week. Successful audition and departmental approval.

MUAP 4530 PERFORMANCE (1) PRL. 1 Pr., MUAP 3630 Instruction in major performance medium for the fourth-year music theatre major. Two half-hour private lessons per week. Successful audition and departmental approval.

MUAP 4620 PERFORMANCE (2) PRL. 1 Pr., MUAP 4520 Instruction in major performance medium for the graduate Music Education major. One hour private lesson per week. Pr., departmental approval.

MUAP 7120 PERFORMANCE (2) PRL. Private instruction in selected performance medium for the graduate Music Education major. One hour private lesson per week. Pr., departmental approval.

MUAP 7220 PERFORMANCE (2) PRL. Pr., MUAP 7120 Private instruction in selected performance medium for the graduate Music Education major. One hour private lesson per week. Pr., departmental approval.

MUAP 7320 PERFORMANCE (2) PRL. Pr., MUAP 7220 Private instruction in selected performance medium for the graduate. One hour private lesson per week. Pr., departmental approval.

MUAP 7420 PERFORMANCE (2) PRL. Pr., MUAP 7320 Private instruction in selected performance medium for the graduate Music Education major. One hour private lesson per week. Pr., departmental approval.

MUSIC (MUSI)

MUSI 1000 PERFORMANCE ATTENDANCE (9) LEC. SU. Enrollment in MUAP. Required during each Semester of MUAP (Performance) enrollment. Monitored attendance at studio and departmental convocations, as well as approved concerts, lectures, and special presentations within the Music Department and community.

MUSI 1020 PIANO SKILLS I - RUDIMENTS (1) LEC. 2 Class instruction and practice in the rudiments of music performance as applied to the piano.

MUSI 1030 PIANO SKILLS II (1) LEC. 2 Pr., MUSI 1020 Class instruction and practice in the rudiments of music as performance as applied to the piano or departmental approval.

MUSI 1050 SINGER’S DICTION (1) LEC. 2 Coreq., Registered for MUAP (Applied Voice) class. Introduction to the rules of singing English, Italian, German and French as applied to art songs and arias through use of the IPA.

MUSI 1090 THEATRE VOCAL SKILLS (1) LEC. 1 Class instruction and practice in the rudiments of music and vocal production for the Theatre Major.

MUSI 1100 MARCHING BAND (1) LEC. 1 Provides music for athletic contests and halftime shows at football games, various parades, pep rallies and other campus and off-campus events. Course may be repeated with change in topic. Pr., Successful audition. Course may be repeated with change in topics.

MUSI 1110 CONCERT BAND (1) LEC. 1 Successful audition. A large performance group which rehearses and performs the literature of the concert band. Open to all Auburn University students with band performance experience. Course may be repeated with change in topic.

MUSI 1120 SYMPHONIC BAND (1) LEC. 1 A large performance group which rehearses and performs the literature of the concert band. Open to any Auburn University student by audition only. Pr., Successful audition. Course may be repeated with change in topics.

MUSI 1130 JAZZ BAND (1) LEC. 1 A performance group which rehearses and performs the jazz band literature. Open to any Auburn University student by audition only. Course may be repeated with change in topic. Pr., Successful audition. Course may be repeated with change in topics.

MUSI 1140 CAMPUS BAND (1) LEC. 1 A large concert band which gives performing experience to all university students with prior band experience. No audition is required. Course may be repeated with change in topics.

MUSI 1150 ORCHESTRA (1) LEC. 1 The Auburn Orchestra performs several times each semester and is open to all university students based on the instrumental needs of the group and successful audition. Course may be repeated with change in topic.

MUSI 1160 UNIVERSITY SINGERS (1) LEC. 1 A select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Course may be repeated with change of topic. Pr., Successful audition. Course may be repeated with change in topics.

MUSI 1170 GOSPEL CHOIR (1) LEC. 1 Performance of choral works in the African-American gospel tradition. Open to all university students based on successful audition. Course may be repeated with a change in topic. Pr., Successful audition. Course may be repeated with change in topics.

MUSI 1180 WOMEN’S CHORUS (1) LEC. 1 Performance of choral works for women. Open to all university students based on departmental approval. Course may be repeated with change in topic. Departmental approval. Course may be repeated with change in topics.

MUSI 1190 MEN’S CHORUS (1) LEC. 1 Performance of choral works for men. Open to all university students based on departmental approval. Course may be repeated with a change in topic. Pr., departmental approval. Course may be repeated with change in topics.

MUSI 1200 OPERA WORKSHOP (1) LEC. 1 Open to all Auburn University students interested in opera including performance, stage craft, make-up, conducting and coaching. The group prepares for a public performance. Course may be repeated with change in topic.

MUSI 1210 CONCERT CHOIR (1) LEC. 1 Concert choir is a mixed chorus for study and performance of serious choral literature. Pr., Successful audition. Course may be repeated with change in topics.

MUSI 1220 MUSIC ENSEMBLE (1) LEC. 1 Study and performance of musical compositions for small instrumental groups. Course may be repeated with change in topic. Pr., departmental approval. Course may be repeated with change in topics.

MUSI 1230 VOCAL CHAMBER ENSEMBLE (1) LEC. 1 Study and performance of musical compositions of small vocal groups. Course may be repeated with change in topic. Pr., departmental approval.

MUSI 1310 MUSIC THEORY I (2) LEC. 2 Coreq., MUSI 1320 A systematic study of music composition procedures, form, and style during the Period of Common Practice.

MUSI 1320 MUSIC SKILLS I (1) LEC. 3 Coreq., MUSI 1310 Development of keyboard and sight singing skills with an understanding of basic harmonic practices.

MUSI 1410 MUSIC THEORY II (2) LEC. 2 Pr., MUSI 1310 A systematic study of music composition procedures, form, and style during the Period of Common Practice. For music majors and minors. Normally taken with Music Skills II, Pr., departmental approval.

MUSI 1420 MUSIC SKILLS II (1) LEC. 3 Pr., MUSI 1320 Development of aural, keyboard, and sight- singing skills with an understanding of basic harmonic practices. For music majors and minors. Normally taken concurrently with Music Theory II, Pr., departmental approval.

MUSI 2010 GUITAR AND STRINGS SKILLS (1) LEC. 2 Pr., MUSI 1310 Class instruction and practice in the rudiments of music performance of fretted and unfretted string instruments such as guitar, violin, viola, cello and string bass.

MUSI 2040 FUNCTIONAL PIANO I (1) LEC. 2 Pr., MUSI 1030 MUSI 2040 is not a prerequisite for 2050. Development of functional piano skills for use in classroom, rehearsal or studio. Or departmental approval.

MUSI 2050 FUNCTIONAL PIANO II (1) LEC. 2 Pr., MUSI 1030 MUSI 2040 is not a prerequisite for 2050. Development of functional piano skills for use in classroom, rehearsal or studio or departmental approval.

MUSI 2310 MUSIC THEORY III (2) LEC. 2 Pr., MUSI 1410 and MUSI 1320 A systematic study of music composition procedures, form and style from the advent of chromaticism through the music of the late 19th century. Departmental approval.

MUSI 2320 MUSIC SKILLS III (1) LEC. 3 Pr., MUSI 1410 and MUSI 1420 Development of advanced aural, keyboard and sight-singing skills with the understanding of advanced harmonic practices.

MUSI 2410 MUSIC THEORY IV (2) LEC. 2 Pr., MUSI 1420 and MUSI 2310 A systematic study of music composition procedures, form, and style from the late 19th century through the music of the 20th century. Departmental approval.

MUSI 2420 MUSIC SKILLS IV (1) LEC. 3 Pr., MUSI 1420 and MUSI 2320 Development of advanced aural, keyboard, and sight-singing skills with the understanding of advanced harmonic practices. Or departmental approval.

MUSI 2730 APPRECIATION OF MUSIC (3) LEC. 3 Final Arts Core. An orientation in the art of listening. Outstanding composers and musical composition. No previous music training required.

MUSI 2737 HONORS APPRECIATION OF MUSIC (3) LEC. 3 Fine Arts Core. The art and folk musics of western and non-western cultures. No previous music training required.
MUSI 3070 WOODWIND INSTRUMENT SKILLS - FLUTE/CLARINET (1) LEC. 2 Admission to Teacher Education. Class instruction and practice in the rudiments of music as applied to flute and clarinet or departmental approval.

MUSI 3050 BRASS INSTRUMENT SKILLS - LOW BRASS (1) LEC. 2 Admission to Teacher Education. Class instruction and practice in rudiments of music as applied to trombone, tuba and other low-brass instruments or departmental approval.

MUSI 3060 WOODWIND INSTRUMENT SKILLS - DOUBLE REEDS/SAXOPHONE (1) LEC. 2 Admission to Teacher Education. Class instruction and practice in the rudiments of music as applied to double-reed instruments and saxophone or departmental approval.

MUSI 3030 VOCAL SKILLS (1) LEC. 1 Class instruction and practice in the rudiments of music as applied to vocal performance. Coreq.: Music Education major.

MUSI 3040 BRASS INSTRUMENT SKILLS - HIGH BRASS (1) LEC. 2 Admission to Teacher Education. Class instruction and practice in rudiments of music and pedagogy of trumpet and horn or departmental approval.

MUSI 3070 WOODWIND INSTRUMENT SKILLS - FLUTE/CLARINET (1) LEC. 2 Admission to Teacher Education. Class instruction and practice in the rudiments of music as applied to various percussion instruments.

MUSI 3510 MUSIC HISTORY I (3) LEC. 3 Pr., MUSI 1410 A study of the development of music from the earliest times through early 18th Century styles through recorded examples and readings.

MUSI 3520 MUSIC HISTORY II (3) LEC. 3 Pr., MUSI 1410 A study of the development of music from the early 18th century to the present day through lectures, recorded examples, and readings.

MUSI 3610 CHORAL CONDUCTING I (2) LEC. 2 Pr., MUSI 1410 Basic conducting technique and introduction to score reading and interpretation.

MUSI 3620 CHORAL CONDUCTING II (2) LEC. 2 Pr., MUSI 3610 Advanced conducting technique with practical experience in preparing choral groups for performance.

MUSI 3630 INSTRUMENTAL CONDUCTING I (2) LEC. 2 Pr., MUSI 1410 Basic conducting technique and introduction to score reading and interpretation.

MUSI 3640 INSTRUMENTAL CONDUCTING II (2) LEC. 2 Pr., MUSI 3630 Advanced conducting technique with practical experience in preparing instrumental groups for performance.

MUSI 3970 SPECIAL TOPICS IN MUSIC (3) LEC. 3 Study of substantive topics and issues in the discipline of music. Course may be repeated for a maximum of 6 credit hours.

MUSI 4000 SENIOR RECITAL (0) PRL. SJ. Pr., MUSAP 3220 or MUSAP 3620 or MUSAP 3630 Coreq., Registered in MUSAP (Applied Lessons) class. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a senior recital.

MUSI 4010 VOCAL PEDAGOGY (2) LEC. 2 Pr., MUSAP 2210 or MUSAP 2620 or MUSAP 2630 For prospective voice teachers. An intensive study of the materials and methods of voice training.

MUSI 4020 INSTRUMENTAL PEDAGOGY (2) LEC. 2 Pr., MUSAP 2210 or MUSAP 2620 or MUSAP 2630 or admission to Teacher Education. For prospective instrumental teachers. An intensive study of the material sand methods of teaching various brass, woodwind, string and percussion instruments.

MUSI 4030 PIANO PEDAGOGY (2) LEC. 2 A study of techniques, methods and experiences of former and current teachers to equip the student for future piano teaching or departmental approval.

MUSI 4040 MUSIC INSTRUMENTS REPAIR (1) LEC. 1 Selection, care and repair of woodwind, brass, and percussion instruments with emphasis on adjustments which should be made by the instrumental director.

MUSI 4090 MARCHING BAND TECHNIQUES (2) LEC. 2 Admission to Teacher Education. Fundamental methods and procedures of the marching band including study of computer-aided band charting or departmental approval.

MUSI 4100 ORCHESTRAL TECHNIQUES (2) LEC. 2 Fundamental methods and procedures of rehearsing the orchestra in areas of articulation, tone production, blend, balance, intonation, and musical expression.

MUSI 4110 CHORAL TECHNIQUES (2) LEC. 2 Methods and procedures of rehearsing choral groups in areas of diction, tone production, balance, blend, intonation, and musical expression.

MUSI 4400 INSTRUMENTAL ARRANGING (2) LEC. 2 Pr., MUSI 2410 Project course in arranging various instrumental combinations from quartet to symphonic band.

MUSI 4500 CHORAL ARRANGING (2) LEC. 2 Pr., MUSI 2410 Project course in arranging for various vocal combinations.

MUSI 4600 ORCHESTRATION (2) LEC. 2 Pr., MUSI 2410 Project course in arranging for various orchestral combinations.

MUSI 5520 CHORAL LITERATURE (2) LEC. 2 A chronological study of choral music from the Middle Ages to the present. Pr., departmental approval.

MUSI 5530 WIND BAND LITERATURE (2) LEC. 2 History of the development of the wind band and its literature from ca. 1500 to the present. Pr., departmental approval.

MUSI 6520/6526 CHORAL LITERATURE (2) LEC. 2 A chronological study of choral music from the Middle Ages to the present. Pr., departmental approval.

MUSI 7000/7006 GRADUATE CHORAL CONDUCTING I (3) LEC. 3 Registration in approved choral ensemble. Laboratory for the development of skills relating to conducting performances of traditional and modern choral works. Participation in an approved choral ensemble is required.

MUSI 7010/7016 GRADUATE CHORAL CONDUCTING II (3) LEC. 3 Registration in approved choral ensemble. Laboratory for the development of skills relating to conducting performances of traditional and modern choral works.

MUSI 7040/7046 GRADUATE INSTRUMENTAL CONDUCTING I (3) LEC. 3 Registration in approved instrumental ensemble. Laboratory for the development of skills relating to conducting performances of traditional and modern instrumental works for large ensembles.

MUSI 7050/7056 GRADUATE INSTRUMENTAL CONDUCTING II (3) LEC. 3 Registration in approved instrumental ensemble. Laboratory for the development of skills relating to conducting performances of traditional and modern instrumental works for large ensembles. Participation in an approved instrumental ensemble is required.

MUSI 7060/7066 BRASS INSTRUMENTS TECHNIQUES (1) LEC. 1 Registration in approved instrumental ensemble. Designed to work out specific problems with graduate students in furthering their knowledge of and skill on brass instruments.

MUSI 7070/7076 WOODWIND INSTRUMENTS TECHNIQUES (1) LEC. 1 Registration in approved instrumental ensemble. Designed to work out specific problems with graduate students in furthering their knowledge of and skill on woodwind instruments.

MUSI 7080/7086 PERCUSSION INSTRUMENTS TECHNIQUES (1) LEC. 1 Registration in approved instrumental ensemble. Designed to work out specific problems with graduate students in furthering their knowledge of and skill on various percussion instruments.

MUSI 7090/7096 SURVEY OF CHORAL LITERATURE (3) LEC. 3 Registration in approved choral ensemble. Detailed analysis of the styles, forms and performance practices of choral music of the Classic, Romantic, and Modern periods, working primarily with scores of representative works.

MUSI 7100/7106 CHORAL ARRANGING I (3) LEC. 3 Participation in an approved choral ensemble. Advanced arranging for various choral combinations.

MUSI 7110/7116 CHORAL ARRANGING II (3) LEC. 3 Pr., MUSI 7100 or MUSI 7106 Participation in an approved choral ensemble. Advanced arranging for various choral combinations.

MUSI 7120/7126 BAND ARRANGING I (3) LEC. 3 Participation in an approved band. Advanced arranging for various band organizations.

MUSI 7130/7136 BAND ARRANGING II (3) LEC. 3 Pr., MUSI 7120 or MUSI 7126 Participation in an approved band. Advanced arranging for various band organizations.

MUSI 7140 ORCHESTRAL ARRANGING I (3) LEC. 3 Participation in orchestra. Advanced arranging for the orchestra.

MUSI 7150 ORCHESTRAL ARRANGING II (3) LEC. 3 Pr., MUSI 7140 Participation in orchestra. Advanced arranging for the orchestra.

MUSI 7160 SEMINAR IN MUSIC HISTORY (2) SEM. 2 An in-depth study of different aspects of the history of music through historic research, analysis of music, and performance practice.

MUSI 7170 SEMINAR IN RENAISSANCE MUSIC (2) SEM. 2 Study of selected music of the Renaissance through history, analysis and performance practice.

MUSI 7180 SEMINAR IN BAROQUE MUSIC (2) SEM. 2 Study of selected Baroque music through history, analysis, and performance practice.

MUSI 7190 SEMINAR IN CLASSICAL MUSIC (2) SEM. 2 Study of selected Classical music through history, analysis, and performance practice.

MUSI 7200 SEMINAR IN ROMANTIC MUSIC (2) SEM. 2 Study of selected Romantic music through history, analysis, and performance practice.

MUSI 7210 SEMINAR 20TH-CENTURY MUSIC (2) LEC. 2 Study of selected 20th-Century music through history, analysis, and performance practice.

MUSI 7220 SEMINAR IN AMERICAN MUSIC (2) SEM. 2 Study of selected American music through history, analysis, and performance practice.

MUSI 7230/7236 ADVANCED FORMAL ANALYSIS (3) LEC. 3 Advanced formal analysis of standard music literature.

MUSI 7250/7256 WIND BAND LITERATURE II (3) LEC. 3 History of the development of the wind from 1950 to present. Advanced analysis of Grade 4–6 wind band literature. Credit will not be given for both MUSI 7250 and MUSI 7256. Coreq., Enrollment in Graduate Instrumental Ensemble.

MUSI 7260 TECHNIQUES OF PRIVATE INSTRUMENTAL INSTRUCTION I (2) LEC. 2 Analysis of various instrumental teaching methods and a supervised private teaching experience.

MUSI 7270 TECHNIQUES OF PRIVATE INSTRUMENTAL INSTRUCTION II (2) LEC. 2 Pr., MUSI 7260 Analysis of various instrumental teaching methods and a supervised private teaching experience.

MUSI 7280 TECHNIQUES OF PRIVATE VOCAL INSTRUCTION I (2) LEC. 2 Analysis of various vocal teaching methods and a supervised private teaching experience.

MUSI 7290 TECHNIQUES OF PRIVATE VOCAL INSTRUCTION II (2) LEC. 2 Pr., MUSI 7280 Analysis of various vocal teaching methods and a supervised private teaching experience.

MUSI 7300 INTRODUCTION TO GRADUATE RESEARCH IN MUSIC (2) RES. 2 Extensive examination of research materials (books, music, and recordings). Includes the preparation of an outline for a research paper.

MUSI 7400/7406 GRADUATE CHORAL ENSEMBLE (1) LEC. 1 Graduate-level choral ensemble for the study and performance of standard literature. 

MUSI 7410/7416 GRADUATE INSTRUMENTAL ENSEMBLE (1) LEC. 1 Graduate-level instrumental ensemble for the study and performance of standard literature.

MUSI 7500 THEORY REVIEW I (1) LEC. 1 A study of and practical application of harmonic practices from before the Period of Common Practice to the present day with emphasis on various theoretical approaches and analytical techniques. Credit will not be given to graduate students. Pr., departmental approval.

MUSI 7510 THEORY REVIEW II (1) LEC. 1 Continuation of MUSI 7500. Credit will not be given to graduate students. Pr., departmental approval.

MUSI 7540 VOCAL LITERATURE (2) LEC. 2 A study of the vocal literature from the Baroque to the present day. Pr., departmental approval.

MUSI 7550 KEYBOARD LITERATURE (2) LEC. 2 A study of keyboard repertoire from the Baroque to the present. Pr., departmental approval.

MUSI 7560 INSTRUMENTAL LITERATURE (2) LEC. 2 A study of the literature of the major performance instrument from its beginning to the present. Pr., departmental approval.

MUSI 7930/7936 DIREKTED STUDIES (1–6) IND. Independent study directed toward desired objectives related to student’s specific areas of interest and specialization. Includes evaluation at regular interval. Course may be repeated with change in topic. Pr., departmental approval. Course may be repeated for a maximum of 12 credit hours.

MUSI 7970/7976 SPECIAL TOPICS IN MUSIC (1–6) LEC. Provides an opportunity for graduate students and pursue cooperatively selected topics. Course may be repeated for a maximum of 12 credit hours.

MUSI 7980 QUALIFYING RECITAL (3) LEC. 3 Pr., MUAP 7810 Public recital of graduate level repertoire. Recital may include a lecture component.

MUSI 7990 GRADUATE CONCERT (1) LEC. 1 Performance and critique of a student’s work.

Naval Science (NAV)

Cpt. T. R. Williams - 844-4364

NAV 1011 NAVAL SCIENCE LABORATORY (0) LAB. 3 SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military instruction.

NAV 1020 SEAPower and Marine Affairs (3) LEC. 3 Coreq., NAVS 1021 Introduction to broad concepts, elements of naval history, sea power, and maritime affairs from past to present.

NAV 1021 NAVAL SCIENCE LABORATORY (0) LAB. 3 SU. Coreq., NAVS 1020 Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAV 2010 LEADERSHIP AND MANAGEMENT (3) LEC. 3 Fundamentals of leadership and management theory vital to the effectiveness of Navy/Marine Corps officers.

NAV 2011 NAVAL SCIENCE LABORATORY (0) LAB. 3 SU. Coreq., NAVS 2010 Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAV 2021 NAVAL SCIENCE LABORATORY (0) LAB. 3 SU. Coreq., NAVS 2060 Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAV 2060 NAVIGATION (3) LEC. 3 Coreq., NAVS 2021 Theory and principles of piloting involving the use of visual and electronic aids.

NAV 3011 NAVAL SCIENCE LABORATORY (0) LAB. 3 SU. Coreq., NAVS 3050 Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAV 3021 NAVAL SCIENCE LABORATORY (0) LAB. 3 SU. Coreq., NAVS 3060 Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAV 3030 EVOLUTION OF WARFARE (3) LEC. 3 Pr., NAVS 3011 or NAVS 3021 Forms of warfare practices to identify historical continuity and change in the evolution of warfare. Explores the impact of historical precedent, economic factors and technological change on politico-military thought and action.

NAV 3050 NAVAL SHIP SYSTEMS I (ENGINEERING) (3) LEC. 3 Coreq., NAVS 3011 Principles of ship design, construction, and stability. Introduction to thermo-dynamics and the steam cycle as applied to naval propulsion systems.

NAV 3060 NAVAL SHIP SYSTEMS II WEAPONS (3) LEC. 3 Coreq., NAVS 3021 Theory and employment of systems through a study of fundamental principles of sensor, tracking, computational, and weapons delivery subsystems.

NAV 4011 NAVAL SCIENCE LABORATORY (0) LAB. 3 SU. Coreq., NAVS 4050 Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAV 4020 LEADERSHIP AND ETHICS (3) LEC. 3 Pr., NAVS 2010 Integrates an intellectual exploration of Western moral traditions and ethical philosophy with a variety of topics, such as military leadership, core values, and professional ethics. Departmental approval.

NAV 4021 NAVAL SCIENCE LABORATORY (0) LAB. 3 SU. Coreq., NAVS 4020 Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAV 4030 AMPHIBIOUS WARFARE (3) LEC. 3 Pr., NAVS 4011 or NAVS 4021 Historical survey of the development of amphibious doctrine and the conduct of amphibious operations. Emphasis on the evolution of amphibious warfare in the 20th century.

NAV 4050 NAVAL OPERATION AND SEAMANSHIP (3) LEC. 3 Coreq., NAVS 4011 Inland and International law governing maritime operations, communication procedures, and other naval/maritime operational procedures.

Nutrition and Food Sciences (NUFS)

Dr. Doug White - 844-3266

NUFS 2000 NUTRITION AND HEALTH (3) LEC. 3 Principles of human nutrition and food choices related to the health of individuals.

NUFS 2007 HONORS NUTRITION AND HEALTH (3) LEC. 3 Principles of human nutrition and food choices related to the health of individuals. Topics similar to NUFS 2000 but covered in greater depth with classroom discussion of controversial topics. Credit will not be given for both NUFS 2000 and NUFS 2007.

NUFS 2010 BASIC SPORTS NUTRITION (3) LEC. 3 Pr., (BIOL 1020 or BIOL 1027) or (NUFS 2000 or NUFS 2007) An introductory course on the relationship between nutrition and sports performance. Topic areas to be covered include energy, carbohydrates, protein/amino acids, fluids, vitamins, minerals, body weight and supplement use as they directly relate to sports performance.

NUFS 2050 SCIENCE OF FOOD (4) LEC. 3, LAB. 3 Pr., (NUFS 2000 or NUFS 2007) and CHEM 1050 and (BIOL 1020 or BIOL 1027) Basic chemical and biological principles of food and food preparation methods, concepts of food quality, nutrition, sanitation, processing and food laws. Departmental approval.

NUFS 2070 INTRODUCTION TO DIETETICS AND NUTRITION (1) LEC. 1 Pr., NUFS 2000 or NUFS 2007 Overview of professional roles and responsibilities in dietetics and nutrition with emphasis on professional development and conduct. Spring. Pr., departmental approval.

NUFS 3040 FOOD SYSTEMS OPERATIONS (2) LEC. 2 Pr., NUFS 2050 Principles for managing resources required in planning, purchasing, preparing and serving high quality food in food service operations. Fall.

NUFS 3041 FOOD SYSTEMS OPERATIONS LABORATORY (0) LAB. 4 Cr., NUFS 3040 Laboratory experience in food service operations. Food safety certification is included. Pr., TB test.

NUFS 3380 STUDY ABROAD OPPORTUNITIES IN HUMAN SCIENCES (1) LEC. 1 Exploration of study abroad opportunities for students interested in the International Minor in Human Sciences.

NUFS 3620 COMMUNITY NUTRITION (3) LEC. 2 Pr., NUFS 2000 or NUFS 2007 Study of populations at nutrition risk, population-specific public health nutrition problems, and health care system programs. Fall.

NUFS 3720 NUTRITIONAL ASSESSMENT (2) LEC. 1, LAB. 2 Pr., BCHE 3180 and NUFS 2000 or NUFS 2007. Identification and comparison of techniques for evaluating nutritional status including dietary intake, anthropometry and biochemical indices. Spring.

NUFS 3940 COMMUNITY SERVICE IN NUTRITION AND FOOD SCIENCE (0-9) LEC. 1, LAB. 6 Application of NUFS-related knowledge to real-life situations through participation in directed community service experiences. A) food science;
B) nutrition; C) hospitality; D) general NUFS. Pr., departmental approval. Course may be repeated for a maximum of 9 credit hours.

NUFS 4090 PROFESSIONAL ISSUES IN DIETETICS AND NUTRITION (1) LEC. 1 Pr., NUFS 2070 Professional issues and trends affecting dietetics and nutrition practice; planning for professional advancement; includes externship. Fall. Senior Standing.

NUFS 4290 PROFESSIONAL DEVELOPMENT IN FOOD SCIENCE (1) LEC. 1 Preparing for careers; enhancing computer and communication skills; planning for professional advancement. Spring. Junior Standing.

NUFS 4400 FOOD PROCESSING (4) LEC. 3, LAB. 3 Pr., NUFS 2050 and BIOL 3200 Food processing procedures including heat and cold processes, concentration, irradiation, dehydration and fermentation.

NUFS 4410 EXPERIMENTAL FOOD SCIENCE (3) LEC. 2, LAB. 3 Pr., NUFS 2050 Functions and interactions of ingredients and food constituents, factors affecting food quality. Spring. Pr., NUFS major or departmental approval.

NUFS 4580 NUTRITION AND FOOD SCIENCE: A GLOBAL PERSPECTIVE (2) LEC. 2 Pr., NUFS 2000 or NUFS 2070 Cultural and social factors affecting food habits and nutritional status of populations throughout the world. Pr., departmental approval.

NUFS 4820 MACRONUTRIENTS (3) LEC. 3 Pr., NUFS 2000 or NUFS 2070 and BIOL 3160 and BIOL 2510 Physiological and biochemical basis for energy-yielding nutrients; structure, function, dietary requirements, digestion, absorption, transport and metabolism of macronutrients. Spring.

NUFS 4830 VITAMINS AND MINERALS (3) LEC. 3 Pr., NUFS 2000 or NUFS 2070 and BIOL 3160 Metabolism, dietary needs, deficiency symptoms and food sources of vitamins and minerals in humans. Spring.

NUFS 4910 FOOD SCIENCE PRACTICUM (3) PRA. Practical experience in food industry, governmental laboratories, or other food science sites. Departmental approval. Junior Standing.

NUFS 4930 DIRECTED STUDIES (1-8) IND. Independent reading or research in a content area of special interest; supervised by a faculty member. Course may be repeated for a maximum of 8 credit hours. ADDITIONAL PREREQUISITES: Departmental approval. Course may be repeated for a maximum of 8 credit hours.

NUFS 4970 SPECIAL TOPICS (1-3) LEC. A) Nutrition, B) Food Science, C) Hotel and Restaurant Management. A course offering unique or current issues not covered in a regularly scheduled course. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

NUFS 4980 UNDERGRADUATE RESEARCH AND STUDY (1-9) AAB. SJ. Directed research under faculty supervision. Course may be repeated for a maximum of 9 credit hours. Departmental approval.

NUFS 4997 HONORS THESIS (1-3) IND. SJ. Research in specialized topics. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

NUFS 5020 MEDICAL NUTRITION I (3) LEC. 3 Pr., NUFS 3720 and NUFS 4820 and NUFS 4830 Application of nutrition principles to the pathophysiological and biochemical changes associated with endocrine, cardiovascular and gastrointestinal tract diseases. Credit will not be given for both NUFS 5020 and NUFS 6020. Fall. Pr., departmental approval.

NUFS 5030 MEDICAL NUTRITION II (3) LEC. 3 Pr., NUFS 5020 Application of nutrition principles to the pathophysiological and biochemical changes associated with sepsis, burns, and trauma as well as renal, respiratory and immune system diseases. Credit will not be given for both NUFS 5030 and NUFS 6030. Spring. Pr., departmental approval.

NUFS 5380 STUDY/TRAVEL IN NUTRITION AND FOOD SCIENCES (1-4) AAB/FLD. Concentrated study in nutrition, food science, or hotel and restaurant management in the US or international locations. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

NUFS 5430 FOOD CHEMISTRY (4) LEC. 3, LAB. 3 Pr., BIOL 3180 Chemistry of food components; chemical and physical changes of food during processing and storage. Credit will not be allowed for both NUFS 5430 and NUFS 6430. Spring. Pr., departmental approval.

NUFS 5450 FOOD ANALYSIS AND QUALITY CONTROL (4) LEC. 3, LAB. 3 Pr., NUFS 5430 Principles and application of chemical and instrumental food analyses; quality control procedures. Credit will not be given for both NUFS 5450 and NUFS 6430. Fall. Pr., departmental approval.

NUFS 5560 NUTRITION AND FOOD SERVICE MANAGEMENT (4) LEC. 4 Pr., NUFS 3041 and ACCT 2910 Organization, management and marketing of food and nutrition service systems in health care facilities. Credit will not be given for both NUFS 5560 and NUFS 6560. Spring. Pr., departmental approval.

NUFS 5620 SPORTS NUTRITION (3) LEC. 3 Pr., BIOL 2510 and BCHE 3180 Relationships between energy, carbohydrates, proteins, fluids, vitamins, minerals, body weight, ergogenic aids and physical performance. Credit will not be given for both NUFS 5620 and NUFS 6620. Spring. Pr., departmental approval.

NUFS 5640 FOOD PRODUCT DEVELOPMENT (4) LEC. 2, LAB. 6 Pr., NUFS 5430 Food product development from concept to market. Credit will not be given for both NUFS 5640 and NUFS 6640. Spring. Pr., departmental approval.

NUFS 5770 FOOD PLANT SANITATION (4) LEC. 3, LAB. 3 Pr., BIOL 3200 Sanitary regulations and procedures for hazard control and quality assurance in food industry. Credit is not allowed for both NUFS 5770/6770 and NUFS 6776. Pr., departmental approval.

NUFS 5820 NUTRITION IN THE LIFE CYCLE (3) LEC. 3 Pr., NUFS 4830 Metabolic and clinical aspects of nutrition during key periods of the life cycle emphasizing pregnancy, infancy, adolescence and late adulthood. Credit will not be given for both NUFS 5820 and NUFS 6820. Fall. Departmental approval.

NUFS 6020 MEDICAL NUTRITION I (3) LEC. 3 Pr., NUFS 3720 and NUFS 4820 and NUFS 4830 Application of nutrition principles to the pathophysiological and biochemical changes associated with endocrine, cardiovascular, and gastrointestinal diseases. Credit will not be given for both NUFS 6020 and NUFS 5020. Fall. Pr., departmental approval.

NUFS 6030 MEDICAL NUTRITION II (3) LEC. 3 Pr., NUFS 6020 Application of nutrition principles to the pathophysiological and biochemical changes associated with sepsis, burns, and trauma as well as renal, respiratory and immune system diseases. Credit will not be given for both NUFS 6030 and NUFS 5030. Spring. Pr., departmental approval.

NUFS 6430 FOOD CHEMISTRY (4) LEC. 3, LAB. 3 Pr., BCHE 3180 Chemistry of food components; chemical and physical changes of food during processing and storage. Credit will not be given for both NUFS 6430 and NUFS 5430. Fall. Pr., departmental approval.

NUFS 6450 FOOD ANALYSYS AND QUALITY CONTROL (4) LEC. 3, LAB. 3 Pr., NUFS 4830 Principles and application of chemical and instrumental food analyses; quality control procedures. Credit will not be given for both NUFS 6450 and NUFS 5450. Fall. Pr., departmental approval.

NUFS 6550/6556 NUTRITION AND FOOD SERVICE MANAGEMENT (4) LEC. 4 Pr., NUFS 3041 and ACCT 2910 Organization, management and marketing of food and nutrition service systems in health care facilities. Credit will not be allowed for both NUFS 6550 and NUFS 5560. Spring. Pr., departmental approval.

NUFS 6620 SPORTS NUTRITION (3) LEC. 3 Pr., BIOL 2510 and BCHE 3180 Relationships between energy, carbohydrates, proteins, fluids, vitamins, minerals, body weight, ergogenic aids and physical performance. Credit will not be given for both NUFS 6620 and NUFS 5620. Spring. Pr., departmental approval.

NUFS 6640 FOOD PRODUCT DEVELOPMENT (4) LEC. 2, LAB. 6 Pr., NUFS 6430 Food product development from concept to market. Credit will not be given for both NUFS 6640 and NUFS 5640. Spring. Pr., departmental approval.

NUFS 6770/6776 FOOD PLANT SANITATION (4) LEC. 3, LAB. 3 Pr., BIOL 3200 Sanitary regulations and procedures for hazard control and quality assurance in food industry. Credit is not allowed for both NUFS 5770/6770 and NUFS 6776. Pr., departmental approval.

NUFS 6820 NUTRITION IN THE LIFE CYCLE (3) LEC. 3 Pr., NUFS 4830 Metabolic and clinical aspects of nutrition during key periods of the life cycle emphasizing pregnancy, infancy, adolescence and late adulthood. Credit will not be given for both NUFS 6820 and NUFS 5820. Fall. Departmental approval.

NUFS 7050/7056 METHODS OF RESEARCH (2) LEC. 2 Research methods and designs applicable to disciplines represented in nutrition and food science. Credit is not allowed for both NUFS 7050 and NUFS 7056. Spring. Pr., departmental approval.

NUFS 7060 CARBOHYDRATE CHEMISTRY AND FUNCTIONALITY IN FOODS (3) LEC. 3 Pr., NUFS 6430 Chemistry and functionality of sugars, starches and hydrocolloids as applied to food systems. Pr., departmental approval.

NUFS 7210 FOOD PROTEINS AND FATS (3) LEC. 3 Pr., NUFS 6430 Advanced theories and practices of food science in the areas of protein and fat. Pr., departmental approval.

NUFS 7290 LABORATORY METHODS IN FOOD SCIENCE AND NUTRITION (3) LEC. 2, LAB. 3 Modern laboratory techniques and instruments used in human nutrition and food science research. Pr., departmental approval.

NUFS 7500 MINERALS (2) LEC. 2 Sources, digestion, absorption, transport, function and metabolism of major and trace minerals in the human body. Fall. Pr., departmental approval.

NUFS 7510 VITAMINS (2) LEC. 2 Advanced study of metabolism, requirements, interactions and deficiencies of the fat and water soluble vitamins as related to humans. Fall. Pr., departmental approval.

NUFS 7520 MACRONUTRIENTS: INTEGRATION AND METABOLISM (4) LEC. 4 Advanced study of energy metabolism, digestion, absorption, transport and integrative metabolism of macronutrients. Spring.
Dr. Barbara Witt - 844-5665

NURS 1010 ORIENTATION TO NURSING (1) LEC. 1 SU. Introduction to the discipline of nursing as a career.

NURS 3320 APPLIED PHARMACOLOGY (2) LEC. 2 Pr., NURS 3710 and NURS 3610 and NURS 3510 and BIOL 4400 Interdependent role functions in the nursing management of clients receiving drug therapy.

NURS 3420 NURSING RESEARCH AND DATA MANAGEMENT FOR EVIDENCE BASED PRACTICE (2) LEC. 2 Pr., STAT 2010 or (STAT 2510 or STAT 2513) or STAT 2610 or STAT 3010 Beginning evaluation of current evidence and its application to nursing practice.

NURS 3510 FUNCTIONAL NURSING SKILLS (1) LEC. 1 Coreq., BIOL 4400 and NURS 3511 and NURS 3610 and NURS 3710 Core clinical skills used in nursing practice.

NURS 3511 FUNCTIONAL NURSING SKILLS LABORATORY (1) LAB. 3 SU. Coreq., BIOL 4400 and NURS 3510 and NURS 3610 and NURS 3710 Clinical application of core clinical skills used in nursing practice.

NURS 3530 HOLISTIC NURSING: MATERNAL/NEWBORN AND WOMEN'S HEALTH (3) LEC. 3 Pr., NURS 3720 and NURS 3420 and NURS 3320 Coreq., NURS 3531 and NURS 3630 Concepts and theories underlying the nursing care of the childbearing family and children with special needs.

NURS 3531 HOLISTIC NURSING: MATERNAL/NEWBORN AND WOMEN'S HEALTH LABORATORY (2) LAB. 6 SU. Pr., NURS 3720 and NURS 3420 and NURS 3320 Coreq., NURS 3530 and NURS 3630 Clinical application of concepts and theories underlying the nursing care of the childbearing family and children with special needs.

NURS 3610 HOLISTIC ASSESSMENT (3) LEC. 3 Concepts and theories underlying the health assessment of individuals across the life and in families and communities.

NURS 3611 HOLISTIC ASSESSMENT LABORATORY (3) LAB. 9 SU. Coreq., BIOL 4400 and NURS 3510 and NURS 3610 and NURS 3710 Clinical application of concepts and theories underlying the health assessment of individuals across the lifespan, and in families and communities.

NURS 3630 HOLISTIC NURSING: COMMUNITY MENTAL HEALTH NURSING (3) LEC. 3 Pr., NURS 3720 and NURS 3420 and NURS 3320 Coreq., NURS 3530 and NURS 3631 Theories and concepts related to nursing management of clients with chronic psychosocial and/or physiological impairments.

NURS 3631 HOLISTIC NURSING: COMMUNITY MENTAL HEALTH NURSING LABORATORY (2) LAB. 6 SU. Pr., NURS 3720 and NURS 3420 and NURS 3320 Coreq., NURS 3530 and NURS 3630 Clinical application of theories and concepts related to nursing management of clients with chronic psychosocial and/or physiological impairments.

NURS 3710 PROFESSIONAL NURSING CONCEPTS I (2) LEC. 2 Coreq., BIOL 4400 and NURS 3510 and NURS 3610 and NURS 3711 Evolution of principles basic to nursing practice in community and institutional environments. Emphasis on health promotion, nursing process, health care systems and critical thinking.

NURS 3711 PROFESSIONAL NURSING CONCEPTS LABORATORY I (1) LAB. 3 Coreq., NURS 3510 and NURS 3511 and NURS 3610 and NURS 3611 and NURS 3710 An introductory course in computer applications is designed to foster attainment of knowledge, skills, and attitudes for beginning a successful career as a nurse in a computerized environment. Emphasis is given to the nursing application of information technology.

NURS 3720 PROFESSIONAL NURSING CONCEPTS II (6) LEC. 6 Pr., NURS 3710 and NURS 3610 and NURS 3510 and BIOL 4400 Coreq., NURS 3320 and NURS 3420 and NURS 3721 Concepts and theories related to nursing management of commonly occurring health problems of children, adults, and older adults. Summer.

NURS 3721 PROFESSIONAL NURSING CONCEPTS II LABORATORY (4) LAB. 12 SU. Pr., NURS 3710 and NURS 3610 and NURS 3510 and BIOL 4400 Coreq., NURS 3320 and NURS 3420 and NURS 3721 Clinical application of concepts and theories related to nursing management of commonly occurring health problems of children, adults, and older adults. Summer.

NURS 3810 ADVANCED HEALTH ASSESSMENT (2) LEC. Coreq., NURS 3811 and NURS 3831 Concepts and theories underlying health assessment of individuals, families, and communities across the lifespan. Summer.

NURS 3811 ADVANCED HEALTH ASSESSMENT CLINICAL (1) LAB. 2 SU. Coreq., NURS 3610 Clinical application of concepts and theories underlying health assessment of individuals, families, and communities across the lifespan. Summer.

NURS 3830 NURSING RESEARCH AND DATA MANAGEMENT (2) LEC. Explore the research process as the systematic means for contributing to research.

NURS 3831 COMPUTER IN NURSING (1) LEC. 2 SU. An introductory course in computer applications designed to foster the attainment of knowledge skills and attitudes for beginning a successful career as a nurse in a computerized healthcare environment. Emphasis is given to the nursing application of information technology.

NURS 3840 TRANSITION TO PROFESSIONAL NURSING I (4) LEC. Coreq., NURS 3831 and NURS 3841 Concepts and theories underlying professional nursing practice, self-management and personal growth. Summer.

NURS 3841 TRANSITION TO PROFESSIONAL NURSING I CLINICAL (2) LEC. 4 SU. Coreq., NURS 3831 and NURS 3840 Application of concepts and theories of professional nursing practice and self-management skills growth.

NURS 3880 ACCELERATED PROFESSIONAL NURSING CONCEPTS II (7) LEC. 7 Pr., NURS 3710 and NURS 3610 and NURS 3510 and BIOL 4400 Coreq., NURS 3320 and NURS 3881 Concepts and theories related to nursing management of commonly occurring health alterations in children, adults, older adults, and childbearing families.

NURS 3881 ACCELERATED PROFESSIONAL NURSING CONCEPTS II LABORATORY (6) LAB. 18 SU. Pr., NURS 3710 and NURS 3610 and NURS 3510 and BIOL 4400 Coreq., NURS 3320 and NURS 3880 Clinical application of concepts and theories related to nursing management of commonly occurring health alterations in children, adults, older adults, and childbearing families.

NURS 3930 DIRECTED STUDIES IN NURSING (1-5) IND. Directed individual study plan designed for students out of sequence in the professional nursing curriculum. Topics and activities will relate to the point in the curriculum in which the student was unsuccessful in the professional nursing curriculum. May not substitute for professional elective.

NURS 3940 SPECIAL TOPICS IN NURSING (3) LEC. 3 Focused study plan designed for students who are out of sequence in the professional nursing curriculum. Course may be repeated for a maximum of 6 credit hours.

NURS 3970 SPECIAL TOPICS IN NURSING (3) STU. 3 Focused study plan designed for students who are out of sequence in the professional nursing curriculum. Course may be repeated for a maximum of 6 credit hours.

NURS 4110 CHILDREN WITH CHRONIC ILLNESS (3) LEC. 3 Theories and concepts of care of children with special needs and/or chronic health problems. Pr., departmental approval.

NURS 4120 CAMP NURSING (2) LAB. 6 SU. Clinical experience in the care of children with chronic conditions in a camp setting.

NURS 4130 NURSING THE ART OF CARING (2) LEC. 2 Philosophical, social, and ethical principles inherent in the practice of professional nursing. Emphasis is on caring as a philosophy to guide clinical practice.

NURS 4140 CONTEMPORARY HEALTH ISSUES OF WOMEN (2) LEC. 2 Exploration of the health care delivery system as it pertains to women.

NURS 4150 HUMAN SEXUALITY IN HEALTH AND ILLNESS (2) LEC. 2 Human sexuality in relation to the health–illness continuum. Sexuality across the lifespan.

NURS 4160 SPIRITUAL PERSPECTIVES IN NURSING (2) LEC. 2 Use of the nursing process to help clients with various spiritual orientations meet spiritual needs.
Polymer and Fiber Engineering (PFEN)

Dr. Peter Schwartz - 844-4123

TEXTILE CHEMISTRY (TXCH)

TXCH 4350 ENVIRONMENTAL ASPECTS OF DYING AND FINISHING (1) LEC. 1 Pr., PFEN 3400 Principles of textile waste separation and treatment; biological wastewater treatment, toxicology; waste minimization measures.

TXCH 4410 ADVANCED DYING THEORY (4) LEC. 3, LAB. 3 Pr., PFEN 3400 Dye fiber bonding; thermodynamics and kinetics of dying; colorimetry and color systems.

TXCH 4810 SENIOR PROJECT I (1) IND. 1 Senior design project in the area of textile chemistry. Departmental approval.

TXCH 4820 SENIOR PROJECT II (1) IND. 1 Senior design project in the area of textile chemistry.

TXCH 4970 SPECIAL TOPICS (1-3) LEC. 1 Reading course with varying emphasis to give opportunity for overview in textile chemistry. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 12 credit hours.

POLYMER AND FIBER ENGINEERING (PFEN)

PFEN 2270 INTRODUCTION TO ENGINEERED FIBROUS MATERIALS (4) LEC. 4 Pr., ENGR 1110 The fundamentals of chemistry and engineering applied to fibrous assemblies illustrated using the properties required by end-use. Topics will include biomedical materials, architectural applications, cables, ropes, and tethers, composite materials, filtration fabrics, ballistic protection, and health-care products. Credit will not be given for both FBEN 2100 or 2250 and PFEN 2270.Pr., departmental approval.

PFEN 2500 BIOMEDICAL TEXTILES (3) LEC. 3 Pr., (CHEM 1010 or CHEM 1030 or CHEM 1110) Structure and properties of fibrous materials used in health-related applications. Applications of textiles in medical applications, bandages, surgical gowns, and dresses, arterial grafts, surgical nets, bone and dental cements, synthetic tendons, ligaments, and skin, super-absorbent materials, and prosthetic devices.

PFEN 3100 FUNDAMENTALS OF POLYMERS (3) LEC. 3 Pr., CHEM 2030 or CHEM 2070 Fundamentals of polymers: terminology, synthesis, structure, molecular weight, transitions of state, structure and uses.

PFEN 3200 POLYMER PROCESSING (4) LEC. 3, LAB. 3 Pr., PFEN 3100 Characteristics and flow properties of polymers, film and fiber extrusion, molding technologies, polymer material selection and processing.

PFEN 3300 FIBROUS PRODUCT TESTING AND INSTRUMENTATION (3) LEC. 2, LAB. 3 Pr., PFEN 2270 Theory and application of mechanical, physical and chemical measurement of fiber, yarn and fabric properties. Engineering principles of testing instrumentation. Fall.

PFEN 3400 FUNDAMENTALS OF COLORATION AND FINISHING (4) LEC. 3, LAB. 3 Pr., PFEN 3100 or PFEN 3500 The fundamental aspects of preparation, coloration and finishing processes of fibrous materials, process control and environmental aspects. Spring.

PFEN 3500 STRUCTURE AND PROPERTIES OF POLYMERS AND FIBERS (3) LEC. 3 Pr., PFEN 3100 Exploration of the relationships between the chemical structure, properties and uses of polymers and fibers. Emphasis on the importance of judicious material selection for particular end-use applications. Spring.

PFEN 4100 POLYMER CHARACTERIZATION (4) LEC. 3, LAB. 3 Pr., PHYS 1610 and PFEN 3500 Study of the major techniques for the physical characterization of polymers. Topics to be covered include molecular weight determination, spectrosopy (light, vibrational, nuclear magnetic resonance, electron spin resonance), X-ray diffraction, microscopy (light, electron), optical methods, and thermal analysis.

PFEN 4200 POLYMERS FROM RENEWABLE RESOURCES (2) LEC. 2 Pr., PFEN 3100 Fundamental aspects of natural, biodegradable polymers, including fibers, adhesives, films and coatings, their synthesis, their structure/properties relationships, and the microbiology of their degradation.

PFEN 4300 ENGINEERED FIBROUS STRUCTURES (4) LEC. 3, LAB. 3 Pr., PFEN 2270 Design and applications of high performance industrial fibrous structures for civil engineering, architecture and construction, filtration, medical, military and defense, pulp and paper industry, safety and protection, sports and recreation, transportation, agriculture and other industries. Fall.

PFEN 4400 MECHANICS OF FLEXIBLE STRUCTURES (3) LEC. 3 Pr., ENGR 2050 and ENGR 2070 Analysis of mechanical behavior and physical properties of flexible structures such as fibers, yarns and fabrics. The influence of geometric characteristics and physical properties on mechanical behavior. Fall.

PFEN 4500 FIBER REINFORCED MATERIALS (3) LEC. 3 Pr., ENGR 2050 and ENGR 2070 Material properties and manufacture of fiber reinforced materials; perform structures such as weaves and braids, analysis, design methodology and applications. Spring.

PFEN 4810 POLYMER AND FIBER ENGINEERING DESIGN I (3) LEC. 1, IND/LEC. 2 Tools and skills needed to conduct an engineering design project.

PFEN 4820 POLYMER AND FIBER ENGINEERING DESIGN II (3) IND. 3 Undergraduate senior design project, second semester.

PFEN 4970 SPECIAL TOPICS (1-3) IND. Reading course with varying emphasis to give opportunity for overview in specific areas of engineering and technology. Course may be repeated for a maximum of 12 credit hours. ADDITIONAL PREREQUISITES: Departmental approval. Course may be repeated for a maximum of 12 credit hours.

PFEN 5100 FABRICS FOR PAPER MAKING (3) LEC. 3 Design, analysis and applications of forming fabrics, press felts and dryer fabrics. Pr., departmental approval.

PFEN 5510 POLYMER CHEMISTRY (3) LEC. 3 Pr., CHEM 2030 and ENGR 2050 and (PHYS 1610 or PHYS 1617) Polymer chemistry including polymer synthesis, polymer characterizations, polymer classes, solubility and swelling, and structure/property relationships.

PFEN 5610 TEXTILE FINISHES (3) LEC. 2, LAB. 3 Pr., PFEN 3400 Theory, chemistry and mechanics of textile finishes. Coating and grafting. Pr., departmental approval.

PFEN 6100 FABRICS FOR PAPER MAKING (3) LEC. 3 Design, analysis and applications of forming fabrics, press felts and dryer fabrics. Spring. Pr., departmental approval.

PFEN 6250 ADVANCED ENGINEERING FIBROUS STRUCTURES (3) LEC. 3 Pr., PFEN 3300 Application of advanced technology to the design, development and analysis of high performance industrial textiles. Pr., departmental approval.

PFEN 6510 POLYMER CHEMISTRY (3) LEC. 3 Pr., CHEM 2030 and ENGR 2050 and (PHYS 1610 or PHYS 1617) Polymer chemistry including polymer synthesis, characterizations, classes, solubility and swelling, and structure/property relationships.

PFEN 6610 TEXTILE FINISHES (3) LEC. 2, LAB. 3 Pr., PFEN 3400 Theory, chemistry and mechanics of textile finishes. Coating and grafting. Pr., departmental approval.

PFEN 7100 INTEGRATED FIBER TO APPAREL QUALITY CONTROL (3) LEC. 3 Pr., TXMT 3520 Quality-related topics for integrated textile and apparel operations. Spring. Pr., departmental approval.

PFEN 7210 FABRIC FORMATION AND PROPERTIES (4) LEC. 3, LAB. 3 Pr., PFEN 4300 Advanced manufacturing process of fabric formation; fabric structure, geometry and mechanical properties; recent advances in theoretical and experimental fabric formation systems. Spring., Pr., departmental approval.

PFEN 7310 STRUCTURE AND PROPERTIES OF POLYMERS (4) LEC. 3, LAB. 3 Pr., CHEM 2030 The inter-relationships between chemical structure of a polymer, polymer properties and uses. Plastics, elastomers and fibers-synthesis and property requirements. Pr., departmental approval.

PFEN 7410 PHYSICAL CHEMISTRY OF DYEING (4) LEC. 3, LAB. 3 Pr., PFEN 3400 Thermodynamics and kinetics of dyeing systems; the laws of physical chemistry applied to dye/fiber interactions; color systems. Fall. Pr., departmental approval.

PFEN 7500 MECHANICS OF TEXTILE REINFORCED MATERIALS (3) LEC. 3 Pr., PFEN 4500 Design methods for textile reinforced materials, including micro and macro-mechanics, finite element analysis. Fall.

PFEN 7620 ADVANCED MECHANICS OF FLEXIBLE STRUCTURES (3) LEC. 3 Pr., PFEN 4400 Recent advances in modeling and analysis of mechanical behavior of flexible structures. Spring.

PFEN 7700 ADVANCED METHODS IN POLYMER CHARACTERIZATION (4) LEC. 4, LAB. 3 Pr., PFEN 6510 Important aspects and methods in polymer characterization. Pr., departmental approval.

PFEN 7910 POLYMER RHEOLOGY (3) LEC. 3, LAB. 3 Pr., PFEN 6510 Important aspects of elementary modern rheology. Pr., departmental approval.

PFEN 7950 GRADUATE SEMINAR (1) SEM. 1 SU. Presentation of departmental aspects and methods in polymer characterization. Pr., departmental approval.

PFEN 7970 SPECIAL TOPICS (3) LEC. 3 Analysis of current issues in the area of polymers and fibers. Course may be repeated for a maximum of 15 credit hours with a change of topic for each repeat. Course may be repeated for a maximum of 12 credit hours.

PFEN 7990 GRADUATE PROJECT (1-3) IND. In-depth work in a particular project in polymers and fibers. Course may be repeated for a maximum of 12 credit hours.

PFEN 7990 RESEARCH AND THESIS (1-10) MST. Required of all students seeking an advanced degree in the department. Course may be repeated with a change in topic. Pr., departmental approval. Course may be repeated with change in topics.
body problems.

Classical and modern texts on the phenomenology of consciousness and mind.

LEC. 3 Pr., PHIL 1000-1999 (Area II)

PHIL 3540 PHILOSOPHY OF MIND (3) Pr., PHIL 1000-1999 (Area II)
A survey of contemporary philosophical discussions of the nature of language.

PHIL 3600 POLITICAL PHILOSOPHY (3) Pr., PHIL 1000-1999 (Area I)
The political thought of both classical and contemporary thinkers, including Plato, Aristotle, Machiavelli, Hobbes, Locke, Mill, Spencer, Marx, Rawls, and Nozick.

PHIL 3640 PHILOSOPHY OF LAW (3) Pr., PHIL 1000-1999 (Area I)
The function of law, including judicial reasoning, ground of authority, natural law, legal responsibility, punishment, civil disobedience, and the relation of law to ethics.

PHIL 3660 APPLIED ETHICS (3) Pr., PHIL 1000-1999 (Area I)
Advanced philosophical study of the ethical issues that arise in such intellectual endeavors as law, business, military science, engineering, engineering, etc.

PHIL 3700 METAPHYSICS (3) Pr., PHIL 1000-1999 (Area I)
A critical analysis of such topics as monism and pluralism, freedom and determination, realism and nominalism, and the mind-body problem.

PHIL 3740 EXISTENTIALISM (3) Pr., PHIL 1000-1999 (Area II)
Selected works of such authors as Kierkegaard, Nietzsche, Sartre, Jaspers, and Heidegger.

PHIL 3970 SPECIAL TOPICS (3) Pr., PHIL 1000-1999 Topics vary. Course may be repeated for a maximum of 8 hours. Course may be repeated for a maximum of 6 credit hours.

PHIL 4110 METALOGIC (3) Pr., PHIL 3100 (Area IV) Soundness, completeness, and other metalogical results for propositional and predicate logics.

PHIL 4500 PHILOSOPHY OF SCIENCE (3) Pr., PHIL 3000-3999 (Area II)
Empirical meaning, verifiability, measurement, probability, causality and determinism.

PHIL 4540 PHENOMENOLOGY (3) Pr., PHIL 3000-3999 (Area II)
The phenomenological method and its application in the works of William James, Husserl, Heidegger, Sartre, and Merleau-Ponty.

PHIL 4620 MODERN ETHICAL THEORIES (3) Pr., PHIL 3000-3999 (Area II)
Recent analyses of the meanings, presuppositions, and problems of ethical terms and judgments.

PHIL 4700 PLATO (3) Pr., PHIL 3000-3999 (Area III) Plato's Methodology, epistemology, metaphysics, ethics, political theory.

PHIL 4750 ARISTOTLE (3) Pr., PHIL 3000-3999 (Area III) Aristotle's logic, epistemology, metaphysics, ethics, political theory, and psychology.

PHIL 4780 KANT AND TRANSCENDENTAL IDEALISM (3) Pr., PHIL 3000-3999 (Area III) The philosophy of Kant in particular but also of the early Fichte and Schelling, and of neo-Kantians.

PHIL 4960 SPECIAL PROBLEMS IN PHILOSOPHY (1-6) IND. Specific reading programs on a particular philosopher, period or problem. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

PHIL 4967 HONORS SPECIAL PROBLEMS IN PHILOSOPHY (1-3) IND. Reading programs on a philosopher, period or problem. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

PHIL 4970 SPECIAL TOPICS (3) Pr., PHIL 3000-3999 Advanced topics in ethics and value theory, metaphysics and epistemology, or history of philosophy. Emphasis on readings drawn from the contemporary, professional literature. Course may be repeated for a maximum of 9 credit hours.

PHIL 4997 HONORS THERESIE (1-3) IND. Senior thesis for students in the university Honors College. Course may be repeated for a maximum of 3 credit hours...

PHIL 5950 SEMINAR (1-3) SEM. The content will vary from movements of thought to an intensive study of one of the great thinkers. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

PHIL 5990 SEMINAR (1-3) SEM. The content will vary from movements of thought to an extensive study of one of the great thinkers. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

RELIGIOUS STUDIES (RELG)

RELG 1010 INTRODUCTION TO RELIGIOUS STUDIES (3) LEC. 3 Major themes in religion, including religious experience, religion and society and the diversity of religions. Examples from various religious traditions.

RELG 1020 INTRODUCTION TO THE HEBREW SCRIPTURES (3) LEC. 3 INTRODUCTION TO THE HEBREW SCRIPTURES Historical-critical study of the Hebrew Scriptures in their cultural setting. Emphasis on development of ancient Hebrew thought.


RELG 2020 THE CURRENT RELIGIOUS SCENE (3) LEC. 3 Religious themes and developments in contemporary American life.

RELG 2030 HISTORY OF CHRISTIANITY (3) LEC. 3 Development of Christianity from 100 C.B. to the present. Major personalities, events and movements.
RELG 3330 EASTERN RELIGIONS (3) LEC. 3 Hinduism, Buddhism and Confucianism with secondary attention to other Asian religions.

RELG 3340 WESTERN RELIGIONS (3) LEC. 3 Islam, Judaism and Christianity, with attention to Druze religion and Bah’i.

RELG 4350 20TH CENTURY RELIGIOUS THOUGHT (3) LEC. 3 Major 20th Century theologians: Protestant, Catholic, Jewish.

RELG 4960 SPECIAL PROBLEMS IN RELIGIOUS STUDIES (3) LEC. 3 A program of independent study on a special topic. Course may be repeated for a maximum of 6 credit hours.

RELG 4967 HONORS SPECIAL PROBLEMS (3) LEC. 3 Discuss readings on specialized topics in Religious Studies.

RELG 4970 SPECIAL TOPICS (3) LEC. 3 Course may be repeated with change in topic.

Physics (PHYS)

Dr. Joseph D. Perez - 844-4264

PHYS 1000 FOUNDATIONS OF PHYSICS (4) LEC. 3, LAB. 2 Science Core. Newton's Laws, momentum and energy, solids, liquids, gases, plasma, thermodynamics, electricity, magnetism, light, atomic and nuclear physics. Students who have previous credit in any higher-numbered physics course may not receive credit.

PHYS 1150 ASTRONOMY (4) LEC. 3, LAB. 3 Science Core. Open to non-science majors. Earth, the solar system, stars, neutron stars, black holes, supernova, galaxies, the expanding universe, and modern cosmological theories.

PHYS 1500 GENERAL PHYSICS I (4) LEC. 3, LAB. 3 Science Core. Introduction to Newton's Laws, gravitation and cosmology, concept of conservation laws, solids and fluids, thermodynamics. Math at level of MATH 1130 or higher is expected.

PHYS 1510 GENERAL PHYSICS II (4) LEC. 3, LAB. 3 Science Core. Electricity and magnetism, AC circuits, waves, nuclear physics, radioactivity and particle physics. Physics at the level of PHYS 1500 or higher is expected.

PHYS 1600 ENGINEERING PHYSICS I (4) LEC. 3, LAB. 3 Science Core. Introduction to Newton's Laws, gravitation, cosmology, conservation of energy, momentum and angular momentum, special relativity, and fluids using introductory calculus. Math at the level of MATH 1610 or higher is expected, at least concurrently.

PHYS 1607 HONORS PHYSICS I (4) LEC. 3, LAB. 3 Science Core. Honors version of PHYS 1600. Membership in the Honors College or Departmental approval required. Recommended for Physics majors. Math at the level of MATH1610 or higher is expected, at least concurrently.

PHYS 1610 ENGINEERING PHYSICS II (4) LEC. 3, LAB. 3 Science Core. Thermodynamics, electricity and magnetism, simple AC circuits, waves, and geometric optics. Physics at the level of PHYS 1600 or higher is expected. Math at the level of MATH 1620 or higher is expected at least concurrently.

PHYS 1617 HONORS PHYSICS II (4) LEC. 3, LAB. 3 Science Core. Honors version of PHYS 1610. Membership in the Honors College or Departmental approval required. Recommended for Physics majors. Math at the level of MATH1620 or higher is expected, at least concurrently. Physics at the level of PHYS 1600 or higher is expected.

PHYS 2100 INTERMEDIATE MECHANICS (3) LEC. 3 Pr., PHYS 1617 or PHYS 1610 Principles and applications of Newtonian mechanics, inertial reference frames, harmonic motion, central forces, rigid bodies, introduction to Lagrangian and Hamiltonian mechanics.

PHYS 2200 INTRODUCTORY QUANTUM PHYSICS AND RELATIVITY (3) LEC. 3, PHYS 1617 or PHYS 1610 Observational foundations of quantum physics, relativity and developments of several branches of physics up to their present frontiers.

PHYS 2300 PHYSICS LABORATORY SKILLS (2) LAB, 6 Pr., PHYS 1617 or PHYS 1610 The measurement process and its unavoidable uncertainties; standard laboratory instruments; data analysis techniques and tools.

PHYS 3100 INTERMEDIATE ELECTRICITY AND MAGNETISM (3) LEC. 3 Pr., (PHYS 1617 or PHYS 1610) and (MATH 2630 or MATH 2730) Electrostatics, Magnetostatics, Laplace's equation, boundary-value problems, multiple expansions, dielectric and magnetic materials. Faraday's law, AC circuits, and Maxwell's equations.

PHYS 3200 STATISTICAL THERMODYNAMICS (3) LEC. 3 Pr., PHYS 2200 The basic laws of thermodynamics, kinetic theory, and statistical mechanics including entropy, the partition function, free energy, and the quantum statistics of Fermions and Bosons.

PHYS 3500 PHYSICS OF THE WORLD AROUND US (3) LEC. 3 Interdisciplinary topic e.g., Biophysics, Astrophysics, Physics of Weather, Physics of Music, or Environmental Physics. Course may be repeated for a maximum of 12 credit hours.

PHYS 3501 PHYSICS OF THE WORLD AROUND US LABORATORY (1) LAB. 3 Laboratory course required for certain topics for PHYS 3500. One 3 hour session per week.

PHYS 4100 FUNDAMENTALS OF QUANTUM MECHANICS (3) LEC. 3 Pr., PHYS 2200 and MATH 2650 Schrodinger equation, stationary and time-dependent solutions, spin and the exclusion principle, perturbation theory, scattering and resonances, the interpretation of quantum mechanics.

PHYS 4200 FUNDAMENTAL EXPERIMENTS IN PHYSICS (2) LAB. 6 Pr., PHYS 2300 Experiments that demonstrate the fundamental ideas and facts of physics. Data will be collected, analyzed, interpreted and reported in comprehensive lab reports.

PHYS 4900 DIRECTED STUDIES (1-5) IND. SU. Student will investigate a topic of interest under the direction of a faculty member. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

PHYS 4900 DIRECTED STUDIES IN PHYSICS (1-5) IND. Student will study a topic of interest under the direction of a faculty member. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

PHYS 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

PHYS 4980 UNDERGRADUATE RESEARCH IN PHYSICS (1-5) IND. Student will work under the direction of a faculty member on a problem of mutual interest. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

PHYS 4997 HONORS THESIS (1-8) IND. Course may be repeated for a maximum of 6 credit hours. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

PHYS 5100 APPLICATIONS OF QUANTUM MECHANICS (3) LEC. 3 Pr., PHYS 4100 Quantum mechanics applied to atomic physics, solid state physics, nuclear physics, particle physics, electrodynamics, and cosmology.

PHYS 5500 FUNDAMENTALS OF PHYSICS (3) LEC. 3 A subject such as Wave Mechanics, Mathematical Physics, Nonlinear Dynamics, Optics, Nuclear Physics, Elementary Particles, Relativity, or Electrodynamics. Course may be repeated for a maximum of 12 credit hours.

PHYS 6000 FRONTIERS OF PHYSICS (3) LEC. 3 A subject from the research areas in the Department such as Solid State, Atomic, Plasma, Space, or Computational Physics will be selected by the lecturer. Course may be repeated for a maximum of 12 credit hours.

PHYS 6160 INTRODUCTION TO SOLID STATE PHYSICS (3) LEC. 3 Lattice vibrations, band description of electronic states in metals, semiconductors and insulators, and magnetic, superconducting and defect properties of solids.

PHYS 5620 SURVEY OF PLASMA PHYSICS (3) LEC. 3 Pr., PHYS 3100 Single particle motions: fluid description of a plasma; plasma waves and oscillations; kinetic description, diffusion, and resistivity; non-linear effects.

PHYS 6100 APPLICATIONS OF QUANTUM MECHANICS (3) LEC. 3 Quantum mechanics applied to atomic physics, solid state physics, nuclear physics, particle physics, electrodynamics, and cosmology.

PHYS 6500 FUNDAMENTALS OF PHYSICS (3) LEC. 3 A subject such as Wave Mechanics, Mathematical Physics, Nonlinear Dynamics, Optics, Nuclear Physics, Elementary Particles, Relativity, or Electrodynamics. Course may be repeated for a maximum of 12 credit hours.

PHYS 6600 FRONTIERS OF PHYSICS (3) LEC. 3 A subject from the research areas in the Department such as Solid State, Atomic, Plasma, Space, or Computational Physics will be selected by the lecturer. Course may be repeated for a maximum of 12 credit hours.

PHYS 6610 INTRODUCTION TO SOLID STATE PHYSICS (3) LEC. 3 Lattice vibrations, band description of electronic states in metals, semiconductors and insulators, and magnetic, superconducting and defect properties of solids.

PHYS 6620 SURVEY OF PLASMA PHYSICS (3) LEC. 3 Single particle motions: fluid description of a plasma; plasma waves and oscillations; kinetic description, diffusion, and resistivity; non-linear effects.

PHYS 7100 CLASSICAL MECHANICS (3) LEC. 3 Lagrangian and Hamiltonian formulations of mechanics, canonical transforms. Hamilton-Jacobi theories, action angle variables, rigid rotors, normal modes, and mechanics of continuous media.

PHYS 7200 ELECTRICITY AND MAGNETISM I (3) LEC. 3 Electrostatics, special function expansions, magnetostatics, linear media and Maxwell's equations.

PHYS 7250 ELECTRICITY AND MAGNETISM II (3) LEC. 3 Time dependent Maxwell theory, wave propagation and dispersion, diffraction, scattering, radiation, relativistic, covariance and applications.

PHYS 7300 QUANTUM MECHANICS I (3) LEC. 3 Schrodinger wave equation, discrete and continuous spectra, matrix formulation, perturbation theory.

PHYS 7350 QUANTUM MECHANICS II (3) LEC. 3 Time-dependent approximation methods, identical particles, relativistic wave equations, and second quantization.

PHYS 7400 STATISTICAL PHYSICS (3) LEC. 3 Thermodynamic quantities, equilibrium ensembles for classical and quantum systems, fluctuations, phase transitions and critical phenomena.
PLPA 5200 NONLINEAR DYNAMICS (3) LEC. 3. Dynamical systems, maps, flows, fixed points and neighborhoods, chaos, fractals and fractal dimensions. Lyapunov exponents, strange attractors, dissipative and Hamiltonian systems, controlling chaos.

PLPA 5740 NON-EQUILIBRIUM STATISTICAL MECHANICS (3) LEC. 3. Introduces the fundamental concepts of non-equilibrium statistical mechanics, develops basic transport theories, and simulates statistic properties with Monte-Carlo and molecular dynamic methods.

PLPA 7900 DIRECTED STUDIES (1-5) IND. SU. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 6 credit hours.

PLPA 7930 DIRECTED STUDIES (1-5) IND. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 6 credit hours.

PLPA 7950 PHYSICS COLLOQUIUM (1) SEM. SU. Offers a series of talks presented by invited speakers on broad fields of physics. Check with graduate advisor for credit allowed. Course may be repeated for a maximum of 6 credit hours.

PLPA 7970 SPECIAL TOPICS IN PHYSICS (1-5) SEM. Seminar or lecture series in a rapidly advancing specialty of physics. Course may be repeated for a maximum of 6 credit hours.

PLPA 7990 RESEARCH AND THESIS (1-10) MST. May be repeated as often as is appropriate.

PLPA 8100 RELATIVISTIC QUANTUM MECHANICS (3) LEC. 3. Dirac equation, 1D barrier scattering, 3D central potentials, S-matrix theory, Feynman diagrams, quantum electrodynamics, renormalization, tree and loop level problems.

PLPA 8200 INTRODUCTION TO ATOMIC PHYSICS (3) LEC. 3. Hydrogen atom, Hartree-Fock theory, radiative transitions, photoionization, autoionization, electron-atom scattering.

PLPA 8600 PLASMA PHYSICS (3) LEC. 3. A detailed study of plasma physics including particle orbit theory, magnetohydrodynamics, plasma waves and transport phenomena.

PLPA 8700 SOLID STATE PHYSICS (3) LEC. 3. Atomic and electronic structures of solids and the associated electrical, optical and transport properties.

PLPA 8900 DIRECTED STUDIES (1-5) IND. SU. Students will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 10 credit hours.

PLPA 8930 DIRECTED STUDIES IN ADVANCED PHYSICS (1-5) IND. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 10 credit hours.

PLPA 8970 SPECIAL TOPICS IN ADVANCED PHYSICS (1-5) LEC. Topic at the forefront of physics research will be chosen by the lecturer. Course may be repeated for a maximum of 10 credit hours. Pr.: departmental approval.

PLPA 8990 RESEARCH AND DISSERTATION (1-10) DSR. May be repeated as often as is appropriate.

Plant Pathology (PLPA)

Dr. Kathy Lawrence - 844-1956

PLPA 2000 PESTS, PATHOGENS, PARASITES, AND PEOPLE (3) LEC. 3. Past and present problems of pests and disease involving humans and the food chain.

PLPA 3000/3003/3004 GENERAL PLANT PATHOLOGY (4) LEC. 3, LAB. 2 Pr., BIOL 1030 Survey of plant diseases common in Alabama, including symptom recognition, pathogen biology and management of plant diseases. Course will not be given for both PLPA 3000 and PLPA 3003/3004.

PLPA 4900 DIRECTED STUDIES (1-3) IND. Departmental approval. Supervised work on a project in plant pathology. Areas of study are: A. Mycology; B. Nematology; C. Virology; D. Bacteriology; E. Extension and Clinic Experience; F. Cultural and chemical control, and disease forecasting.

PLPA 5050 PLANT DISEASE DIAGNOSIS (3) LEC. 1, LAB. 3 Pr., PLPA 3000 Approaches, techniques, and practical experience in diagnosis of plant diseases. Credit will not be given for both PLPA 5050 and PLPA 6050. Summer.

PLPA 5060 PLANT DISEASE MANAGEMENT (3) LEC. 3 Pr., PLPA 3000 Aspects of plant disease management including cultural practices, plant resistance, biological and chemical control, and disease forecasting. Credit will not be given for both PLPA 5060 and PLPA 6060. Spring.

PLPA 5200 INTRODUCTORY MYCOLOGY (4) LEC. 3, LAB. 2 Pr., BIOL 1030 A systematic survey of the fungi with emphasis on Morphology. Credit will not be given for both PLPA 5200 and PLPA 6200. Fall.

PLPA 5400 PLANT VIROLOGY (3) LEC. 3 Pr., PLPA 3000 Introduction to plant viruses and the diseases they cause; virus particle structure and replication strategies; disease identification by symptoms and detection of pathogen; transmission, ecology, epidemiology and control. Credit will not be given for both PLPA 5400 and PLPA 6400. Spring, even years.

PLPA 6050 PLANT DISEASE DIAGNOSIS (3) LEC. 1, LAB. 3 Pr., PLPA 3000 Experience with plant disease diagnosis procedures and the diagnosis of many common plant diseases. Summer.

PLPA 6060 PLANT DISEASE MANAGEMENT (3) LEC. 3 Pr., PLPA 3000 Aspects of plant disease management including cultural practices, plant resistance, biological and chemical control, and disease forecasting. Spring, odd years.

PLPA 6200 INTRODUCTORY MYCOLOGY (4) LEC. 3, LAB. 2 Pr., BIOL 1030 A systematic survey of the fungi with emphasis on morphology. Credit will not be given for both PLPA 5200 and PLPA 6200. Fall.

PLPA 6400 PLANT VIROLOGY (3) LEC. 3 Pr., PLPA 3000 Introduction to plant viruses and the diseases they cause; virus particle structure and replication strategies; disease identification by symptoms and detection of pathogen; transmission, ecology, epidemiology and control. Spring, even years.

PLPA 7080 FIELD SURVEY OF PLANT PATHOLOGY (3) LEC. 1, LAB. 6 Pr., PLPA 3000 Practical aspects of plant diseases under field conditions, on-site visits via field trips; discussion of experimental design for field research. Summer.

PLPA 7300 PLANT-BACTERIAL INTERACTIONS (4) LEC. 3, LAB. 2 Pr., BIOL 1030 Biochemical and molecular basis of plant-bacterial interactions, including colonization, pathogenesis, symbiotic and associative nitrogen fixation, and transformation. Fall.

PLPA 7500 PLANT NEMATOLOGY (3) LEC. 2, LAB. 2 Pr., BIOL 1030 The various roles of nematodes in relation to plant diseases, identification of plant nematodes; nature of pathogenicity; principles and practices of control; recent advances in phytomycology. Spring.

PLPA 7820 RESEARCH PROPOSAL WRITING (2) LEC. 2 Experience in all aspects of writing and reviewing competitive research proposals through a workshop format culminating in each student writing a proposal on research topics of their choosing. Fall.

PLPA 7860 PLANT DISEASE EPIDEMIOLOGY (3) LEC. 3 Pr., PLPA 3000 Aspects of plant disease epidemiology including disease assessment and temporal progress, pathogen spread, and yield loss determination. Spring.

PLPA 7851 PLANT DISEASE EPIDEMIOLOGY LABORATORY (2) LAB. 4 Cr., PLPA 7851 Quantitative aspects of plant disease epidemiology including spatial and temporal modeling, and disease system simulation.

PLPA 7900 DIRECTED STUDIES (1-3) IND. Departmental approval. Directed studies or projects, under the supervision of faculty, for understanding of topics beyond course requirements or due to special requirements. Course may be repeated for a maximum of 3 credit hours.

PLPA 7950 SEMINAR IN PLANT PATHOLOGY (1) SEM. 1 SU. Seminar presentations on current departmental research and current issues in plant pathology and related disciplines. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.

PLPA 7990 RESEARCH AND THESIS (1-10) MST. Research and thesis on problems in plant pathology. Course may be repeated with change in topic.

PLPA 8890 PHYSIOLOGICAL AND MOLECULAR PLANT PATHOLOGY (3) LEC. 2, LAB. 2 Pr., CHEM 6180 and BIOL 4230 Comprehensive coverage of physiology and molecular biology of plant-pathogen interactions. Spring.

PLPA 8950 SEMINAR (1) SEM. 1 SU. Presentations and discussion of scientific literature or dissertation research findings. Required for Ph.D. candidates. Course may be repeated for a maximum of 2 credit hours.

PLPA 8990 RESEARCH AND DISSERTATION (1-10) DSR. Research and dissertation on problems in plant pathology. Course may be repeated with a change in topic.

Political Science (POLI)

Dr. Gerry Gryski - 844-5370

HEALTH ADMINISTRATION (HADM)

HADM 2200 HEALTH POLICY (3) LEC. 3 Pr., POLI 1090 or POLI 2100 Political issues affecting health care services.

HADM 3300 INTRODUCTION TO HEALTH ADMINISTRATION (3) LEC. 3 Pr., POLI 1090 or POLI 1093 or POLI 1097 or POLI 2100 Basic concepts and principles of administration of health services organizations.

HADM 3700 HEALTH LAW (3) LEC. 3 Pr., POLI 1090 or POLI 1097 or POLI 1093 or POLI 2100 Legal issues that arise between patients and health care providers.

HADM 4000 DEVELOPING CARE ORGANIZATIONS (3) LEC. 3 Pr., HADM 2200 and HADM 3300 and MATH 1690 Organizational strategies for effective interfacing of medical, nursing, allied health and administrative staff with patient needs.
HADM 4100 FINANCE IN HEALTH ADMINISTRATION (3) LEC. 3 Pr., HADM 2200 and HADM 3300 and MATH 1690 and (ACCT 2110 or ACCT 2117) and (ACCT 2210 or ACCT 2217) Review of issues in reimbursement structures, regulatory mechanisms, cost control and related factors affecting administration of health service organizations.

HADM 4200 MANAGED CARE (3) LEC. 3 Pr., (HADM 2200 or HADM 3300) and MATH 1690 Basic concepts of managed care. State regulations, managed care models, physician's contracting, patient utilization and satisfaction.

HADM 4800 HEALTH ADMINISTRATION AND REGULATION (3) LEC. 3 Pr., HADM 2200 and HADM 3300 Government regulatory programs affecting administration of health services organizations.

HADM 4810 CHANGE IN HEALTH ADMINISTRATION (3) LEC. 3 Pr., HADM 2200 and HADM 3300 Changes in modern technology, cultural diversity, and governmental policies on the administration of health services organizations.

HADM 4820 LONG-TERM CARE ADMINISTRATION (3) LEC. 3 Pr., HADM 2200 and HADM 3300 Analysis of the components (e.g. nursing homes, home health care) of the long-term care system for the elderly.

HADM 4830 COMPARATIVE PUBLIC HEALTH CARE FINANCE (3) LEC. 3 Pr., HADM 2200 and HADM 3300 Comprehensive analysis of the financing, management and political structure of leading international health care systems.

HADM 4850 LONG-TERM CARE POLICY (3) LEC. 3 Pr., HADM 2200 and HADM 3300 Policy issues surrounding the provision of long-term care to the elderly.

HADM 4920 INTERNSHIP (6) INT. Internship in selected areas of Health Administration. Pr., GPA of at least 2.8 in HADM courses.

HADM 4930 DIRECTED STUDIES (1-3) IND. Directed studies in Health Administration. Course may be repeated for a maximum of 3 credit hours.

HADM 4950 CAPSTONE SEMINAR (3) LEC. 3 Pr., HADM 4000 Integrates knowledge from courses and internship; applies managerial and research skills to the completion of a research project and the organization of a research symposium.

HADM 4960 SPECIAL PROBLEMS IN HEALTH ADMINISTRATION (1-6) IND. Directed readings in Health Administration. Course may be repeated for a maximum of 6 credit hours.

HADM 4970 SPECIAL TOPICS (1-3) IND. Pr., HADM 2200 and HADM 3300 Selected topics in Health Administration. Course may be repeated for a maximum of 9 hours with change in topic. Course may be repeated for a maximum of 9 credit hours.

POLITICAL SCIENCE (POLI)

POLI 1020 POLITICAL ECONOMY (3) LEC. 2, LEC/RCT. 1 Social Science II Core. The two-way interaction between politics and the economy with special attention to contemporary issues of public policy.

POLI 1021 POLITICAL ECONOMY RECITATION (0) LEC. 2 Coreq., POLI 1020 Small group activities for POLI 1020.

POLI 1027 HONORS POLITICAL ECONOMY (3) LEC. 3 Social Science II Core. The two-way interaction between politics and the economy with special attention to contemporary issues of public policy.

POLI 1090/1093/1094 AMERICAN GOVERNMENT IN MULTICULTURAL WORLD (3) LEC. 3 American political institutions, processes and behavior in comparative context; with special attention to the ways in which cultural and social diversity in the U.S. has impacted its politics. Social Science II Core.

POLI 1097 HONORS AMERICAN GOVERNMENT IN MULTICULTURAL WORLD (3) LEC. 3 American Political Institutions, processes and behavior in comparative context; with special attention to the ways in which cultural and social diversity in the U.S. has impacted its politics. Social Science II Core.

POLI 2100 STATE AND LOCAL GOVERNMENT (3) LEC. 3 The organization and operation of American state and local governments, including their relationship to the U.S. federal system and their role in public policy issues.

POLI 3000 POLITICAL SCIENCE RESEARCH METHODS I (3) LEC. 3 Introduction to the basic concepts and methodology used in contemporary political analysis.

POLI 3010 POLITICAL SCIENCE RESEARCH METHODS II (3) LEC. 3 Pr., POLI 3000 Introduction to empirical research methods in political science with attention to data collection, retrieval, transformation and analysis.

POLI 3020 INTRODUCTION TO POLITICAL THEORY (3) LEC. 3 Selected major themes in political thought from ancient to modern times.

POLI 3030 AFRICAN-AMERICAN POLITICAL THOUGHT (3) LEC. 3 African-American political thought along with a theoretical framework that is reflective of the Black experience.

POLI 3090 INTRODUCTION TO INTERNATIONAL RELATIONS (3) LEC. 3 International relations, including a consideration of the bases of national power and the rudiments of international politics.

POLI 3100 INTRODUCTION TO WORLD AFFAIRS (3) LEC. 3 Contemporary international politics that evaluates foreign policy objectives and strategies of seven major countries and how their stability as sovereign states are affected.

POLI 3120 INTRODUCTION TO COMPARATIVE POLITICS (3) LEC. 3 Methods of classifying governments by institutional and developmental characteristics.

POLI 3140 AMERICAN FOREIGN POLICY (3) LEC. 3 Pr., POLI 1090 Analysis of the decision making process of American foreign policy and/or of selected current issues of American foreign policy.

POLI 3150 AMERICAN POLITICAL THOUGHT (3) LEC. 3 Pr., POLI 1090 or POLI 1093 or POLI 1097 The principal American political philosophers and philosophies and their influence on political institutions.

POLI 3160 NATIONAL SECURITY POLICY (3) LEC. 3 Pr., POLI 1090 or POLI 1093 or POLI 1097 Introduction to national security aspects of United States foreign policy.

POLI 3170 SOVIET AND POST-SOVIET FOREIGN POLICIES (3) LEC. 3 An analysis of Soviet foreign policy from 1917-1991, and an introduction to foreign policies of Russia and other post-Soviet successor states.

POLI 3180 LATIN AMERICA AND THE UNITED STATES (3) LEC. 3 An analysis of Latin American-United States relations in their political, social and economic aspects.

POLI 3190 INTERNATIONAL RELATIONS OF THE MIDDLE EAST (3) LEC. 3 A survey of contemporary issues in international relations, focusing on the Middle East.

POLI 3240 ADMINISTRATION OF JUSTICE (3) LEC. 3 An examination of the major components of the legal system that are responsible for the administration of public justice in the United States from a Political Science perspective.

POLI 3250 INTRODUCTION TO PUBLIC ADMINISTRATION (3) LEC. 3 Pr., POLI 1090 or POLI 1093 or POLI 1097 or POLI 2100 Administration in the public sector with particular emphasis on public administration as it exists in modern American Government.

POLI 3260 ORGANIZATION THEORY (3) LEC. 3 Pr., POLI 3250 Structure and function of governmental organizations with an emphasis on theories of administrative hierarchies and evaluation of bureaucracy.

POLI 3270 POLICY PROCESS (3) LEC. 3 The formulation and implementation of public policy; the roles of the major governmental institutions in policy making.

POLI 3290 THE AMERICAN PRESIDENCY (3) LEC. 3 Pr., POLI 1090 Examines political styles and personalities of recent presidents and presidential decision-making.

POLI 3300 LAW AND SOCIETY (3) LEC. 3 Introduction to how the law mediates some of the basic conflicts in society.

POLI 3310 THE LEGISLATIVE PROCESS (3) LEC. 3 Pr., POLI 1090 or POLI 1093 or POLI 1097 Principles, procedures and problems of lawmaking in the U.S.; special attention to Congress and the state legislatures.

POLI 3320 JUDICIAL PROCESS (3) LEC. 3 Pr., POLI 1090 or POLI 1093 or POLI 1097 A basic understanding of the structure and function of courts and the role of judges in all societies, but with a special focus on the American variation.

POLI 3330 ADMINISTRATIVE RESPONSIBILITY (3) LEC. 3 Pr., POLI 3250 Roles and functions of public administration in a democratic society. Emphasis on bureaucratic ethics.

POLI 3340 INTRODUCTION TO CONFLICT RESOLUTION (3) LEC. 3 Examines various methods of conflict resolution at various levels from the interpersonal to international.

POLI 3350 CONTROVERSIES IN CONSTITUTIONAL LAW (3) LEC. 3 This course examines the origins and influence of controversial Supreme Court decisions in such areas as religion, free speech, privacy, abortion, and criminal justice.

POLI 3360 FEDERAL JURISDICTION (3) LEC. 3 An introduction to the federal court system and federal jurisdiction under Article III.

POLI 3370 FEDERAL INDIAN LAW (3) LEC. 3 An introduction to the federal laws governing and regulating the relationship between tribal nations, on the one hand and the states and federal governments, on the other.

POLI 3390 EVIDENCE AND LEGAL REASONING (3) LEC. 3 An introduction to the rules governing the presentation of evidence at trial.

POLI 3390 RELIGION AND POLITICS (3) LEC. 3 An overview of the interaction of governmental institutions and religion.

POLI 3400 POLITICAL PARTIES AND INTEREST GROUPS (3) LEC. 3 Pr., POLI 1090 The nature, organization and operation of political parties in the United States; the suffrage; nominating and electoral processes; importance and nature of interest groups.

POLI 3410 POLITICAL PARTICIPATION (3) LEC. 3 Pr., POLI 1090 or POLI 1093 or POLI 1097 Political participation in the traditional and unconventional forms and the developing trends in citizen participation in recent years.

POLI 3420 POLITICS AND THE MEDIA (3) LEC. 3 Pr., POLI 1090 or POLI 1093 or POLI 1097 Influences of the media on political action, the electoral process and popular concepts of political institutions, “use” of the media and its regulation by government.
POLI 3430 JUSTICE AND SOCIETY (3) Lec. 3. Analysis of the major issues affecting legal policy from its historical beginnings to the present.

POLI 3510 THE EUROPEAN UNION (3) LEC. 3. Analysis of the complex mixture of historical, economic, and cultural phenomena that comprise the European Union.

POLI 3520 COMPARATIVE POLITICS OF THE MIDDLE EAST (3) LEC. 3. Domestic politics in the states of the Middle East.

POLI 3530 SOVIET AND POST-SOVIET POLITICS (3) LEC. 3 Survey and analysis of political institutions and domestic policies in the Soviet Union 1917-1991 and in post-Soviet successor states.

POLI 3540 EAST EUROPEAN POLITICS (3) LEC. 3 Survey and analysis of evolving political institutions and policies in Eastern and Central Europe under Communism and in the post-Communist period.

POLI 3550 GOVERNMENT AND POLITICS OF LATIN AMERICA (3) LEC. 3. Political environment, institutions and processes of Latin America emphasizing factors that influence the degree of democracy and authoritarianism, stability and instability, and political development.

POLI 3610 ASIAN POLITICS (3) LEC. 3. The politics of the leading nations in East Asia with major attention being devoted to China and Japan.

POLI 3710 ISSUES IN AMERICAN POLITICS (3) LEC. 3. Course may be repeated for a maximum of 6 credit hours. Topics in American Politics. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3720 ISSUES IN COMPARATIVE POLITICS (3) LEC. 3. Course may be repeated for a maximum of 6 credit hours. Topics in Comparative Politics. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3730 ISSUES IN INTERNATIONAL RELATIONS (3) LEC. 3. Course may be repeated for a maximum of 6 credit hours. Topics in International Relations. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3740 ISSUES IN POLITICAL THOUGHT (3) LEC. 3. Course may be repeated for a maximum of 6 credit hours. Topics in Political Thought. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3750 ISSUES IN PUBLIC ADMINISTRATION (3) LEC. 3. Course may be repeated for a maximum of 6 credit hours. Topics in Public Administration. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3760 ISSUES IN PUBLIC POLICY (3) LEC. 3. Course may be repeated for a maximum of 6 credit hours. Topics in Public Policy. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3770 ISSUES IN PUBLIC LAW AND CONFLICT RESOLUTION (3) LEC. 3. Course may be repeated for a maximum of 6 credit hours. Topics in Public Law & Conflict Resolution. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3980 UNDERGRADUATE RESEARCH (3) LAB. 3 Pr., POLI 1090 and POLI 3300 Supervisory learning concurrent with actual experience with Political Science Research. Course may be repeated for a maximum of 6 credit hours.

POLI 4010 CONSTITUTIONAL LAW: GOVERNMENT POWERS (3) LEC. 3. Constitutional law cases dealing with limited powers, separation of powers and federalism.

POLI 4020 CONSTITUTIONAL LAW: CIVIL LIBERTIES (3) LEC. 3 Constitutional law cases dealing with First Amendment freedoms.

POLI 4030 CONSTITUTIONAL LAW: CIVIL RIGHTS (3) LEC. 3. Supreme Court opinions defining voting rights, gender discrimination, race discrimination, age discrimination, affirmative action and the right to privacy.

POLI 4040 CONSTITUTIONAL LAW: CRIMINAL JUSTICE (3) Lec. 3. A focus on Supreme Court rulings related to the Fourth, Fifth, Sixth, and Eighth Amendments to the U.S. Constitution.

POLI 4050 AMERICAN LOCAL GOVERNMENT (3) LEC. 3 Pr., POLI 1090 or POLI 1093 or POLI 1097 or POLI 2100 The structure of local government, the roles and incentives of key elected and appointed officials, and the policy issues faced by those officials.

POLI 4090 URBAN ADMINISTRATION (3) LEC. 3 Pr., POLI 3250 Different aspects of urban administration such as decision making, political environment, budgeting, revenue systems and personnel administration.

POLI 4130 POLITICS OF THE ADMINISTRATIVE PROCESS (3) LEC. 3 Pr., POLI 3250 How public agencies and their employees at all levels of government survive and sometimes prosper within an intensely political environment.

POLI 4140 PUBLIC FINANCE (3) LEC. 3 Pr., POLI 3250 Theory and practice of public finance with an emphasis on applications in state and local government.

POLI 4160 PUBLIC PERSONNEL ADMINISTRATION (3) LEC. 3 Pr., POLI 3250 Responsibilities, challenges, and opportunities that confront modern public administration in the management of human resources.

POLI 4220 UNITED STATES POLITICAL ECONOMY (3) LEC. 3 Social, economic and political factors that affect America’s national competitiveness and what they portend for political life in the United States.

POLI 4340 CONTEMPORARY POLITICAL THEORY (3) LEC. 3 Pr., POLI 3200 Survey of post-World War II political philosophy, including neoclassicist, postmodernist, communitarian, and critical theories. A previous course in political theory is recommended but not required.

POLI 4700 POLITICS OF INTERNATIONAL ECONOMIC RELATIONS (3) LEC. 3. Political issues involved in the economic relationships among nation states.

POLI 4920 INTERNSHIP (1-6) INT. SU. Internship in selected areas of political science. Course may be repeated for a maximum of 6 credit hours.

POLI 4930 DIRECTED STUDIES (1-3) IND. Course may be repeated with change in topic.

POLI 4960 SOCIAL PROBLEMS (1-3) IND. Directed readings in Social Science: 1) American Politics; 2) Comparative Politics; 3) International Relations; 4) Political Theory; 5) Public Administration; 6) Public Policy; 7) Public Law; 8) Methodology. Course may be repeated with change in topic.

POLI 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Directed readings: 1) American Politics; 2) Comparative Politics; 3) International Relations; 4) Political Theory; 5) Public Administration; 6) Public Policy; 7) Public Law; 8) Methodology. Course may be repeated with change in topic.

POLI 4997 HONORS THESIS (1-3) IND. Course may be repeated for a maximum of 6 credit hours.

POLI 5150 INTERGOVERNMENTAL RELATIONS AND FEDERALISM (3) LEC. 3 Pr., POLI 3250 and POLI 2100 Provides a mid-level introduction to American federalism and the intergovernmental system, including theory, historical developments, major themes and emerging issues. Credit will not be given for both POLI 5150 and POLI 6150.

POLI 5170 ELECTION LAW (3) LEC. 3 Legal issues surrounding the election process within a democratic political system. Credit will not given for both POLI 5170 and DLI 6170.

POLI 5180 ADMINISTRATIVE LAW (3) LEC. 3 General nature of administrative law; types of administrative action and enforcement; analysis of rule-making and adjudication; administrative due process; judicial review. Credit will not be given for both POLI 5180 and DLI 6180.

POLI 5210 VOTING BEHAVIOR AND REPRESENTATION (3) LEC. 3. The causes of voting and vote choice and their consequences for the behavior of representatives. Credit will not be given for both POLI 5210 and DLI 6210.

POLI 5270 ELECTION ADMINISTRATION (3) LEC. 3. Elections and the shifting relationships among local, state, and federal governments. Credit will not be given for both POLI 5270 and DLI 6270.

POLI 5340 THEORY AND PRACTICE OF MEDIATION (3) LEC. 3 Theoretical and comparative perspective on conflict resolution with emphasis on the role of mediation in various societies. Credit will not be given for both POLI 5340 and DLI 6340.

POLI 5370 NONPROFIT MANAGEMENT (3) LEC. 3 Pr., POLI 3250 A comprehensive overview of the complex and diverse non-profit sector in the United States. Includes theory and practice of governance and key management functions.

POLI 5380 PUBLIC-PRIVATE MANAGEMENT (3) LEC. 3 Theory and practice of the roles of the public and private sectors in the provision, production and delivery of traditional public services. Credit will not be given for both POLI 5380 and DLI 6380.

POLI 5410 SOUTHERN POLITICS (3) LEC. 3. Introduction to the politics and government of the Southern region of the United States. Credit will not be given for both POLI 5410 and DLI 6410.

POLI 5510 ISSUES IN AMERICAN POLITICS (1-3) LEC. Course may be repeated for a maximum of 6 credit hours. Topics in American Politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5510 and DLI 6510. Course may be repeated for a maximum of 6 credit hours.

POLI 5520 ISSUES IN COMPARATIVE POLITICS (1-3) LEC. Course may be repeated for a maximum of 6 credit hours. Topics in Comparative Politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5520 and DLI 6520. Course may be repeated for a maximum of 6 credit hours.

POLI 5530 ISSUES IN INTERNATIONAL RELATIONS (1-3) LEC. Course may be repeated for a maximum of 6 credit hours. Topics in International Relations. Focus will vary according to the instructor. Credit will not be given for both POLI 5530 and DLI 6530. Course may be repeated for a maximum of 6 credit hours.

POLI 5540 ISSUES IN POLITICAL THOUGHT (1-3) LEC. Course may be repeated for a maximum of 6 credit hours. Topics in Political Thought. Focus will vary according to the instructor. Credit will not be given for both POLI 5540 and DLI 6540. Course may be repeated for a maximum of 6 credit hours.
POLI 5560 ISSUES IN PUBLIC POLICY (1-3) LEC. Course may be repeated for a maximum of 6 credit hours. Topics in Public Policy. Focus will vary according to the instructor. Credit will not be given for both POLI 5560 and 6560. Course may be repeated for a maximum of 6 credit hours.

POLI 5570 ISSUES IN PUBLIC LAW AND CONFLICT RESOLUTION (1-3) LEC. Course may be repeated for a maximum of 6 credit hours. Topics in Public Law & Conflict Resolution. Focus will vary according to the instructor. Credit will not be given for both POLI 5570 and POLI 6570. Course may be repeated for a maximum of 6 credit hours.

POLI 5610 WOMEN IN POLITICS (3) LEC. 3 An examination of the political role of women in American society. Credit will not be given for both POLI 5610 and POLI 6610.

POLI 5620 AFRICAN AMERICAN POLITICS (3) LEC. 3 Political values, theories, problems, issues and behavior relating to African-Americans in the United States. Credit will not be given for both POLI 5620 and POLI 6620.

POLI 6150 INTERGOVERNMENTAL RELATIONS AND FEDERALISM (3) LEC. 3 Provides a mid-level introduction to American federalism and the intergovernmental system, including theory, historical developments, major themes and emerging issues. Credit will not be given for both POLI 5150 and POLI 6150.

POLI 6170 ELECTION LAW (3) LEC. 3 Legal issues surrounding the election process within a democratic political system. Credit will not be given for both POLI 5170 and POLI 6170.

POLI 6180 ADMINISTRATIVE LAW (3) LEC. 3 General nature of administrative law; types of administrative action and enforcement; analysis of rule-making and adjudication; administrative due process; judicial review. Credit will not be given for both POLIS180 and POLI 6180.

POLI 6210 VOTING BEHAVIOR AND REPRESENTATION (3) LEC. 3 The causes of voting and vote choice and their consequences for the behavior of representatives. Credit will not be given for both POLI 6210 and POLI 5210.

POLI 6270 ELECTION ADMINISTRATION (3) LEC. 3 Elections and the shifting relationships among local, state, and federal governments. Credit will not be given for both POLI 5270 and POLI 6270.

POLI 6340 THEORY AND PRACTICE OF MEDIATION (3) LEC. 3 Theoretical and comparative perspective on conflict resolution with emphasis on the role of mediation in various societies. Credit will not be given for both POLI 6340 and POLI 5340.

POLI 6370 NONPROFIT MANAGEMENT (3) LEC. 3 A comprehensive overview of the complex and diverse non-profit sector in the United States. Includes theory and practice of governance and key management functions.

POLI 6380 SEMINAR IN PUBLIC-PRIVATE MANAGEMENT (3) LEC. 3 Theory and practice of the roles of the public and private sectors in the provision, production and delivery of traditional public services. Credit will not be given for both POLI 6380 and POLI 5380.

POLI 6410 SOUTHERN POLITICS (3) LEC. 3 Introduction to the politics and to a lesser extent government of the southern region of the United States. Credit will not be given for POLI 6400 and POLI 5410.

POLI 6510 ISSUES IN AMERICAN POLITICS (1-3) LEC. Course may be repeated for a maximum of 6 credit hours. Topics in American Politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5510 and 6510. Course may be repeated for a maximum of 6 credit hours.

POLI 6520 ISSUES IN COMPARATIVE POLITICS (1-3) LEC. Course may be repeated for a maximum of 6 credit hours. Topics in Comparative Politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5520 and 6520. Course may be repeated for a maximum of 6 credit hours.

POLI 6530 ISSUES IN INTERNATIONAL RELATIONS (1-3) LEC. Course may be repeated for a maximum of 6 credit hours. Topics in International Relations. Focus will vary according to the instructor. Credit will not be given for both POLI 5530 and 6530. Course may be repeated for a maximum of 6 credit hours.

POLI 6540 ISSUES IN POLITICAL THOUGHT (1-3) LEC. Course may be repeated for a maximum of 6 credit hours. Topics in Political Thought. Focus will vary according to the instructor. Credit will not be given for both POLI 5540 and 6540. Course may be repeated for a maximum of 6 credit hours.

POLI 6550 ISSUES IN PUBLIC ADMINISTRATION (1-3) LEC. Course may be repeated for a maximum of 6 credit hours. Topics in Public Administration. Focus will vary according to the instructor. Credit will not be given for both POLI 5550 and 6550. Course may be repeated for a maximum of 6 credit hours.

POLI 6560 ISSUES IN PUBLIC POLICY (1-3) LEC. Course may be repeated for a maximum of 6 credit hours. Topics in Public Policy. Focus will vary according to the instructor. Credit will not be given for both POLI 5560 and 6560. Course may be repeated for a maximum of 6 credit hours.

POLI 6570 ISSUES IN PUBLIC LAW AND CONFLICT RESOLUTION (1-3) LEC. Course may be repeated for a maximum of 6 credit hours. Topics in Public Law & Conflict Resolution. Focus will vary according to the instructor. Credit will not be given for both POLI 5570 and POLI 6570. Course may be repeated for a maximum of 6 credit hours.

POLI 6610 WOMEN IN POLITICS (3) LEC. 3 A theoretical, historical, social and political examination of the role of women in American society. Credit will not be given for both POLI 6610 and POLI 5610.

POLI 6620 AFRICAN-AMERICAN POLITICS (3) LEC. 3 The political values, structures and behavior of African-Americans in the United States. Emphasis on the theories, problems and issues relating to Black political behavior. Credit will not be given for both POLI 6620 and POLI 5620.

POLI 7000 RESEARCH METHODS (3) LEC. 3 Statistics and other quantitative techniques for the analysis of policy and for administrative decision making.

POLI 7050 STATE POLITICS (3) LEC. 3 Current and classical research on state government, politics, and policy. Students critique others' research and design their own for submission to a professional journal.

POLI 7130 POLITICS OF THE ADMINISTRATIVE PROCESS (3) LEC. 3 Public agencies and their employees at all levels of government and how they survive and sometimes prosper within an intense political environment. Credit will not be given for both POLI 7130 and POLI 4130.

POLI 7140 PUBLIC BUDGETING (3) LEC. 3 Comprehensive theoretical underpinning for research. Focuses on models associated with descriptive and prescriptive budgeting research.

POLI 7150 PUBLIC PERSONNEL ADMINISTRATION (3) LEC. 3 Personnel policies, processes and politics in American governments. Includes history, theory and practice.

POLI 7160 FINANCIAL ADMINISTRATION (3) LEC. 3 Application of macroeconomic theory to public finance; emphasizes capital budgeting, taxation, user charges, debt administration, cash management and investment for small governments.

POLI 7260 ORGANIZATIONAL THEORY AND ADMINISTRATIVE BEHAVIOR (3) LEC. 3 The structure and functioning of government organizations with an emphasis on applied management and on leadership techniques.

POLI 7330 SEMINAR IN ADMINISTRATIVE LEADERSHIP, RESPONSIBILITY, AND DEMOCRATIC (3) SEM. 3 Problems and ethics, democratic theory and leadership as they relate to public administration.

POLI 7350 SEMINAR IN PUBLIC ADMINISTRATION (3) SEM. 3 An introduction to public administration as practiced in the United States.

POLI 7360 SEMINAR IN POLICY AND ADMINISTRATION (3) SEM. 3 Formation, execution and evaluation of public policy and also an in-depth analysis of selected policy areas.

POLI 7520 PROGRAM EVALUATION (3) LEC. 3 Theory and practice of program evaluation in the public sector with attention to program planning, process assessment and impact assessment.

POLI 7630 DIVERSITY IN PUBLIC LIFE (3) LEC. 3 Developing and institutionalizing diversity in complex public organizations as a major part of organizational culture.

POLI 7700 ECONOMIC DEVELOPMENT AND COMPETITION (3) LEC. 3 Politics of economic development at the local, state and national level, especially the infrastructure offered by communities and the types of plans that might attract outside investment.

POLI 7920 MPA INTERNSHIP (3-6) INT. SU. Administrative experience in a governmental agency or participation in an approved governmental research project. Course may be repeated for a maximum of 6 credit hours.

POLI 7930 MPA RESEARCH PROJECT (3-6) IND. Requires the completion and approval of a paper related to a policy or administrative issue or problem. Course may be repeated for a maximum of 6 credit hours.

POLI 7960 SPECIAL PROBLEMS (1-3) IND. Directed readings in political science: 1) American Politics; 2) Comparative Politics; 3) International Relations; 4) Political Theory; 5) Public Administration; 6) Public Policy; 7) Public Law; 8) Methodology. Course may be repeated with change in topic.

POLI 8000 DOCTORAL SEMINAR IN PUBLIC ADMINISTRATION (3) LEC. 3 Explores the nature of public administration as a field of study and how different theoretical perspectives are reflected in current research.

POLI 8010 RESEARCH DESIGN AND ANALYSIS (3) LEC. 3 Development and testing of causal models in political/social science. Each student will develop a complex research design under the close supervision of the instructor.

POLI 8040 DOCTORAL SEMINAR IN PUBLIC POLICY (3) SEM. 3 Advanced study of the nature of public policy development and implementation.

POLI 8060 DOCTORAL SEMINAR IN PUBLIC POLICY ANALYSIS AND RESEARCH (3) SEM. 3 An examination of advanced policy analysis and research methodology and the relationship between evaluation and quantitative analysis and policy formulation and implementation.

POLI 8070 DOCTORAL SEMINAR IN HUMAN RESOURCE ADMINISTRATION IN THE PUBLIC SECTOR (3) SEM. 3 The major environmental values affecting public personnel administration and the major processes used in public personnel management.
POLI 8110 AMERICAN GOVERNMENT AND PUBLIC POLICY (3) LEC. 3 Survey of the literature on the main institutions and policy processes of American national government; strong emphasis on research design, methodology, and validity.

POLI 8120 QUALITATIVE RESEARCH METHODS (3) SEM. 3 Pr., POLI 8110 In-depth analysis of 5-6 of qualitative methods in Political Science research.

POLI 8130 QUANTITATIVE METHODS (3) LEC. 3 Pr., POLI 8110 In-depth analysis of the use of quantitative methods in Political Science research.

POLI 8260 PUBLIC ORGANIZATIONAL THEORY AND MANAGEMENT (3) SEM. 3 The development and refinement of research on administrative and organizational theory in public management. Credit will not be given for both POLI 7270 and POLI 8260.

POLI 8450 COMPARATIVE POLITICS AND PUBLIC POLICY (3) LEC. 3 Theoretical approaches and important sub-field literatures. Applies insights and approaches to solving practical contemporary problems in public policy.

POLI 8550 INTERNATIONAL RELATIONS AND PUBLIC POLICY (3) LEC. 3 Application of the scholarship in international relations to public policy with a focus on war, defense policy, and conflict management.

POLI 8650 POLITICAL THEORY AND PUBLIC POLICY (3) LEC. 3 A study of political theory in relation to concrete issues of public policy.

POLI 8750 PUBLIC LAW AND PUBLIC POLICY (3) LEC. 3 The role of the courts in public policy-making.

POLI 8970 SPECIAL TOPICS (3) LEC. 3 Directed study of topics of interest. Course may be repeated for a maximum of 9 credit hours.

POLI 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topic.

Poultry Science (POUL)

Dr. Donald Conner - 844-2639

POUL 1000 INTRODUCTION TO POULTRY SCIENCE (3) LEC. 2, LAB. 2 Introduction to the poultry species and their commercial production, physiology, nutrition and management. Fall.

POUL 2000 POULTRY AND EGG EVALUATION AND SELECTION (1) LAB. 1 A hands-on approach to poultry and egg evaluation based on the U.S. poultry and Egg guidelines and how to properly care for and handle the birds. Course may be repeated for a maximum of 4 credit hours. Fall and Spring.

POUL 3030 COMMERCIAL POULTRY PRODUCTION (4) LEC. 3, LAB. 3 The organization and management principles of the commercial poultry meat and egg production industries. Fall.

POUL 3060 POULTRY BREEDING, FERTILITY, AND HATCHABILITY (4) LEC. 3, LAB. 2 Pr., BIOL 1030 or BIOL 1037 Breeding systems used in developing modern breeds of poultry. Genetic, physiological and environmental factors affecting fertility, embryonic development, and hatch ability. Spring.

POUL 3150 POULTRY PHYSIOLOGY (4) LEC. 3, LAB. 2 Pr., BIOL 1030 or BIOL 1037 The physiological principles and characteristics of poultry species which directly interact with commercial management systems. Spring.

POUL 4100 SUPERVISED INVESTIGATION (1-4) IND. Pr., Departmental approval. Advanced independent investigation in major field of poultry or avian science. Requirements include review of literature, successful and timely completion of research project, and presentation of results in written and/or oral report. Course may be repeated for a maximum of 8 credit hours. Course may be repeated for a maximum of 8 credit hours.

POUL 4920 POULTRY SCIENCE INTERNSHIP (3) INT. SU. Departmental approval. Practical on-the-job training in the poultry industry. Course may be repeated for a maximum of 9 credit hours.

POUL 5050 POULTRY FEEDING (4) LEC. 3, LAB. 2 Pr., (BIOL 1030 or BIOL 1037) and BCHE 3200 The application of the principles of nutrition to poultry; the functions of individual nutrients, their deficiency symptoms and their supply in terms of feedstuffs and practical poultry diets. Credit will not be given for both POUL 5050 and POUL 6050. Fall.

POUL 5080/5083/5084 POULTRY HEALTH (3) LEC. 3 Pr., (BIOL 1030 or BIOL 1037) and BIOL 3200 or CHEM 2030 or CHEM 2070 Study of the prevention, diagnosis, control and treatment of economically important diseases of poultry. Credit will not be given for both POUL 5080 and POUL 6080. Spring. 5083/5084 Summer.

POUL 5110 POULTRY PROCESSING (3) LEC. 3 Pr., (BIOL 1030 or BIOL 1037) and POUL 3030 Commercial poultry processing and products technology. Credit will not be given for both POUL 5110 and POUL 6110. Fall.

POUL 5140 POULTRY FURTHER PROCESSING AND PRODUCTS (4) LEC. 3, LAB. 3 Pr., CHEM 2030 or CHEM 2070 The chemistry and processing techniques used in manufacturing further processed poultry products. Methods used to analyze poultry product safety and quality. “Hands on” experience with the commercial formulation, processing and analysis of further processed poultry products. Credit will not be given for both POUL 5140 and POUL 6140. Fall.

POUL 5150/5153 FOOD LAWS AND REGULATIONS (3) LEC. 3 Federal and state laws and regulations and case history affecting food production, processing, packaging, marketing and distribution of food and food productions. History of food law, enforcement of laws and regulations, legal research and regulatory agencies. Course is taught exclusively online. Credit will not be given for both POUL 5150 and POUL 6150.

POUL 5160 PRINCIPLES OF FOOD SAFETY (3) LEC. 2, LAB. 3 Pr., (BIOL 1030 or BIOL 1037) and (CHEM 2030 or CHEM 2070) Identification and control of foodborne hazards in foods of animal origin. Introduction to Hazard Analysis and Critical Control Points. Credit will not be given for both POUL 5160 and POUL 6160. Spring.

POUL 5730 SENSORY EVALUATION (3) LEC. 3 Pr., STAT 2510 History and methods of sensory testing of food products, factors affecting results. May count only one of the following: ANSC 5730, ANSC, 6730, POUL 5730, POUL 6730. Spring.

POUL 6050 ADVANCED POULTRY FEEDING (4) LEC. 3, LAB. 2 An advanced study and review of the literature on the application of the principles of nutrition to poultry; the functions of individual nutrients, their deficiency symptoms and their supply in terms of feedstuffs and practical poultry diets. Credit will not be given for both POUL 5050 and POUL 6050. Fall.

POUL 6080 ADVANCED POULTRY HEALTH (3) LEC. 3 An advanced study of the prevention, diagnosis, control and treatment of economically important diseases of poultry. Credit will not be given for both POUL 5080 and POUL 6080. Fall, even years.

POUL 6110 ADVANCED POULTRY PROCESSING (3) LEC. 3 An advanced study and review of poultry processing and products technology. Credit will not be given for both POUL 5110 and POUL 6110. Fall.

POUL 6140 POULTRY FURTHER PROCESSING AND PRODUCTS (4) LEC. 3, LAB. 3 The chemistry and processing techniques used in manufacturing further processed poultry products. Methods used to analyze poultry product safety and quality. “Hands-on” experience with the commercial formulation, processing and analysis of further processed poultry products. Credit will not be given for both POUL 5140 and POUL 6140. Spring.

POUL 6150/6156 FOOD LAWS AND REGULATIONS (3) LEC. 3 Federal and state laws and regulations and case history affecting food production, processing, packaging, marketing, and distribution of food and food productions. History of food law, enactment of laws and regulations, legal research and regulatory agencies. Course is taught exclusively online. Credit will not be given for both POUL 5150 and POUL 6150.

POUL 6160 ADVANCED PRINCIPLES OF FOOD SAFETY (3) LEC. 2, LAB. 3 An advanced study and literature review of the identification and control of foodborne hazards in foods of animal origin. Introduction to Hazard Analysis and Critical Control Points. Credit will not be given for both POUL 5160 and POUL 6160. Spring.

POUL 6730 SENSORY EVALUATION (3) LEC. 2, LAB. 2 Pr., STAT 2510 History and methods of sensory testing of food products, factors affecting results. May count one only of the following: ANSC 5730, ANSC, 6730, POUL 5730, POUL 6730. Spring.

POUL 7100 SUPERVISED INVESTIGATION (1-4) IND. Pr., 2.5 GPA. Departmental approval. Advanced independent investigation in major field of poultry or avian science. Requirements include review of literature, successful and timely completion of research project, and presentation of results in written and/or oral report. Course may be repeated for a maximum of 8 credit hours.

POUL 7990 RESEARCH AND THESIS (1-10) MST. Technical laboratory problems related to poultry. Course may be repeated with change in topic.

POUL 8100 GI SYSTEMS AND NUTRIENT UTILIZATION (3) LEC. 3 Pr., POUL 5050 Structure of feedstuffs and strategy in nutrient recovery from the gastrointestinal systems of fowl, swine, and ruminants.

POUL 8150 AVIAN PHYSIOLOGY (3) LEC. 3. Course in animal or human physiology. Physiology of organ systems of birds with emphasis on domestic fowl. Fall.

POUL 8160 LABORATORY TECHNIQUES IN MOLECULAR VIROLOGY (4) LEC. 1, LAB. 9 Pr., BIOL 5220 and BIOL 5230 Isolation, purification, and identification of viral nucleic acids and proteins. Credit will not be given for both POUL 8160 and CMBL 8160. Fall, odd years.

POUL 8620 ANAEROBIC BACTERIOLOGY (4) LEC. 2, LAB. 6 Pr., BIOL 6400 and CHEM 6180 Principles of basic pathogenic anaerobic bacteriology. Basic clinical methodology anaerobic bacterial identification, pathogenesis, current research and literature in anaerobic bacteriology.


POUL 8950 GRADUATE SEMINAR (1) SEM. 1 SU. Literature in poultry science or related field. Emphasis given to preparation, organization, and presentation of research materials by students and to reporting current literature in the field. Fall and Spring.

POUL 8960 SPECIAL PROBLEMS (1-4) IND. Pr. Departmental Approval. A) Nutrition, B) Physiology, C) Health, D) Microbiology, E)Processing, F) Product
Safety and Quality, G) Teaching, H) Immunonutrition. Course may be repeated with change in topic.

POUL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Technical laboratory problems related to poultry. Course may be repeated with change in topic.

Psychology (PSYC)
Dr. Daniel Suyantek - 844-6478

PSYC 2120 DEVELOPMENTAL PSYCHOLOGY (3) LEC. 3 Introduction to physical, cognitive, social and emotional development across the lifespan.

PSYC 2140 RESEARCH METHODS IN PSYCHOLOGY (4) LEC. 3, LAB. 1 Pr., STAT 2010 and PSYC 2020 Survey of the use of descriptive and experimental methods in psychology.

PSYC 2510 PSYCHOLOGY OF SEXUAL BEHAVIOR (3) LEC. 3 Pr., PSYC 2010 or PSYC 2017 Biological, social and psychological dimensions of human sexuality.

PSYC 2520 PSYCHOLOGY OF GENDER (3) LEC. 3 Pr., PSYC 2010 or PSYC 2017 or PSYC 1000 Biological, social and cultural determinants of gender similarities and differences.

PSYC 2530 DRUGS AND BEHAVIOR (3) LEC. 3 Introduction to the behavioral effects of drugs, including drug abuse and its treatment.

PSYC 3050 HISTORY OF IDEAS IN PSYCHOLOGY (3) LEC. 3 Pr., 2.3 GPA. (PSYC 2010 or PSYC 2017) Major events and ideas from ancient to modern times that comprise the history of psychology. Pr., 2.3 GPA.

PSYC 3500 APPLIED BEHAVIORAL SCIENCE (3) LEC. 3, LAB. 2 Pr., 2.3 GPA. PSYC 2010 Principles and procedures for management of human behavior. Fall, Spring. Pr., 2.3 GPA.

PSYC 3510 BEHAVIORAL NEUROSCIENCE (3) LEC. 3 Pr., 2.3 GPA. (PSYC 2010 or PSYC 2017) Exploration of the relationships between the brain and behavior. 2.3 GPA.

PSYC 3520 PSYCHOLOGY OF LEARNING (3) LEC. 3 Pr., 2.3 GPA. (PSYC 2010 or PSYC 2017) Phenomena involved in the acquisition of knowledge, skills, and patterns of action. Pr., 2.3 GPA.

PSYC 3530 SENSATION AND PERCEPTION (3) LEC. 3 Pr., 2.3 GPA. (PSYC 2010 or PSYC 2017) Study of perceptual phenomena and the structure and function of sensory systems. Pr., 2.3 GPA.

PSYC 3540 COGNITIVE PSYCHOLOGY (3) LEC. 3 Pr., 2.3 GPA. (PSYC 2010 or PSYC 2017) and PSYC 2140 Phenomena involved with thinking and remembering. Pr., 2.3 GPA.

PSYC 3550 PSYCHOLOGY AND CULTURE (3) LEC. 3 Pr., 2.3 GPA. Survey of the ways culture shapes, modifies and adds distinctiveness to human behaviors.

PSYC 3560 ABNORMAL PSYCHOLOGY (3) LEC. 3 Pr., 2.3 GPA. (PSYC 2010 or PSYC 2017) Exploration of our attempts to understand, explain and classify abnormal behavior patterns. Pr., 2.3 GPA.

PSYC 3570 THEORIES OF PERSONALITY (3) LEC. 3 Pr., 2.3 GPA. (PSYC 2010 or PSYC 2017 or PSYC 1000) Survey of selected classical and contemporary theories of personality. Pr., 2.3 GPA.

PSYC 3580 SOCIAL PSYCHOLOGY (3) LEC. 3 Pr., 2.3 GPA. (PSYC 2010 or PSYC 2017) Scientific study of how people think about, influence, and relate to one another. Pr., 2.3 GPA.

PSYC 3590 INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (3) LEC. 3 Pr., 2.3 GPA. (PSYC 2010 or PSYC 2017) Application of basic psychological principles and theories in the workplace. Pr., 2.3 GPA.

PSYC 3600 TRAINING AND SUPERVISION IN INDUSTRY (3) LEC. 3 Pr., 2.3 GPA. PSYC 2010 and PSYC 3050 The application of behavioral principles to problems common to the training and supervision of people in work organizations. Pr., 2.3 GPA.

PSYC 3610 SPORTS PSYCHOLOGY (3) SEM. 3 An inquiry into how motivation, emotion, personality, and other mind/body variables influence physiology and athletic performance. Seminar class includes applied exercises in emotional expression, stress and pain management, hypnosis, and diet and exercise challenges. Pr., 2.3 GPA.

PSYC 3610 SUPV RESEARCH EXP (3) LEC. 3 SU. Pr., 2.3 GPA. PSYC 2140 and STAT 2010 Supervised experience in research settings. Course may be repeated for a maximum of 6 credit hours.

PSYC 3940 EXPERIMENTAL LEARNING (3) PRA. 3 SU. Pr., 2.3 GPA. (PSYC 2010 or PSYC 2017) Supplementary instruction concurrent with experience in some field of work involving application of psychological perspectives to community life. Maximum of 3 hours may be used for PSYC major. Course may be repeated for a maximum of 6 credit hours. Pr., 2.3 GPA.

PSYC 3970 SPECIAL TOPICS IN PSYCHOLOGY (3) LEC. 3 Pr., 2.3 GPA. (PSYC 2010 or PSYC 2017) Theories, research and issues in contemporary psychology on selected topics. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval, 2.3 GPA

PSYC 4010 INTRODUCTION TO CLINICAL PSYCHOLOGY (3) LEC. 3 Pr., 2.3 GPA. (PSYC 2010 or PSYC 2017) and PSYC 3560 General introduction to the profession of clinical psychology focusing on techniques of assessment and intervention. Pr., 2.3 GPA.

PSYC 4020 ASSESSMENT IN CLINICAL PSYCHOLOGY (3) LEC. 3 Pr., 2.3 GPA. Survey of clinical methods of assessment including test construction and validation. Pr., 2.3 GPA.

PSYC 4080 HEALTH PSYCHOLOGY (3) LEC. 3 Pr., 2.3 GPA. (PSYC 2010 or PSYC 2017) and PSYC 3520 Psychological principles in health maintenance and health problems. Pr., 2.3 GPA.

PSYC 4110 INTRODUCTION TO DEVELOPMENTAL DISABILITIES (3) LEC. 3 Pr., 2.3 GPA. Psychological principles in the care and treatment of developmentally disabled persons. Pr., 2.3 GPA.

PSYC 4220 CHILD PSYCHOLOGY (3) LEC. 3 Pr., 2.3 GPA. Child psychology from a life-span developmental perspective, emphasizing social-emotional development in infancy. Pr., 2.3 GPA.

PSYC 4230 ADOLESCENT AND ADULT DEVELOPMENT (3) LEC. 3 Pr., 2.3 GPA. In-depth exploration of cognitive and social development of adolescents and adults. Pr., 2.3 GPA.

PSYC 4240 ADVANCED EXPERIMENTAL PSYCHOLOGY (3) LEC. 3 Pr., 2.3 GPA. In-depth study of one of the traditional areas of experimental psychology such as learning, cognitive or social. Course may be repeated for a maximum of 6 credit hours. Pr., 2.3 GPA.

PSYC 4250 PSYCHOLOGY OF CHOICE AND DECISION (3) LEC. 3 Pr., 2.3 GPA. In-depth treatment of the psychological science of choice (behavioral allocation) and decision-making. Pr., 2.3 GPA.

PSYC 4260 PSYCHOLOGY OF ADDICTIVE BEHAVIORS (3) LEC. 3 Pr., 2.3 GPA. Overview of various psychological features of addictive behaviors including alcohol and drug abuse, eating disorders, gambling and excessive sexual behavior. Pr., 2.3 GPA.

PSYC 4910 HUMAN SERVICE PRACTICUM (3) PRA. 3 SU. Pr., 2.3 GPA. (PSYC 2010 or PSYC 2017) and PSYC 3520 Supervised experience in service-delivery settings. May enroll only once. Pr., 2.3 GPA.

PSYC 4930 DIRECTED STUDIES (1-3) IND. Work under the direction of a faculty member on a psychological topic of mutual interest. Maximum of 6 hours may be used for PSYC major. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval, 2.3 GPA.

PSYC 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr., 2.3 GPA. Course may be repeated for a maximum of 3 credit hours. Pr., 2.3 GPA.

PSYC 4970 ADVANCED SPECIAL TOPICS IN PSYCHOLOGY (3) LEC. 3 Pr., 2.3 GPA. Topics assigned by course instructor. Pr., departmental approval, 2.3 GPA.

PSYC 4977 HONORS ADVANCED TOPICS IN PSYCHOLOGY (3) LEC. 3 Pr., 2.3 GPA. Topics assigned by course instructor. Pr., departmental approval, 2.3 GPA.

PSYC 4997 HONORS RESEARCH AND THESIS (1-3) IND. Research in specialized topics. Course may be repeated for a maximum of 6 credit hours. Pr., 2.3 GPA.

PSYC 5020 CHILD AND ADOLESCENT PSYCHOPATHOLOGY (3) LEC. 3 Pr., 2.3 GPA. (PSYC 2010 or PSYC 2017) Description, etiology and treatment of psychological disturbances in children and adolescents. Pr., 2.3 GPA.

PSYC 5610 BEHAVIORAL EFFECTS OF ENVIRONMENTAL CONTAMINANTS (3) LEC. 3 Pr., 2.3 GPA. Laboratory, occupational and epidemiological assessment of neurotoxic chemicals; risk analysis; developmental and policy considerations. Coverage includes heavy metals, pesticides, solvents, and abused drugs. Pr., 2.3 GPA.

PSYC 5620 BEHAVIORAL PHARMACOLOGY (3) LEC. 3 Pr., 2.3 GPA. PSYC 3510 A review of drugs that affect nervous system function and behavioral or neural mechanisms, that modify these effects. Topics include substance abuse, preclinical and clinical psychopharmacology, learning and memory, behavioral mitigation of drug effects. Meets APA criteria for Level 1 training in psychopharmacology. Pr., departmental approval; 2.3 GPA.

PSYC 5660 SEMINAR IN PSYCHOLOGY (3) LEC. 3 Pr., 2.3 GPA. Seminar in research and theory on psychological topics. Course may be repeated with changes in topic. Course may be repeated with changes in topic. Pr., departmental approval, 2.3 GPA.

PSYC 6020 CHILD AND ADOLESCENT PSYCHOPATHOLOGY (3) LEC. 3 Pr., PSYC 2120 and PSYC 3560 Description, etiology and treatment of psychological disturbances in children and adolescents.
PSYC 6610 BEHAVIORAL EFFECTS OF ENVIRONMENTAL CONTAMINANTS (3) LEC. 3 Laboratory, occupational and epidemiological assessment of neurotoxic chemicals; risk analysis; developmental exposures; and policy considerations. Coverage includes heavy metals, pesticides, solvents, and abused drugs.

PSYC 6620 BEHAVIORAL PHARMACOLOGY (3) LEC. 3 A review of drugs that affect nervous system function and behavioral or neural mechanisms, that modify these effects. Topics include substance abuse, preclinical and clinical psychopharmacology, learning and memory, behavioral mitigation of drug effects. Meets APA criteria for Level 1 training in psychopharmacology.

PSYC 6960 SPECIAL PROBLEMS (3) LEC. 3 Seminar in research and theory on psychological topics. Course may be repeated for a maximum of 18 credit hours. Pr., departmental approval.

PSYC 7050 ASSESSMENT IN CLINICAL PSYCHOLOGY (3) LEC. 3 Pr., (PSYC 2010 or PSYC 2017) and STAT 2010 and PSYC 2140 and PSYC 3560 and PSYC 3570 Survey of clinical methods of assessment including test construction and validation.

PSYC 7100 HISTORY OF IDEAS PSYCHOLOGY (3) LEC. 3 Historical developments in psychology with emphasis on the major theories and systems that have had an impact on current conceptions in psychology.

PSYC 7110 ETHICS AND PROBLEMS OF SCIENTIFIC AND PROFESSIONAL PSYCHOLOGY (1) LEC. 1 Survey of ethical issues and current problems in psychology.

PSYC 7120 TEACHING OF PSYCHOLOGY (2) LEC. 2 The problems and practices of teaching psychology at the college level. In addition to seminar meetings, students will work with faculty in appropriate courses. Course may be repeated for a maximum of 6 credit hours.

PSYC 7130 RESEARCH SEMINAR IN PSYCHOLOGY (1) SEM. 1 Overview of the research process, including the development of research questions, proposal writing and issues involved in protecting the welfare of research participants.

PSYC 7140 LEARNING AND CONDITIONING (3) LEC. 3 Respondent conditioning and operant behavior, including acquisition of language and other forms of individual environmental interactions.

PSYC 7150 BIOLOGICAL PSYCHOLOGY (3) LEC. 3 Behavior from a biological perspective, including theory and research from the neurosciences and biopsychology.

PSYC 7160 HUMAN DEVELOPMENT (3) LEC. 3 Introduction to conceptual and substantive issues of developmental psychology from a life-span developmental perspective.

PSYC 7170 THEORIES OF PERSONALITY (3) LEC. 3 Analysis of current issues in personality theory.

PSYC 7180 SOCIAL PSYCHOLOGY (3) LEC. 3 Topics and literature on the social foundations of behavior.

PSYC 7190 COGNITIVE PSYCHOLOGY (3) LEC. 3 A survey of the nature of human intellectual functioning, including pattern recognition, memory, problem solving, reasoning and language comprehension and generation.

PSYC 7200 ANIMAL COGNITION (3) SEM. 3 Experimental analysis of the mechanisms that underlie animal cognition, including attention, concept formation, counting, language, memory, perception, timing, and problem solving.

PSYC 7210 ANIMAL BEHAVIOR (3) LEC. 3 Pr., PSYC 7140 Evolution of animal behavior, including mating, parental care, feeding, social, predatory, and defensive behavior.

PSYC 7230 PSYCHOMETRIC THEORY (3) LEC. 3 Pr., STAT 7000 and (STAT 7270 or PSYC 7270 or STAT 7020) Introduction to basic quantitative theory behind the construction and interpretation of test scores and scales.

PSYC 7240 METHODS FOR STUDYING INDIVIDUAL BEHAVIOR (3) LEC. 3 Examination of strategies for measuring individual environmental interaction, using environmental interventions and identifying behavior change and its causes.

PSYC 7250 CLINICAL RESEARCH METHODS AND ETHICSCLIN (3) LEC. 3 Introduction to research methods and ethics in clinical psychology with an emphasis on critical analysis of the scientific literature.

PSYC 7270 EXPERIMENTAL DESIGN IN PSYCHOLOGY (4) LEC. 4 Pr., STAT 7000 and STAT 7020 Introduction to the analysis of data collected under different experimental designs. Credit will not be given for both PSYC 7270 and STAT 7270.

PSYC 7300 ADULT PSYCHOPATHOLOGY (3) LEC. 3 Current theoretical conceptions and research in adult psychopathology.

PSYC 7910 PRACTICUM IN APPLIED PSYCHOLOGY (1-10) PRA. Supervised practicum in applied psychology. A maximum of 12 hours will apply toward degree. Course may be repeated for a maximum of 18 credit hours. Pr., departmental approval.

PSYC 7920 APPLIED BEHAVIOR ANALYSIS CAPSTONE PROJECT (1-10) PRA. Supervised practicum in applied psychology involving a behavior analysis project involving delivery of services to a consumer. Maximum of 6 credit hours will count toward degree. Course may be repeated for a maximum of 30 credit hours. Pr., departmental approval.

PSYC 7990 RESEARCH AND THESIS (1-10) MIST.

PSYC 8180 ADVANCED SOCIAL PSYCHOLOGY (3) LEC. 3 Pr., PSYC 7180 Theories, research and issues in contemporary social psychology. Pr., departmental approval.

PSYC 8250 MULTIVARIATE METHODS (4) LEC. 3, LAB. 2 Pr., STAT 7000 or STAT 7020 Introduction to the theory behind multivariate analyses and the statistical programs that support them.

PSYC 8260 ANALYSIS OF TIME-RELATED DATA IN PSYCHOLOGY (3) LEC. 3 Pr., STAT 7020 or PSYC 8250 Theory and practical applications of statistical approaches for time-related data.

PSYC 8310 INTRODUCTION TO CLINICAL ETHICS AND METHODS (1) LEC. 1 Interviewing skills, crisis intervention, professional and ethical issues in providing clinical services.

PSYC 8320 PSYCHOLOGICAL ASSESSMENT OF ADULTS (3) LEC. 3 Pr., (STAT 7270 or PSYC 8310) and PSYC 8310 Theories and techniques of the psychological assessment of adults.

PSYC 8330 BEHAVIOR THERAPY (3) LEC. 3 Pr., PSYC 8310 Conceptual and applied issues related to behavioral principles of assessment and treatment.

PSYC 8340 SYSTEMS OF PSYCHOTHERAPY (3) LEC. 3 Pr., PSYC 7300 A survey of theories and research related to modern systems of psychotherapy.

PSYC 8350 APPLIED PSYCHOMETRIC PRINCIPLES (3) LEC. 3 Pr., STAT 7020 Analysis of classical and modern test theory with an emphasis on applied psychometric principles.

PSYC 8360 ASSESSMENT OF COGNITIVE ABILITIES AND ACHIEVEMENT (3) LEC. 2, LAB. 2 Theories and techniques for the assessment of cognitive abilities and academic achievement.

PSYC 8400 ADVANCED CHILD AND ADOLESCENT PSYCHOPATHOLOGY (3) LEC. 3 Pr., PSYC 7300 Examination of current research and theory of behavioral, cognitive, and emotional disorders in childhood and adolescence.

PSYC 8410 PSYCHOLOGICAL ASSESSMENT OF CHILDREN AND FAMILIES (3) LEC. 3 Pr., PSYC 8310 Theories and techniques of the psychological assessment of children and their families.

PSYC 8420 BEHAVIOR CHANGE IN CHILDREN (3) LEC. 3 Pr., PSYC 8310 and (PSYC 8400 or PSYC 8510) Introduction to methods of prevention and treatment of cognitive, behavioral and emotional disorders of children.

PSYC 8430 CONCEPTUALIZATION AND TREATMENT OF CHILD PSYCHOPATHOLOGY (3) LEC. 3 Advanced study of developmental psychopathology and evidence-based treatment strategies for childhood disorders.

PSYC 8440 HEALTH PSYCHOLOGY AND BEHAVIORAL MEDICINE (3) LEC. 3 Contemporary research in health psychology and behavioral medicine and the empirical foundations of clinical practice.

PSYC 8450 THEORY AND METHOD IN HUMAN ALCOHOL AND DRUG RESEARCH (3) LEC. 3 Theoretical framework and methodological practices in basic research on human alcohol and drug abuse. Pr., departmental approval.

PSYC 8460 ASSESSMENT AND TREATMENT OF ALCOHOL AND DRUG PROBLEMS (3) LEC. 3 Conceptual and empirical bases of clinical assessment and intervention for alcohol and drug problems. Pr., departmental approval.

PSYC 8470 BEHAVIORAL ECONOMICS OF SUBSTANCE ABUSE (3) LEC. 3 Introduction to behavioral theories of choice and behavioral economics, and the application of these basic science areas to the study of substance abuse.

PSYC 8500 EXPERIMENTAL ANALYSIS OF BEHAVIOR SEMINAR (1) SEM. 1 SU. Examination of professional preparation issues and recent scientific developments relevant to careers in the experimental analysis of behavior. Course may be repeated for a maximum of 6 credit hours.

PSYC 8510 CONTEXT AND CONSEQUENCES OF BEHAVIOR (3) LEC. 3 Pr., PSYC 7140 Advanced survey of the role that consequences play in acquisition, maintenance, and structure of behavior, and the methods by which this role is studied.

PSYC 8520 CONCEPTUAL AND THEORETICAL ANALYSIS IN PSYCHOLOGY (3) LEC. 3 Techniques of conceptual analysis relevant to the evaluation of theories and the interpretation and exploration of psychological data.

PSYC 8530 BEHAVIOR ANALYSIS AND HUMAN DEVELOPMENT (3) LEC. 3 Examination of conceptual, theoretical, and scientific issues relevant to the study of psychological development from a behavior analytic perspective.
PSYC 8550 APPLIED BEHAVIOR ANALYSIS (3) LEC. 3 Pr., PSYC 7140 The scientific and conceptual foundations of applied behavior analysis and its strategies of intervention and evaluation. Pr., departmental approval.

PSYC 8560 HUMAN OPERANT BEHAVIOR (3) LEC. 3 Pr., PSYC 8510 Strategies and tactics specific to the experimental analysis of operant processes in human learning and performance. Pr., departmental approval.

PSYC 8700 ADVANCED INDUSTRIAL PSYCHOLOGY (3) LEC. 3 Analysis of methods and content of industrial (Personnel) psychology. Pr., departmental approval.

PSYC 8710 ADVANCED ORGANIZATIONAL PSYCHOLOGY (3) LEC. 3 Analysis of major issues in organizational psychology. Pr., departmental approval.

PSYC 8720 PERSONNEL SELECTION (3) LEC. 3 Pr., STAT 7000 and PSYC 8700 Analysis of classical, contemporary, theoretical, and practical issues related to personnel selection.

PSYC 8730 PERFORMANCE APPRAISAL (3) LEC. 3 Pr., (STAT 7270 or PSYC 7270) and PSYC 8700 Analysis of historical and contemporary theories of leadership and motivation and related research.

PSYC 8750 PROFESSIONAL ISSUES IN I/O PSYCHOLOGY (1) LEC. 1 Analysis of contemporary professional issues in I/O psychology. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

PSYC 8910 CLINICAL PRACTICUM (1-4) PRA. Pr., PSYC 8320 or PSYC 8410 Supervised practicum experience in clinical assessment and intervention techniques. Course may be repeated for a maximum of 30 credit hours.

PSYC 8920 INTERNSHIP (0) INT. Enrolment in full-time APA-approved 1-year pre-doctoral internship required for the Ph.D. in clinical psychology. May not enroll in other course work. Pr., doctoral candidacy.

PSYC 8930 DIRECTED STUDIES IN PSYCHOLOGY (3) IND. Review of a body of literature leading to the generation and defense of the Major Area Paper (written portion of the general doctoral examination). Course may be repeated for a maximum of 9 credit hours. Pr., Approved doctoral plan of study.

PSYC 8970 SPECIAL TOPICS (1-3) SEM. In-depth seminar on issues related to selected specializations in psychology. Course may be repeated for a maximum of 18 credit hours. Pr., departmental approval.

PSYC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Pr., departmental approval.

Pharmacy Doctorate (PYDI)

Dr. Paul Jungnickel - 844-8348

PYDI 5000 DRUGS AND DISEASES I (5) LEC. 5 Integrated study of pathophysiology and chemical, pharmacological, biotechnology, and pharmacokinetic principles to explain the action of drugs. Fall.

PYDI 5020 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE I (6) LEC 3. This course integrates the skills necessary for the provision of pharmaceutical care. Source material introduces and integrates knowledge and skills focusing on patient assessment and communication. Fall.

PYDI 5080 FOUNDATIONS OF PHARMACY (1) WSP. 1 One week experience orienting first year PYDI students to the context, concepts, tools, and skills necessary for understanding of, and success in pharmacy education. Fall.

PYDI 5090 PHARMACY PRACTICE EXPERIENCE I (2) PRA. 2 SU. First of a six-course sequence of introductory practice experience in which the concept of pharmaceutical care is introduced by the provision of basic care to community-based based patients. Fall.

PYDI 5100 DRUGS AND DISEASES II (5) LEC. 5 Pr., PYDI 5000 Presents, in an integrated manner, pathophysiology and chemical, pharmaceutical biotechnology principles to explain the action of drugs; continuation of PYDI 5000. Spring.

PYDI 5120 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE II (6) LEC 3. This course integrates the skills necessary for the provision of pharmaceutical care. Source material introduces and integrates knowledge and skills focusing on pharmaceutical calculations, communication, physical assessment and use of clinical literature. Spring.

PYDI 5130/5132 DRUG LITERATURE EVALUATION (2) LEC. 2 Development of the ability to effectively and efficiently retrieve drug information and critically evaluate and interpret studies published in the medical and pharmaceutical literature.

PYDI 5140 PRINCIPLES OF PHARMACOGENETICS (3) LEC. 3 Pr., PYDI 5000 To prepare students to use pharmacogenetic information and measurements to evaluate drug therapy and recommend appropriate dosing strategies for drug administration and monitoring. Spring.

PYDI 5190 PHARMACY PRACTICE EXPERIENCE II (2) PRA. 2 SU. Pr., PYDI 5090 Second of a six-course sequence of introductory practice experience in which the concept of pharmaceutical care is introduced by the provision of basic care to community-based based patients. Spring.

PYDI 5200 DRUGS AND DISEASES III (6) LEC. 8 Pr., PYDI 5100 and PYDI 5140 Presentation in an integrated manner of pathophysiology and chemical, pharmacological, biotechnology, and pharmacokinetic principles to explain the action of drugs. Continuation of PYDI 5100. Fall.

PYDI 5220 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE III (2) LAB. 6 Pr., PYDI 5120 Integrates the provision of pharmaceutical care and pharmacy-specific skills related to drug-related problems. Supportive skills for the pharmaceutical sciences and other integrated skills are a major emphasis. Fall.

PYDI 5290 PHARMACY PRACTICE EXPERIENCE III (2) PRA. 2 SU. Third in six-course sequence of introductory practice experience in which pharmaceutical care is provided to moderately complex community based patients. Spring.

PYDI 5300 DRUGS AND DISEASES IV (6) LEC. 8 Pr., PYDI 5200 Presentation, in an integrated manner, of pathophysiology and chemical, pharmaceutical, biotechnology, and pharmacokinetic principles to explain the action of drugs. Continuation of PYDI 5200. Spring.

PYDI 5320 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE IV (2) LAB. 6 Pr., PYDI 5220 Continuation of PYDI 5220. Spring.

PYDI 5360/5363 PHARMACOTHERAPY 1 (3) LEC. 3 Pr., PYPP 5260 and BIOL 3200 and (PYPS 5200 or PYPP 5203) and PYDI 5350 and PYPP 5340 Application of the basic, clinical and socio-behavioral sciences to renal disorders. Spring.

PYDI 5370/5373 PHARMACOTHERAPY 2 (3) LEC. 3 Pr., PYPP 5260 and (PYPS 5200 or PYPS 5203) and PYDI 5350 and PYPP 5340 and BIOL 3200 Application of the basic, clinical and socio-behavioral sciences to endocrine disorders. Spring.

PYDI 5390 PHARMACY PRACTICE EXPERIENCE IV (2) PRA. 2 SU. Pr., PYDI 5290 Fourth in a six-course sequence of introductory practice experience in which pharmaceutical care is provided to moderately complex community based patients. Spring.

PYDI 5400/5403 PHARMACOTHERAPY 3 (3) LEC. 3 Application of the basic, clinical and socio-behavioral sciences to infectious diseases. Spring.

PYDI 5410/5413 PHARMACOTHERAPY 4 (3) LEC. 3 Application of the basic, clinical and socio-behavioral sciences to cardiovascular disorders. Spring.

PYDI 5420/ CONTEMPORARY ASPECTS OF PHARMACY PRACTICE V (2) LAB. 6 Continuation of PYDI 5320. Spring.

PYDI 5423 PHARMACOTHERAPY 5 (3). LEC. 3 Application of the basic, clinical and socio-behavioral sciences to pulmonary disorders. Spring.

PYDI 5430/5433 PHARMACOTHERAPY 6 (3) LEC. 3 Application of the basic, clinical and socio-behavioral sciences to neurological and psychiatric disorders. Spring.

PYDI 5470 INTEGRATED PHARMACOTHERAPY I (5) RCT. 6 Application of the basic, clinical, and socio-behavioral sciences to identifying, preventing and solving health and drug related problems. Spring.

PYDI 5480 INTEGRATED PHARMACOTHERAPY II (6) RCT. 6 Application of the basic, clinical, and socio-behavioral sciences to identifying, preventing and solving health and drug related problems. Spring.

PYDI 5490 PHARMACY PRACTICE EXPERIENCE V (2) PRA. 2 SU. Fifth in a six-course sequence of introductory practice experiences in which pharmaceutical care is provided to increasingly complex community based patients along with patient care team management responsibilities. Fall.

PYDI 5500/5503 PHARMACOTHERAPY 7 (3) LEC. 3 Application of the basic, clinical and socio-behavioral sciences to gastrointestinal disorders. Fall.

PYDI 5510/5513 PHARMACOTHERAPY 8 (3) LEC. 3 Application of the basic, clinical and socio-behavioral sciences to dermatological, rheumatological, hematological and oncological disorders. Spring.

PYDI 5520 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE VI (2) LAB. 6 Pr., PYDI 5420. Continuation of PYDI 5420. Spring.

PYDI 5523 PHARMACOTHERAPY 9 (3). LEC. 3 Application of the basic, clinical, and socio-behavioral sciences to 125 infectious diseases. Spring.

PYDI 5530/5533 PHARMACOTHERAPY 10 (3) LEC. 3 Pr., PYDI 5410 or PYDI 5413 Application of the basic, clinical and socio-behavioral sciences to cardiovascular disorders. Continuation of PYDI 5410. Spring.

PYDI 5570 INTEGRATED PHARMACOTHERAPY III (6) RCT. 6 Pr., PYDI 5480 Application of the basic, clinical, and socio-behavioral sciences to identifying, preventing and solving health and drug related problems. Continuation of PYDI 5480. Spring.

PYDI 5580 INTEGRATED PHARMACOTHERAPY IV (6) RCT. 6 Pr., PYDI 5480 Application of the basic, clinical, and socio-behavioral sciences to identifying, preventing and solving health and drug related problems. Continuation of PYDI 5570. Spring.

PYDI 5590 PHARMACY PRACTICE EXPERIENCE VI (2) PRA. 2 SU. Pr., PYDI 5490 Sixth in a six-course sequence of introductory practice experiences in which pharmaceutical care is provided to increasingly complex community based patients along with patient care team management responsibilities.
Pharmacal Science (PYPS)

Pharmacy Care Systems (PYPC)
Dr. Bruce Berger - 844-8302

PYPC 5010 PATIENT CENTERED SKILLS (2) LEC. 2 Development of methods for developing positive, therapeutic relationships with patients through the application of communications skills (empathy, assertiveness training, effective listening, etc.) and other behavioral interventions. Fall.

PYPC 5110 PHARMACY LAW AND ETHICS (2) LEC. 2 Basic legal and ethical principles of pharmaceutical care and their effect on the patient drug use process. Spring.

PYPC 5210 PHARMACY PRACTICE DEVELOPMENT, MANAGEMENT, AND EVALUATION I (3) LEC. 3 Overview of the development, management, and evaluation of systems that support the provision of pharmaceutical care for patients in multiple health systems. Fall.

PYPC 5310 PHARMACY PRACTICE DEVELOPMENT, MANAGEMENT, AND EVALUATION II (3) LEC. 3 Pr., PYPC 5210 An overview of the development, management, and evaluation of systems that support the provision of pharmaceutical care for patients in multiple health systems. Spring.

PYPC 5710 INSTITUTIONAL PHARMACY 1 (3) LEC. 3 Overview of the nature and scope of institutional pharmacy practice.

PYPC 5720 MOTIVATIONAL INTERVIEWING (2) LEC. 2 Pr., PYPC 5010 Basic and advanced training and exploration of motivational interviewing.

PYPC 7810 HOSPITAL PHARMACY ADMINISTRATION (2) LEC. 2 Administrative and policy-making procedures. Provides understanding of socioeconomic aspects of hospital pharmacy practice and competence in selected administrative skills.

PYPC 7820 RESEARCH METHODS AND DESIGN HEALTH SCIENCE 1 (2) LEC. 2 Application of scientific methods in health care. Pr., departmental approval.

PYPC 7830 RESEARCH METHODS IN THE HEALTH SCIENCES 2 (3) LEC. 3 Pr., PYPC 7820 Application of the principles and concepts obtained in PYPC 7820.

PYPC 7840 MEDICATION INFORMATION SYSTEMS (3) LEC. 3 Health system informatics theories and methodologies. Demonstration of how information reduces uncertainty in health-care decision-making.

PYPC 7850 THE PHARMACIST’S ROLE IN IMPROVING PATIENT ADHERENCE (3) LEC. 3 Pr., PYPC 7820 Theories and methodologies involved in adherence to medication regimens.

PYPC 7870 SOCIAL, BEHAVIORAL, AND ADMINISTRATIVE ASPECTS OF PHARMACY PRACTICE (3) LEC. 3 Theories and applications in social, behavioral, and administrative aspects of pharmacy practice and medication use systems.

PYPC 7950 SEMINAR (1) SEM. 1 SU. Required of all Pharmacy Care Systems Masters students. Course may be repeated for a maximum of 6 credit hours.

PYPC 7960 SPECIAL PROBLEMS IN PHARMACY CARE SYSTEMS (2-3) LEC. Special problems. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

PYPC 7990 RESEARCH AND THESIS (1-10) MST. Credit hours to be arranged. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PYPC 8950 SEMINAR (1) SEM. 1 SU. Required of all Pharmacy Care Systems doctoral students.

PYPC 8960 SPECIAL PROBLEMS IN PHARMACY CARE SYSTEMS (1-3) LEC. Credit hours to be arranged. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

PYPC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Credit hours to be arranged. Course may be repeated with change in topic.

Pharmacy Practice, Clinical (PYPP)
Dr. Gordon Sacks - 844-4033

PYPP 5550/5553 DRUG INDUCED DISEASE (2) LEC. 2 Patient evaluation in drug-induced disease and polypharmacy.

PYPP 5600 ADVANCED PRACTICE EXPERIENCE IN DRUG INFORMATION (5) PRA. Advanced practice experience in providing drug information services to health care providers.

PYPP 5610 ADVANCED PRACTICE EXPERIENCE IN COMMUNITY PHARMACEUTICAL CARE (5) PRA. Advanced Practice Experience in a community pharmacy practice setting that provides pharmaceutical care services such as disease management and other advanced patient care activities.

PYPP 5620 ADVANCED PRACTICE EXPERIENCE IN MEDICINE (5) PRA. Advanced practice experience in providing Inpatient Pharmaceutical Care.

PYPP 5640/5643 ADVANCED PRACTICE EXPERIENCE IN PRIMARY/AMBULATORY CARE I (5) PRA. Advanced practice experience in providing pharmaceutical care to patients as they initially access the health care system.

PYPP 5650/5653 ADVANCED PRACTICE EXPERIENCE IN PRIMARY/AMBULATORY CARE II (5) PRA. Continuation of PYPP 5640.

PYPP 5660 ADVANCED PRACTICE EXPERIENCE IN HEALTH SYSTEM PRACTICE (5) PRA. Advanced practice experience in a health system setting that prepares the student to adapt and function within systems of integrated pharmaceutical care services.

PYPP 5670 ADVANCED PRACTICE EXPERIENCE ELECTIVE (5) PRA. Elective experience in an advanced practice experience setting in which the student establishes personal learning goals and responsibilities.

PYPP 5680 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE VII (2) SEM. 2 Student will demonstrate the ability to evaluate and synthesize pertinent literature, and effectively communicate pharmaceutical-related material in one platform (seminar) presentation and one manuscript.

PYPP 5690 ADVANCED PRACTICE EXPERIENCE PRESENTATIONS (0) PRA. Students will demonstrate the ability to evaluate and synthesize pertinent literature, and communicate pharmaceutical-related material in patient case, journal club and in service presentations.

PYPP 5710 METABOLIC SYNDROME (2) LEC. 2 Advanced material on the assessment and treatment of disease states related to Metabolic Syndrome.

PYPP 5730 DRUGS IN PREGNANCY (2) LEC. 2 Medication issues related to pregnancy and lactation.

PYPP 5740 PEDIATRIC PHARMACOTHERAPY (2) LEC. 2 Medication issues related to the pediatric population.

PYPP 5750 ANTITHROMBOTIC/THROMBOLYTIC THERAPY (2) LEC. 2 Provides the student with a working knowledge of both basic and advanced pharmacotherapeutic issues related to antithrombotic and thrombolytic therapy.

PYPP 5760 SELF CARE AND NONPRESCRIPTION MEDICATION (2) LEC. 2 Knowledge and skills to serve as a self care advisor to patients seeking assistance.

PYPP 5770 WOMEN’S HEALTH ISSUES (2) LEC. 2 Understanding factors that affect women’s premature morbidity and mortality.

PYPP 5780 ACUTE CARE PHARMACOTHERAPY (2) LEC. This course is designed to orient the pharmacy student to the acute care environment and familiarize them with patient disease states and pharmacotherapy associated with the acutely ill patient.

PYPP 5790 PSYCHIATRIC PHARMACOTHERAPY (2) LEC. 2 To expose pharmacy students to psychiatry and to develop a working knowledge of both basic and advanced pharmacotherapeutic issues related to psychopharmacology.

PYPP 5810 EVIDENCE-BASED PHARMACOTHERAPY (2) LEC. 2 Student pharmacists will become more proficient at literature evaluation and application of evidence-based pharmacotherapy/medicine to patient care.

PYPP 5960/5963 SPECIAL PROBLEMS IN PHARMACY PRACTICE (1-3) LEC. Selected topics related to pharmacy practice. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

Pharmacal Science (PYPS)
Dr. Charlene McQueen - 844-8339

PYPS 5230 DRUG PRODUCTS I (3) LEC. 3 Pr., PYDI 5100 and PYDI 5120 Physical-chemical and biopharmaceutical principles and technologies used in the preparation of solid pharmaceutical dosage forms and novel drug delivery systems. Fall.

PYPS 5310 PHARMACOLOGY 1 (3) LEC. 3 Biochemical and physiological effects, action mechanism, absorption, distribution, biotransformation, excretion, therapeutic and other uses of drugs.

PYPS 5320 PHARMACOLOGY 2 (3) LEC. 3 Biochemical and physiological effects, action mechanism, absorption, distribution, biotransformation, excretion and therapeutic and other uses of drugs.

PYPS 5330 DRUG PRODUCTS II (3) LEC. 3 Pr., PYPS 5230 and PYDI 5200 and PYDI 5220 Physical-chemical and biopharmaceutical principles and technologies used in the preparation of solid pharmaceutical dosage forms and novel drug delivery systems. Continuation of PYPS 5230. Spring.

PYPS 5350 TOXICOLOGY (3) LEC. 3 The basic science of poisons including the acute and chronic toxicity of common environmental, agricultural, industrial, commercial, medicinal and naturally occurring substances.

PYPS 5360 CELLULAR PHARMACOLOGY (3) LEC. 3 Cytological basis of pharmacodynamics including drug receptor interactions, drug metabolism, and characteristics of adverse drug reactions.

PYPS 5370 FUNDAMENTALS OF BIOCHEMISTRY (3) LEC. 3 Theoretical and practical applications of trace-level radioactivity for research application to pharmacy and allied sciences.

PYPS 5390 NEUROPHARMACOLOGY OF DRUG ABUSE (2) LEC. 2 Pr., PYDI 5300 An in-depth study of drugs of abuse, including mechanisms of action, pharmacokinetics, addition, physical dependence and the effects of drug use during pregnancy. Substance abuse treatment strategies will also be discussed. Pr., departmental approval.
SCMH 3810 PRE-PHYSICAL THERAPY PRACTICUM (1) PRA. 2 SU. Direct observation of physical therapists at an approved facility in the Auburn-O'Pellika area. Pr.: Instructor approval.

SCMH 3890 PREMEDICAL PRECEPTORSHIP (1) LAB. 2 SU. Direct observation and interaction with physicians in various medical specialties at East Alabama Medical Center or at their offices. Instructor approval.

SCMH 5010 CLINICAL APPLICATIONS I (3) LEC. 2 A study of the clinical/personal issues facing primary care physicians in the rural community. Must be enrolled in the Rural Medicine Program.

SCMH 5020 CLINICAL APPLICATIONS II (3) LEC. 2, CLN/LEC. 1 Pr., SCMH 5010 A continuation of SCMH 5010.

Sociology (SOCY)
Dr. Kelly Alley - 844-5049

ANTH 1000 INTRODUCTION TO ANTHROPOLOGY (3) LEC. 3 Social Science I Core. Introduction to the study of human evolution, early civilizations and globalization, linguistic and cultural problems using the four sub-fields of anthropology: biological/physical anthropology, archaeology, cultural anthropology and linguistics.

ANTH 2100 INTRODUCTORY ARCHAEOLOGY (3) LEC. 3 Pr., ANTH 1000 Approaches, techniques, and strategies for conducting archaeological research and analyzing data in the social sciences.

ANTH 2300 INTRODUCTION TO PHYSICAL ANTHROPOLOGY (3) LEC. 3 Pr., ANTH 1000 An introduction to human origins and development using a genetic and anthropometric approach.

ANTH 3000 CULTURE, MARRIAGE AND THE FAMILY (3) LEC. 3 Pr., ANTH 1000 The role and meaning of kinship and its universal and particularistic features in human society.

ANTH 3100 LANGUAGE AND CULTURE (3) LEC. 3 The course examines the interplay between language and culture, including socio-linguistics, discourse, mythology, and folklore.

ANTH 3200 ANTHROPOLOGY OF GENDER (3) LEC. 3 Pr., ANTH 1000 or UNIV 1010 Gender relations and representations in different cultures, historical periods, and discourses.

ANTH 3400 ARCHEOLOGICAL FIELD SCHOOL (6) LEC. 6 Pr., ANTH 1000 Field methods. Archaeological surveying and excavation techniques taught at selected locations.

ANTH 3450 ARCHAEOLOGICAL FIELD PROBLEMS (1-3) LEC. 1, LAB. 2 Pr., ANTH 1000 A practical investigation of a specific field problem that involves excavation techniques, mapping, and data recording. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 3 credit hours.

ANTH 3500 ARCHAEOLOGICAL LABORATORY TECHNIQUES (1-3) LEC. 1, LAB. 2 Pr., ANTH 1000 Analysis, preservation, cataloging, and restoration of archaeological materials. Course may be repeated for a maximum of 3 credit hours.

ANTH 3550 ARCHAEOLOGICAL LABORATORY PROBLEMS (1-3) LEC. 1, LAB. 2 Pr., ANTH 1000 Investigates a specific archaeological problem or problems and involves students in laboratory techniques and research. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 3 credit hours.

ANTH 3600 MEDICAL ANTHROPOLOGY (3) LEC. 3 How universal experiences of illness and healing are understood by people of different cultures.

ANTH 3700 POLITICAL ECOLOGY (3) LEC. 3 Problems in ethno ecology, cultural ecology, political ecology and environmentalism.

ANTH 3800 MESOAMERICAN ARCHAEOLOGY (3) LEC. 3 Pr., ANTH 1000 The prehistoric cultures of Mesoamerica, from the Olmecs to the Aztecs. Pr., departmental approval.

ANTH 3810 HISTORICAL ARCHAEOLOGY AND ETHNOHISTORY (3) LEC. 3 Historical archaeology and ethno history with emphasis on the cultures of peoples who left few written records.

ANTH 3850 SOUTHEASTERN ARCHAEOLOGY (3) LEC. 3 Pr., ANTH 1000 The diversity and complexity of prehistoric cultures of the southeastern United States.

ANTH 3930 HISTORICAL ARCHAEOLOGY AND ETHNOHISTORY (3) LEC. 3 Historical archaeology and ethno history with emphasis on the cultures of peoples who left few written records.

ANTH 4300 THE ANTHROPOLOGY OF LAW (3) LEC. 3 Pr., ANTH 1000 An introduction to the study of law in cultures and societies around the world.

ANTH 4310 ANTHROPOLOGICAL THEORY (3) LEC. 3 Major thinkers in cultural anthropology and their theoretical models considered in historical perspective.

ANTH 4920 INTERNSHIP IN ANTHROPOLOGY (3) INT. 3 Pr., ANTH 1000 An internship with a federal/state agency for practical work or research on anthropological problems.

ANTH 4930 ANTHROPOLOGICAL THEORY (3) LEC. 3 Major thinkers in cultural anthropology and their theoretical models considered in historical perspective.

ANTH 4960 SPECIAL PROBLEMS (3) LEC. 3 Pr., ANTH 1000 An independent reading program to pursue specific interests in anthropology not covered in other courses.

ANTH 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

ANTH 4997 HONORS THESIS (1-3) IND. Course may be repeated for a maximum of three credit hours. Pr., departmental approval. Course may be repeated for a maximum of 3 credit hours.

ANTH 5100 NORTH AMERICAN INDIANS (3) LEC. 3 Pr., ANTH 1000 A comparative anthropological, cultural, and ethno-historical overview of Native Americans.

ANTH 5200 GENDER DEVELOPMENT AND CULTURE (3) LEC. 3 Pr., ANTH 1000 or UNIV 1010 The role of gender and culture in Third World development from an anthropological perspective.

ANTH 5500 CULTURE MEDICINE AND POWER (3) LEC. 3 Pr., ANTH 1000 or UNIV 1010 Power in the context of illness and healing at local, national, and international levels.

ANTH 5700 CRITIQUE OF DEVELOPMENT (3) LEC. 3 Pr., ANTH 1000 or UNIV 1010 The meanings and structures of national and international development.

ANTH 5970 SPECIAL TOPICS IN ANTHROPOLOGY (3) LEC. 3 Pr., ANTH 1000 Examination of a specific problem in ethnographic methods, theory, and cultural analysis.

ANTH 6100 NORTH AMERICAN INDIANS (3) LEC. 3 An advanced comparative cultural and ethno-historical overview of the Native American cultures of North America, emphasizing change and contact situations.

ANTH 6200 GENDER DEVELOPMENT AND CULTURE (3) LEC. 3 The role of gender and culture in Third World economic development from an anthropological perspective.

ANTH 6600 CULTURE MEDICINE AND POWER (3) LEC. 3 Power in the context of illness and healing at local, national, and international levels.

ANTH 6700 CRITIQUE OF DEVELOPMENT (3) LEC. 3 The meanings and structures of national and international development in historical perspective to include cultural values, power, inequality, and resistance.

ANTH 6970 SPECIAL TOPICS IN ANTHROPOLOGY (3) LEC. 3 Pr., ANTH 1000 Examination of a specific problem in ethnographic methods, theory, and cultural analysis.

SOCIOLGY (SOCY)

SOCY 1000 SOCIOLOGY GLOBAL PERSPECTIVE (3) LEC. 3 Social Science I Core. Introduction to the study of social and cultural patterns of society.

SOCY 1007 HONORS SOCIOLOGY (3) LEC. 3 Social Science I Core. Introduction to the study of social and cultural patterns in society.

SOCY 2000 SOCIAL ISSUES (3) LEC. 3 Pr., SOCY 1000 or SOCY 1007 An exploration of the claims and conflicts of public issues and moral apprehensions; topics may include crime, the environment, gender and racial inequality, various syndromes.

SOCY 2050 CRIME AND JUSTICE IN AMERICA (3) LEC. 3. The distribution and measurement of crime, different variations in criminal behavior and the handling of crime in the American criminal justice system.

SOCY 2100 POPULATION AND SOCIETY (3) LEC. 3 A survey of theories and research of demographic processes and their interaction with the economy, education, family, medicine, science and technology.

SOCY 2200 SOCIAL PSYCHOLOGY: SOCIOLOGICAL PERSPECTIVES (3) LEC. 3 An examination of collective influences on the person and the role the person plays in sustaining collective conditions.

SOCY 3000 CRIMINOLOGY (3) LEC. 3. Examine etiological issues related to various categories of crime. Major theories of crime causation from a variety of perspectives are explored.

SOCY 3100 POLICE AND SOCIETY (3) LEC. 3. A sociological overview of policing and current issues that relate to the law enforcement.

SOCY 3200 SPORTS IN AMERICA (3) LEC. 3 Sociological perspectives on sports in the social system; organization and culture of sports relationship to social class, race and gender; and the interconnections between sport and the larger society.

SOCY 3250 SENTENCING AND CORRECTIONS (3) LEC. 3. An in-depth analysis of sentencing policy and the corrections system.

SOCY 3300 SOCIOLOGY OF THE FAMILY (3) LEC. 3 The family as a major social institution with emphasis on the American family; cross-cultural comparisons provide perspective.
SOCY 3400 SOCIAL THOUGHT (3) LEC. 3 Pr., SOCY 1000 or SOCY 1007. Examines ancient and contemporary thinking influencing the social and behavioral sciences and public commentaries on social issues and criticisms.


SOCY 3500 MINORITY GROUPS (3) LEC. 3 Pr., SOCY 1000 or SOCY 1007. An exploration of the sources and uses of minority representations in the U.S. addressing inequalities such as race, ethnicity, gender and sexual orientation.

SOCY 3550 DELINQUENCY AND JUVENILE JUSTICE (3). LEC. 3. The nature and distribution of delinquency in the United States, as well as the various components of the juvenile justice system.

SOCY 3700 METHODS OF SOCIAL RESEARCH (3) LEC. 3 Pr., SOCY 1000 or SOCY 1007. Methodological approaches to data collection used by social scientists including logic of science, hypothesis formation and research design.

SOCY 4000 SOCIALIZATION (3) LEC. 3 Examinations mind, self, society and interaction as symbolic phenomena grounded in social process. Covers major intellectual influences, concepts and figures.

SOCY 4100 DEVIAENCE (3) LEC. 3 Analysis of creation and reaction to deviance using theoretical approaches including demonic possession, social disorganization, pathological models and labeling examining several deviant groups.

SOCY 4200 MEDICAL SOCIOLOGY (3) LEC. 3. The nature and organization of medical practice and health delivery systems with special attention to the role of physicians, patients, disease and the relationship between culture, politics and health.

SOCY 4300 FIELD INSTRUCTION (3) LEC. 3 Supplementary instruction concurrent with experience in some field of work involving application of sociological perspectives to community life. Course may be repeated for maximum of 6 credit hours. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

SOCY 4400 CONTEMPORARY THEORY (3) LEC. 3 A survey of theorists from Comte to the present, emphasizing theory construction, theoretical analysis and differences in theoretical approaches.

SOCY 4700 Theories of Crime and Criminality (3). LEC. 3. Theories of crime causation with emphasis on theory construction, theory analysis, and differences in theoretical approaches.

SOCY 4800 Senior Seminar (3). LEC. 3. Build-ups upon prior coursework in theory, methods, and statistics for an in-depth examination of substantive areas in Sociology. Students must demonstrate proficiency in critical thinking and analysis and in written and oral communication.

SOCY 4900 SPECIAL PROBLEMS IN SOCIOLOGY (3) IND. 3 An independent reading program under supervision, to allow pursuit of specific interests in sociology not covered in other course offerings. Course may be repeated for a maximum of 8 credit hours. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

SOCY 4967 HONORS SPECIAL PROBLEMS (1-3) IND. 3 Course may be repeated for a maximum of 3 credit hours. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

SOCY 4997 HONORS THESIS (1-10) SU. Pr., SOCY 4400. Directed studies 3 IND. 3 An independent reading course under the supervision of a department faculty member. Course may be repeated a maximum of 6 credit hours. ADDITIONAL PREREQUISITES: Departmental approval. Course may be repeated for a maximum of 6 credit hours.

SOCY 7990 RESEARCH AND THESIS (1-10) MST. In conjunction with the preparation of a thesis. Course may be repeated with change in topic.

SOCIAL WORK (SOWO)

SOWO 2000 INTRODUCTION TO SOCIAL WORK (3) LEC. 3 Introduction to Social Work practice, examining career opportunities, history of the profession, practice settings, values, ethics and types of clientele.

SOWO 2650 HISTORY OF SOCIAL WELFARE (3) LEC. 3 Provides detailed knowledge of the development of social welfare policies and programs in the United States. Emphasizes analysis of political, economic, and social factors involved.

SOWO 3500 CHILD WELFARE (3) LEC. 3 Pr., SOCY 1000 or SOWO 2000 Social work practice in settings dealing with child abuse and neglect, foster care, child care and adoption.

SOWO 3600 AGING ISSUES AND SERVICES (3) LEC. 3 Pr., SOCY 1000 or SOCY 1007 Introduction to social services and social work with the elderly. Various socio-cultural issues and impact on the elderly are covered.

SOWO 3700 ADDICTIONS (3) LEC. 3 Pr., PSYC 2010 or PSYC 2017 Concept of addiction, theories of causality, social impact and the array of treatment approaches in today's society. Experiential component included.

SOWO 3800 HUMAN BEHAVIOR IN SOCIAL ENVIRONMENT I (3) LEC. 3 Pr., SOWO 2000 and BILD 1000 Lifespan approach to biopsychosocial examination of behavior and early development. Special emphasis is given to influences of racism, sexism and ethnocentrism.

SOWO 3850 HUMAN BEHAVIOR IN THE SOCIAL ENVIRONMENT II (3) LEC. 3 Pr., SOWO 3800 Lifespan approach to biopsychosocial examination of behavior from adulthood through old age, emphasizing role of gender, sexism and sexual orientation.

SOWO 3910 FIELD PRACTICUM SEMINAR (3) SEM. SU. Introduces fields and settings of social work practice via placement in a selected social service agency. Includes a concurrent integrative seminar to analyze the experience. Pr., departmental approval.

SOWO 4060 SOCIAL WORK PRACTICE METHODS I (3) LEC. 3 Pr., SOWO 2000 and SOWO 3910 and SOWO 1000 Introduces the student to generalist practice methods and skills in engagement, assessment and goal setting with individual clients.

SOWO 4070 SOCIAL WORK PRACTICE METHODS II (3) LEC. 3 Pr., SOWO 4060 Practice skills and perspectives required for work with families and groups.

SOWO 4080 SOCIAL WORK PRACTICE METHODS III (3) LEC. 3 Pr., SOWO 4060 Focuses on generalist practice theory and skills as applied to communities, organizations and oppressed populations. Issues of social justice and social action emphasized.

SOWO 4090 SOCIAL WELFARE POLICY (3) LEC. 3 Pr., SOWO 2650 Critical analysis of policy issues and proposals in selected social welfare programs and their impact upon current social problems and social work values and ethics.

SOWO 4920 INTERNSHIP IN SOCIAL WORK (9) FLD. 9 SU. Pr., SOWO 4080 480-hour field experience under joint supervision of agency and university. Application of generalist practice skills and research project required.

SOWO 4950 SENIOR INTEGRATIVE SEMINAR (3) SEM. 3 Pr., SOWO 4080 Taken concurrently with the senior field placement, seminar serves to guide students in integrating theory with practice through analysis of behavior and evaluation of practice skills.
COUNSELOR EDUCATION, COUNSELING PSYCHOLOGY, AND SCHOOL PSYCHOLOGY (COUN)

Dr. Randy Pipes 844-2883

COUN 1000 CAREER ORIENTATION EXPLORATION (2) LEC. 1, LAB. 2 The process of career decision-making through hands-on activities, in-class exercises, and job shadowing.

COUN 2900 DIRECTED STUDIES (1-3) IND. SU. Reading, research, or other work undertaken by a student focused on an area of special interest. Directed by faculty member. Course may be repeated for a maximum of 9 credit hours.

COUN 2940 DIRECTED FIELD EXPERIENCE (1-3) FLD. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

COUN 2950 SPECIAL TOPICS IN COLLEGE STUDENT DEVELOPMENT (1-3) LEC. Selected topics in college student development. Fall, Spring. Course may be repeated for a maximum of 12 credit hours.

COUN 3100 COUNSELING AND HUMAN SERVICES (3) LEC. 3 Counseling concepts and skills appropriate in the helping professions. Not open to graduate students in counseling education.

COUN 7100 INTRODUCTION TO SCHOOL PSYCHOLOGY (3) LEC. 3 Orientation to the profession of school psychology; history of the profession, professional roles, ethical and legal standards, and current issues.

COUN 7200 INTRODUCTION TO MEASUREMENT AND ASSESSMENT (3) LEC. 3 Pr., FOUN 7100 or COUN 7400. Theory and measurement of children’s intelligence. Administration and interpretation of selected tests.

COUN 7210 APPRAISAL IN COUNSELING AND PSYCHOLOGY (3) LEC. 3 Pr., COUN 7200 and COUN 7350 Development, administration, and scoring of interpreta
tion of personality, interest, aptitude, achievement, attitude tests. Includes assessment interview, behavioral observation.

COUN 7220 INTELLECTUAL ASSESSMENT OF CHILDREN AND ADOLESCENTS (3) LEC. 3 Pr., COUN 7200. Theory and measurement of children’s intelligence. Administration and interpretation of selected tests.

COUN 7230 CAREER DEVELOPMENT AND VOCATIONAL APPRAISAL (3) LEC. 3 Pr., FOUN 7100 or COUN 7200. Career development theories appraising vocationally related interests, aptitudes, and personal characteristics. Laboratory practice in test procedures.

COUN 7250 ADVANCED ASSESSMENT AND DIAGNOSIS IN COUNSELING (3) LEC. 3 Pr., COUN 7100 or COUN 7400 or COUN 8530. Assessment/diagnostic skills related to counseling: intake, assessment, diagnostic criteria, treatment planning, counseling interventions.

COUN 7310 COUNSELING APPLICATIONS OF LIFESPAN DEVELOPMENT (3) LEC. 3 Theories and current research in development across the lifespan with emphasis on applications to counseling.

COUN 7320/7326 COUNSELING THEORIES (3) LEC. 3 Pr., COUN 7100 or COUN 7400 or COUN 8530. Study of major counseling theories.

COUN 7330 COUNSELING DIVERSE POPULATIONS (3) LEC. 3 Special counseling and advocacy issues. Needs of diverse populations are considered. Pr., departmental approval.

COUN 7340 GROUP COUNSELING (3) LEC. 3 Pr., COUN 7320 or COUN 7326. Leading, developing, evaluating a counseling group. Group socialization, development, group dynamics, group leadership and evaluation, treatment planning, group intervention, counseling skills.

COUN 7350 INTRODUCTION TO COUNSELING PRACTICE (3) LEC. 3 SU. Pr., (COUN 7320 or COUN 7326) or COUN 7400 or COUN 8530. Methods, interventions, and skills essential to counseling. Content is specific to school settings.

COUN 7400 ORIENTATION TO PROFESSIONAL COUNSELING (3) LEC. 3 Orientation to the counseling field with emphasis on philosophical, historical, psychological, and organizational foundations of professional practice. Pr., departmental approval.

COUN 7410 COUNSELING IN THE COMMUNITY (3) LEC. 3 Counselors in mental health settings (such as community agencies, substance abuse treatment programs). Historical, philosophical, psychological, and sociological foundations of community counseling. Pr., departmental approval.

COUN 7420 ORIENTATION TO SCHOOL COUNSEL (3) LEC. 3 Orientation to the role and activities of the K-12 school counselor. Emphasis on the components of a developmentally-oriented school counseling program. Pr., departmental approval.

COUN 7430 COLLEGE STUDENT DEVELOPMENT (3) LEC. 3 Theories and practice of counseling and student services in higher education. Pr., departmental approval.

COUN 7810 SCHOOL CONSULTATION (3) LEC. 3 An introduction to consultation and collaboration for school psychologists, school counselors, and other school personnel. Pr., departmental approval.

COUN 7900 DIRECTED STUDIES (1-3) IND. SU. Independent learning effort directed at desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.

COUN 7910 PRACTICUM (3) LEC. 3 SU. Supervised experiences appropriate to student’s program emphasis area. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

COUN 7920 INTERNSHIP (1-9) INT. SU. Pr., COUN 7910 Supervised on-the-job experiences. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

COUN 7940 DIRECTED FIELD EXPERIENCE (1-10) FLD. SU. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

COUN 7960 SPECIAL PROBLEMS (1-10) IND. May be taken more than one semester. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

COUN 7970 SPECIAL TOPICS (1-3) LEC. 3 An in-depth study of a current topic(s) impacting the professions related to departmental programs. Pr., departmental approval. Course may be repeated for a maximum of 9 credit hours.

COUN 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with a change in topic. Course may be repeated with a change in topics.

COUN 8100 PERSONALITY AND INDIVIDUAL DIFFERENCES (3) LEC. 3 Origins and structure of individual differences in personality and intelligence, and their application to counseling.

COUN 8200 INTELLECTUAL ASSESSMENT OF ADULTS (3) LEC. 2, LAB. 3 Pr., COUN 7200. Theory and measurement of adult intelligence. Administration and interpretation of selected tests.

COUN 8300 RESEARCH DESIGN IN COUNSELING AND EVALUATION (3) LEC. 3 Methods for counseling research design. Studies, experimental, quasi-experimental, non-experimental, survey, between subjects and within subjects. Pr., departmental approval.

COUN 8400 PROFESSIONAL SEMINAR COUNSELING PSYCHOLOGY (1-3) LEC. Scientific foundations of the counseling psychology profession and application of that foundational knowledge in counseling interventions. Course may be repeated for a maximum of 9 credit hours.

COUN 8510 CONTEMPORARY ISSUES IN COUNSELOR EDUCATION (3) LEC. 3 History, development, current issues. Philosophical assumptions, legal and ethical considerations, new research service initiatives. Pr., departmental approval.

COUN 8520 CONTEMPORARY ISSUES IN SCHOOL PSYCHOLOGY (1-3) LEC. History, development, and current issues. Legal and ethical considerations, research and service initiatives, and new client populations. Course may be repeated for a maximum of 3 credit hours. ADDITIONAL PREREQUISITES: Departmental approval. Course may be repeated for a maximum of 3 credit hours.

COUN 8530 CONTEMPORARY ISSUES IN COUNSELING PSYCHOLOGY (3) LEC. 3 History, development, and current professional issues. Philosophical and cultural assumptions, legal and ethical considerations, and current research topics.

COUN 8610 ADVANCED THEORIES: EXISTENTIAL/HUMANISTIC (3) LEC. 3 Theory and practice of existential/humanistic approaches to individual and group therapy. Pr., departmental approval.

COUN 8620 ADVANCED THEORIES: COGNITIVE/BEHAVIORAL THEORIES (3) LEC. 3 Current cognitive/behavioral models for understanding human problems and behavior change. Pr., departmental approval.

COUN 8630 ADVANCED THEORIES: PSYCHODYNAMIC THEORIES (3) LEC. 3 The origins, current status, and emerging applications of psychodynamic approaches to counseling. Pr., departmental approval.

COUN 8910 PRACTICUM (3) LEC. 3 SU. Advanced supervised experiences appropriate to student’s program emphasis. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

COUN 8920 INTERNSHIP (1-9) INT. SU. Advanced supervised on-the-job experiences appropriate to doctoral-level study. Course may be repeated for a maximum of 9 credit hours. Pr., departmental approval.

COUN 8925 INTERNSHIP IN COUNSELING PSYCHOLOGY (0) INT. SU. Supervised, full-time experience in Counseling Psychology at the doctoral level. Pr., departmental approval.

Special Education, Rehabilitation, Counseling/School Psychology (SERC)

Dr. Everett Martin, Jr. - 844-7676

Dr. Randy Pipes 844-2883
COUN 8970 SPECIAL TOPICS (1-3) SEM. An in-depth study of the current educational, sociological, psychological, economic, health, legal, technological, and professional issues impacting the professions related to departmental programs. Course may be repeated for a maximum of 9 credit hours.

COUN 8980 FIELD PROJECT (1-10) FLD. SUG. Required for completion of the Education Specialist degree. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

COUN 8990 RESEARCH AND DISSERTATION (1-10) DSJ. Course may be repeated with a change in topic. Course may be repeated with change in topics.

REHABILITATION AND SPECIAL EDUCATION (RSED)

Dr. Everett Martin, Jr. 844-7676

RSED 3000 DIVERSITY AND EXCEPTIONALITY OF LEARNERS (3) LEC. 3 Exploration of philosophical, social, cultural, and legal factors, and individual characteristics shaping for education for individuals with disabilities; and roles/responsibilities of educators in inclusive settings.

RSED 3010 INTRODUCTION TO SPECIAL EDUCATION (3) LEC. 3 Orientation to special education profession including history, philosophy, federal legislation, contemporary issues and national organizations.

RSED 3020 INTRODUCTION TO REHABILITATION (3) LEC. 3 Orientation to the profession including history, philosophy, federal legislation, contemporary issues and national organizations.

RSED 3030 INTRODUCTION TO SPEECH PATHOLOGY IN SPECIAL EDUCATION (3) LEC. 3 Emphasis on the role and function of speech pathologist with respect to best practices in the school setting.

RSED 3100/3103 ASSESSMENT IN EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3 Pr., RSED 3010 Concepts and techniques for developmental screening, evaluation and assessment for young children (ages 3-8) with developmental delays. Pr., departmental approval.

RSED 3110/3113 ASSESSMENT IN SPECIAL EDUCATION (3) LEC. 3 Selection, administration, scoring and interpretation of standardized aptitude and educational tests used in the field of education.

RSED 3120 ASSESSMENT IN REHABILITATION (3) LEC. 3 Selection, administration, scoring and interpretation of work sample systems and standardized tests of intelligence, aptitude, achievement, interest, and dexterity used in the field of rehabilitation.

RSED 4010 BEHAVIOR MANAGEMENT IN SPECIAL EDUCATION (3) LEC. 3 Skills to manage the behavior of special education students including behavioral assessment, selection criteria for appropriate intervention strategies and evaluation of intervention effectiveness.

RSED 4100 PROFESSIONAL COMMUNICATION IN REHABILITATION (3) LEC. 3 Theoretical and practical aspects of written and oral communication with rehabilitation and other professionals, clients, and family members.

RSED 4110 SUPPORTED EMPLOYMENT IN REHABILITATION (3) LEC. 3 Historical, legislative, theoretical, research and practical foundation of supported employment.

RSED 4120 INDEPENDENT LIVING SERVICES IN REHABILITATION (3) LEC. 3 The history, legislation and philosophy of the independent living movement and its impact on the quality of life for people with severe disabilities.

RSED 4130 ETHICAL PRACTICES IN REHABILITATION (3) LEC. 3 Ethical dilemmas that are routinely faced by practitioners in human service occupations. Pr., departmental approval.

RSED 4900/4903 DIRECTED STUDIES (1-3) IND. SU. Content focus of study area will be translated into specific objectives with student learning guided by the instructor. Emphasis on exceptional learners. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

RSED 4910/4913 PRACTICUM (1-6) PRA. SU. Practice in educational or community service setting aligned with degree program option. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval.

RSED 4920 INTERNSHIP (9) INT. SU. Comprehensive supervised on-the-job experience in a school, college or community-based setting serving individuals with disabilities. Pr., departmental approval or admission to internship.

RSED 4970/4973 SPECIAL TOPICS (1-3) IND. Seminar in which upper-level students and professors engage in critical thinking regarding selected concepts, theories, research, and issues germane to the field of disabilities. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

RSED 5000 ADVANCED SURVEY OF EXCEPTIONALITY (3) LEC. 3 This course is an advanced study of exceptionality with emphasis upon the educational implications of disability and current issues in special education and rehabilitation. Fall, Spring.

RSED 5010 MEDICAL ASPECTS OF DISABILITY (3) LEC. 3 Medical terminology, basic body systems, common malfunctions, therapeutic services, restorative techniques, and disability evaluation for different disability groups and the vocational implications of each.

RSED 5020 PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3 Theoretical constructs and practical issues for various types of physical, mental, psychiatric, and social disabilities with implications for personal, vocational, social and community adjustment.

RSED 5030 MENTAL RETARDATION (3) LEC. 3 Historical perspective, theoretical concepts, etiology, diagnosis, definition and classification of individuals with mental retardation. Educational and rehabilitative approaches and contemporary issues are emphasized.

RSED 5040 LEARNING DISABILITIES (3) LEC. 3 Historical perspective, theoretical concepts, etiology, diagnosis, definition and classification of individuals with learning disabilities. Educational and rehabilitative approaches and contemporary issues are emphasized.

RSED 5050 BEHAVIOR DISORDER (3) LEC. 3 Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with behavior disorders. Educational and rehabilitative approaches and contemporary issues are emphasized.

RSED 5060 SEVERE DISABILITIES (3) LEC. 3 Historical perspective, theoretical concepts, etiology, diagnosis, definition and classification of individuals with severe levels of disability. Educational and rehabilitative approaches and contemporary issues are emphasized.

RSED 5070 MILD DISABILITIES (3) LEC. 3 The purpose of this course is to present the major concepts and issues related to mild disabilities. A variety of topics, ranging from the historical developments in the field to proposed teaching procedures for students, will be discussed. In-depth analysis of selected topics will be accomplished with student presentations and assignments. Fall, Spring.

RSED 5100 INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3 Pr., RSED 3010 Historical, legislative, and philosophical basis of early intervention for young children, birth through age two, with special needs and their families.

RSED 5110 CURRICULUM IN EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3 Pr., RSED 3010 Admission to Teacher Education. Procedures for developing, implementing, and monitoring individualized educational programs in natural settings.

RSED 5120 CURRICULUM IN ELEMENTARY SPECIAL EDUCATION (3) LEC. 3 Pr., RSED 3010 Admission to Teacher Education. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum activities for the collaborative instruction of elementary children with disabilities.

RSED 5130 CURRICULUM IN SECONDARY SPECIAL EDUCATION (3) LEC. 3 Pr., RSED 3010 Admission to Teacher Education. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum materials for the collaborative instruction of secondary students with disabilities.

RSED 5140 CURRICULUM IN SEVERE DISABILITIES (3) LEC. 3 Pr., RSED 3010 Understanding of a functional/developmental approach to the selection, development, implementation, and evaluation of appropriate curriculum activities for the instruction of students who have severe or profound disabilities behavior disorders, learning disabilities, mental retardation, and multiple disabilities (physical, sensory, communication, cognitive, and with concomitant disabilities).

RSED 5150 TEACHING METHODS IN SPECIAL EDUCATION (3) LEC. 3 Pr., Admission to Teacher Education. Instructional strategies in reading and math for students who have learning and behavior problems.

RSED 5160 COLLABORATION IN SPECIAL EDUCATION (3) LEC. 3 Pr., Admission to Teacher Education. Collaborative teaching, consultation, and teaming as a critical best practice in serving students with disabilities.

RSED 5170 TRANSITION FROM SCHOOL TO COMMUNITY (3) LEC. 3 History, philosophy, models, and definitions of transition with emphasis on practices, programs, and services.

RSED 5190 INSTRUCTIONAL CLASSROOM MANAGEMENT (3) LEC. 3 This course is designed to provide students with the theoretical basis and the practical application of classroom organizational and instructional classroom management for students with learning and behavioral problems. The focus of this class will be to discuss proactive approaches to instructional classroom management.

RSED 5200/5203 VOCATIONAL EVALUATION IN REHABILITATION (3) LEC. 3 Vocational evaluation and work adjustment techniques and strategies used within the rehabilitation process. Credit will not be given for both RSED 5200 and RSED 5203.

RSED 5210 OCCUPATIONAL INFORMATION (3) LEC. 3 Identification, location, and use of data resources for job accommodation and modification strategies, labor market surveys, and job placement of persons with disabilities.

RSED 5220 PLACEMENT SERVICES IN REHABILITATION (3) LEC. 3 Theories, strategies, and techniques for job development, accommodation, modification, and placement of people with disabilities with application skills needed to facilitate employment.
RSED 5230 REHABILITATION ASSISTIVE TECHNOLOGY (3) LEC. 3 Basic computer literacy; use of commercially available software, and assistive technology for use by persons with disabilities.

RSED 6000/6006 ADVANCED SURVEY OF EXCEPTIONALITY (3) LEC. 3 This course is an advanced study of exceptionality with emphasis upon the educational implications of disability and current issues in special education and rehabilitation.

RSED 6010/6016 MEDICAL ASPECTS OF DISABILITY (3) LEC. 3 Medical terminology, basic body systems, common malfunctions, therapeutic services, restorative techniques, and disability evaluation for different disability groups and the vocational implications of each.

RSED 6020/6026 PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3 Theoretical constructs and practical issues for various types of physical, mental, psychiatric, and disabilities with implications for personal, vocational, social, and community adjustment.

RSED 6030/6036 MENTAL RETARDATION (3) LEC. 3 Historical perspective, theoretical concepts, etiology, diagnosis, definition and classification of individuals with mental retardation. Educational and rehabilitative approaches and contemporary issues are emphasized.

RSED 6040/6046 LEARNING DISABILITIES (3) LEC. 3 Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with learning disabilities. Educational and rehabilitative approaches and contemporary issues are emphasized.

RSED 6050/6056 BEHAVIOR DISORDERS (3) LEC. 3 Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with behavior disorders. Educational and rehabilitative approaches and contemporary issues are emphasized.

RSED 6060/6066 SEVERE DISABILITIES (3) LEC. 3 Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with severe levels of disability. Educational and rehabilitative approaches and contemporary issues are emphasized.

RSED 6070 MILD DISABILITIES (3) LEC. 3 The purpose of this course is to present the major concepts and issues related to mild disabilities. A variety of topics, ranging from the historical developments in the field to proposed teaching procedures for students, will be discussed. In-depth analysis of selected topics will be accomplished with specific disabilities and assignments.

RSED 6100/6106 INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3 Historical, legislative, and philosophical basis of early intervention for young children, birth through age two, with special needs and their families.

RSED 6110/6116 CURRICULUM IN EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3 Procedures for developing, implementing, and monitoring individualized educational programs in natural settings.

RSED 6120/6126 CURRICULUM IN ELEMENTARY SPECIAL EDUCATION (3) LEC. 3 Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum for the collaborative instruction of elementary children with disabilities.

RSED 6130/6136 CURRICULUM IN SECONDARY SPECIAL EDUCATION (3) LEC. 3 Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum materials for the collaborative instruction of secondary students with disabilities.

RSED 6140 CURRICULUM IN SEVERE DISABILITIES (3) LEC. 3 Understanding of a functional/developmental approach to the selection, development, implementation, and evaluation of appropriate curriculum activities for the instruction of students who have severe or profound disabilities behavior disorders, learning disabilities, mental retardation, and multiple disabilities (physical, sensory, communicative, cognitive and behavioral) with concomitant disabilities.

RSED 6150/6156 TEACHING METHODS IN SPECIAL EDUCATION (3) LEC. 3 Instructional strategies in reading and math for students who have learning and behavior problems.

RSED 6160/6166 COLLABORATION IN SPECIAL EDUCATION (3) LEC. 3 Collaborative teaching, consultation, and teaming as a critical best practice in serving students with disabilities.

RSED 6170/6176 TRANSITION FROM SCHOOL TO COMMUNITY (3) LEC. 3 History, philosophy, models, and definitions of transition with emphasis on best practices, programs, and services.

RSED 6180/6186 INSTRUCTIONAL CLASSROOM MANAGEMENT (3) LEC. 3 This course is designed to provide students with the theoretical basis and the practical application of instructional organization and instructional classroom management for students with learning and behavioral problems. The focus of this class will be to discuss proactive approaches to instructional classroom management.

RSED 6200/6206 VOCATIONAL EVALUATION IN REHABILITATION (3) LEC. 3 Vocational evaluation and work adjustment techniques and strategies used within the rehabilitation process. Credit will not be given for both RSED 6200 and RSED 6206.

RSED 6210/6216 OCCUPATIONAL INFORMATION (3) LEC. 3 Identification, location, and use of data resources for job accommodation and modification strategies, labor market surveys, and job placement of persons with disabilities.
RSED 7430/7436 RESEARCH INTO PRACTICE (3) LEC. 3 Applied opportunities for translating instructional and behavioral research into practice by working with students with disabilities who attend RSE’s Summer Learning Clinic. Pr., departmental approval.

RSED 7440/7446 SEMINAR IN SPECIALIZATION (3) SEM. 3 Advanced students and professor(s) engage in critical thinking regarding selected concepts, theories, research and issues germane to the field of disabilities. Course may be repeated with change in topic. Pr., departmental approval.

RSED 7900/7906 DIRECTED STUDIES (1-3) IND. SU. Content focus of study area will be translated into specific objectives with advanced student learning guided by the instructor. The department’s policy is to restrict independent study only for content not covered in RSED’s course listing. Course may be repeated for a maximum of 3 credit hours. Pr., departmental approval.

RSED 7910/7916 PRACTICUM (1-6) PRA. SU. Practice in educational or community service setting aligned with degree program option. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

RSED 7920/7926 INTERNSHIP (9) INT. 9 SU. Comprehensive supervised on-the-job experience in a school, college or community-based setting serving individuals with disabilities. Pr., departmental approval.

RSED 7980/7986 NON-THESIS PROJECT (1-3) IND. SU. Course may be repeated for a maximum of 10 credit hours. Pr., departmental approval.

RSED 7990 RESEARCH AND THESIS (1-10) MST. The content focus of the study area will be translated into specific objectives with the student learning toward that end, guided by the instructor. In addition to regular meetings with the instructor, the student will be evaluated and graded according to learning performance. The department’s policy is to restrict independent study only for content not covered in RSED’s course listing. Pr., departmental approval.

RSED 8010 DISABILITIES AND RESEARCH METHODS (3) LEC. 3 History, principles, and methodology of single subject research with emphasis on the various types of research designs applied in rehabilitation and special education. Pr., departmental approval.

RSED 8020 DISABILITIES AND APPLIED RESEARCH IN MEASUREMENT (3) LEC. 3 Classical measurement theory, individual differences determination, constructs related to diagnostic labels, measurement bias and fairness, nature-nurture controversy, and clinical versus statistical inference. Departmental approval.

RSED 8030 DISABILITIES AND PROFESSIONAL ISSUES (3) LEC. 3 Critical and contemporary issues regarding the disability population and their relationship to the roles and leadership of professionals in special education and rehabilitation. Pr., departmental approval.

RSED 8040 DISABILITIES AND ASSISTIVE TECHNOLOGY (3) LEC. 3 Adaptive technology for use by persons with disabilities and proficiency in the use of computers and the World Wide Web as they relate to disabilities. Pr., departmental approval.

RSED 8050 DISABILITIES AND THE LAW (3) LEC. 3 Advanced knowledge of legislative and litigious basis for special education and rehabilitation programs and services. Pr., departmental approval.

RSED 8060 DISABILITIES AND LIFE SPAN TRANSITIONS (3) LEC. 3 Advanced study of historical, legal, legislative, philosophical, and service delivery issues and trends with emphasis on research studies and programs. Pr., departmental approval.

RSED 8070 PROFESSIONAL SEMINAR (3) LEC. 3 SU. The first of two consecutive doctoral seminars is devoted to professional technical writing, whereas the second seminar addresses grant writing and management. Pr., departmental approval. Course may be repeated with change in topics.

RSED 8900 DIRECTED STUDIES (1-3) IND. SU. Content focus of study area will be translated into specific objectives with student learning guided by the instructor. Pr., departmental approval. Course may be repeated with change in topics.

RSED 8980 NON-THESIS PROJECT (1-10) IND. SU. Course may be repeated with change in topic. Departmental approval. Course may be repeated with change in topic.

RSED 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topic. Departmental approval.

Statistics (STAT)

STAT 2510/2513/2514 STATISTICS FOR BIOLOGICAL AND HEALTH SCIENCES (3) LEC. 3 Pr., MATH 1100 or MATH 1120 or MATH 1130 or MATH 1150 or MATH 1610 or MATH 1617 Introduction to statistical concepts, reasoning and methods used in data analysis, descriptive statistics, sampling distributions, statistical inference, confidence intervals, regression or correlation, contingency tables. Students who have previous credit in any higher-numbered math course may not receive credit.

STAT 2610 STATISTICS FOR BUSINESS AND ECONOMICS (3) LEC. 3 Pr., MATH 1690 Introduction to statistical analysis, theory, and interpretation used in business and economics.

STAT 2710 STATISTICAL COMPUTING (1) LEC. 1 Pr., STAT 2100 and (STAT 2510 or STAT 2513) and STAT 2610 and STAT 3010 Introduction to basic statistical computing programs and methods.

STAT 3010 STATISTICS FOR ENGINEERS AND SCIENTISTS (3) LEC. 3 Pr., MATH 1610 or MATH 1617 or MATH 1710 Introduction to statistical methods and analysis used in engineering and science.

STAT 3600 PROBABILITY AND STATISTICS (3) LEC. 3 Pr., MATH 1627 or MATH 1670 or MATH 1720 Calculus-based introduction to probability and statistics with an emphasis on practical problem-solving.

STAT 3610 PROBABILITY AND STATISTICS II (3) LEC. 3 Pr., STAT 3600 Continuation of STAT 3600. Pr., departmental approval.

STAT 3611 PROBABILITY AND STATISTICS II LABORATORY (1) LAB. 2 The application of statistical techniques from STAT 3610. Pr., Departmental approval.

STAT 4020 INTERMEDIATE STATISTICAL METHOD (3) LEC. 3 Pr., STAT 3010 Two-way ANOVA; experimental design; contingency tables; multiple regression techniques; modeling building; introductory non-parametric methods; goodness-of-fit tests. Pr., departmental approval.

STAT 4610 APPLIED REGRESSION ANALYSIS (3) LEC. 3 Pr., STAT 3610 or STAT 3615 Least squares estimation, hypothesis testing and confidence interval estimation in regression and simple, polynomial and multiple linear regression; residual and lack-of-fit analysis; use of dummy variables; multiple and partial correlation analysis; model building algorithms and model comparisons; transformations.

STAT 4620 APPLIED NONPARAMETRIC STATISTICS (3) LEC. 3 Review of elementary probability; goodness-of-fit tests; for singles and several location parameters; tests for scale parameters; distribution tests; measures of association; bootstrap and permutation tests.

STAT 4630 APPLIED TIME-SERIES ANALYSIS (3) LEC. 3 ARIMA models: the auto regressive process, the moving average process, and the ARMA process; forecasting; errors and confidence intervals, updating forecast models; estimation; model building and assessment; applications in econometrics.

STAT 4970 SPECIAL TOPICS IN STATISTICS (1-3) LEC. Special topics designed to meet the needs and interest of students. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

STAT 5110 SAS PROGRAMMING (2) LEC. 2 Pr., STAT 3010 or STAT 7000 Emphasis is placed on using SAS routines to obtain statistical analyses for common statistical methods and interpretation of output.

STAT 5330 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3 Pr., STAT 3610 and INSY 4330 Covers statistical tools needed for implementation of ASix Sigma”. “Learn Six Sigma” and “Design for Six Sigma®”. Credit will not be given for both STAT 5330 and STAT 6330/6336. Pr., or departmental approval.

STAT 5350 SAMPLE SURVEY, DESIGN AND ANALYSIS (3) LEC. 3 Pr., STAT 3600 Estimation of means, proportions, finite populations, stratified sampling, systematic sampling ratio estimations. Pr., departmental approval.

STAT 5570 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3 Pr., MATH 2630 Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both STAT 5570 and MATH 5670.

STAT 5580 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3 Pr., STAT 5670 or MATH 5670 Multivariate distributions, Central Limit Theorem, Laplace transforms, convolutions, simulations, renewal processes Continuous-time Markov chains, Markov renewal and semi-regenerative processes, brownian motion and diffusion. Credit will not be given for both STAT 5580 and MATH 5680.

STAT 5590 CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3 Pr., MATH 1620 Statistics and modeling of random phenomena in connection to computational complexity, data analysis, processes of chance and chaotic nonlinear systems. Credit will not be given for both STAT 5590 and MATH 5680.

STAT 6110 SAS PROGRAMMING (2) LEC. 2 Pr., STAT 3010 or STAT 7000 Emphasis is placed on using SAS routines to obtain statistical analyses for common statistical methods and interpretation of output.

STAT 6330/6336 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3 Pr., STAT 3610 and INSY 4330 Covers statistical tools needed for implementation of ASix Sigma”. “Learn Six Sigma” and “Design for Six Sigma®”. Credit will not be given for both STAT 5330 and STAT 6330/6336. Pr., or departmental approval.
STAT 6630 SAMPLE SURVEY, DESIGN AND ANALYSIS (3) LEC. 3 Pr., STAT 3800 Estimation of means, proportions, finite populations, stratified sampling sys-

tematic sampling ration estimations. Departmental approval.

STAT 6670/6676 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3 Pr., MATH 2620 125dom variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating

functions, limit distributions. Emphasis on probabilistic reasoning and problem solv-
ing. Credit will not be given for both STAT and MATH 6670.

STAT 6680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3 Pr., MATH 6870 or STAT 6870 Multivariate distributions, Central Limit Theorem, Laplace transforms, convolutions, simulations, renewal processes Continuous-time Markov
chains, Markov renewal and semi-regenerative processes, brownian motion and diffusion. Credit will not be given for both STAT 6680 and MATH 6680.

STAT 7000 EXPERIMENTAL STATISTICS I (4) LEC. 4 Paired and independent sample t-tests, ANOVA, F-tests, contrasts, tests for trends, multiple comparisons, CR and RCB designs of experiments, regression. Pr., departmental approval.

STAT 7010 EXPERIMENTAL STATISTICS II (3) LEC. 3 Pr., STAT 7000 Advanced topics in experimental design; writing linear models for experiment-expected mean squares, variance components, nested designs, Latin Square Designs, split plot designs, ANOVA and multiple regression.

STAT 7020 REGRESSION ANALYSIS (3) LEC. 3 Pr., STAT 7000 Introduction to the method of least squares as it applies to regression and analysis of variance. Simple linear regression, multiple regression, model selection and diagnostics. Pr.,
departmental approval.

STAT 7030 CATEGORICAL DATA ANALYSIS (3) LEC. 3 Pr., (STAT 3600 or MATH 3600) or STAT 7000 Methods for analysis or categorical response data. Topics include Chi-square tests, Likelihood Ration tests, Logistic Regression, and Loglinear Modeling. Pr., departmental approval.

STAT 7040 BIOSTATISTICS (3) LEC. 3 Pr., STAT 7000 Epidemiology, biometry, methods of survival analysis. Pr., Departmental approval.

STAT 7100 STATISTICAL ANALYSIS OF SURVEY, AGGREGATE AND LARGE DATA SOURCES (3) LEC. 3 Pr., STAT 2010 Techniques commonly used in multi-

variate statistical analysis of data sources such as surveys, archival records, and other large data sets. Credit will not be given for STAT 7100 and SOCY 7100. Pr.,
departmental approval.

STAT 7270 EXPERIMENTAL DESIGN IN PSYCHOLOGY (4) LEC. 4 Pr., STAT 7000 and STAT 7020 Introduction to the analysis of data collected under differen-
tial experimental designs. Credit will not be given for both STAT 7270 and PSYC 7270.

STAT 7300/7306 ADVANCED ENGINEERING STATISTICS I (3) LEC. 3 Pr., STAT 3610 Advanced concepts of experimental design including blocking, regression

approach to analysis of variance, fractional factorials in base-2, and base-3 designs. Emphasis throughout is on improving industrial products and processes. Credit will not be given for both STAT 7300 and INSY 7300. Pr.,
departmental approval.

STAT 7310/7316 ADVANCED ENGINEERING STATISTICS II (3) LEC. 3 Pr., STAT 7300 or base-2 fractional factorial designs. Credit will not be given for both

STAT 7310 and INSY 7310. Pr., departmental approval.

STAT 7600 STATISTICAL THEORY AND METHODS I (3) LEC. 3 Pr., STAT 3600 Random variables, probability distributions, parametric models, likelihood theory, testing. Pr., departmental approval.

STAT 7610 STATISTICAL THEORY AND METHODS II (3) LEC. 3 Pr., STAT 7600 Likelihood ratio, regression, ANOVA, categorical data, non-parametric methods, decision theory.

STAT 7620 NONPARAMETRIC STATISTICS (3) LEC. 3 Pr., STAT 3600 Distribution-

free methods of statistical inference. Sign, Wilcoxon signed-rank, and Mann-

Whitney tests for location, the Chi-Square and Kolmogorov-Smirnov tests for


STAT 7700 GENERALIZED LINEAR MODELS (3) LEC. 3 Pr., STAT 7600 Exponential families and links functions, model fitting, likelihood methods, residual diagnostics, and data generating equations. Pr., departmental approval.

STAT 7780 SURVIVAL ANALYSIS (3) LEC. 3 Pr., STAT 7000 Kaplan-Meier estima-
tor, log-rank tests, Cox proportional hazard model, fully parametric models. Pr.,
departmental approval.

STAT 7800 LINEAR MODELS (3) LEC. 3 Pr., STAT 7610 and MATH 2660 STAT 7810 and MATH 2660 or departmental approval. A rigorous development of some of the important topics of applied statistics: the multivariate normal distribution analysis of variance, regression, aspects of experimental design.

STAT 7810/7816 MODERN STOCHASTIC PROCESSES I (3) LEC. 3 Pr., (MATH 6870 or STAT 6870) and MATH 6210 Classical and Modern Topics in stochastic

processes (Markov chains, Poisson process, Brownian motion). Applications and

stochastic models (queues, stationary processes, population dynamics, finances). Credit will not be given for both STAT 7810 and MATH 7810.

STAT 7820/7825 MODERN STOCHASTIC PROCESSES II (3) LEC. 3 Pr., MATH 7810 or STAT 7810 Classical and modern topics in stochastic processes (Markov
chains, Riemann and Wiener Integrals, Brownian motion.) Introduction to stochas-
tic integrals and differential equations. Applications (queues, population dynamics, chaos finances). Credit will not be given for both STAT 7820 and MATH 7820.

STAT 7840 APPLIED MULTIVARIATE STATISTICAL ANALYSIS (3) LEC. 3 Pr., STAT 7000 Multivariate normal distribution, Hotelling’s T2, MANOVA, discriminate

analysis, principal components.

STAT 7850 THEORY OF STATISTICAL INFERENCE (3) LEC. 3 Pr., STAT 7610 Bayesian methods, Markov Chain Monte Carlo methods, resampling techniques.

Pr., departmental approval.

STAT 7860 APPLIED TIME SERIES ANALYSIS (3) LEC. 3 Pr., STAT 3610 Autoregressive and moving average models, differencing, estimation and forecast-
ing, spectral theory. Pr., departmental approval.

STAT 7970 SPECIAL TOPICS (1-3) LEC. Special topics designed to meet the needs and interests of students. Course may be repeated for a maximum of 6 credit

hours. Pr., departmental approval.

STAT 7980 SPECIAL PROJECT (3) LEC. 3 SU. Non-thesis project in Statistics for Master’s degree in Statistics (non-thesis option). Departmental approval.

STAT 7990 RESEARCH AND THESIS (1-10) DSR. Research for Master’s thesis in Statistics. Course may be repeated with change in topic.

STAT 8400 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT I (3) LEC. 3 Pr., STAT 7000 Study of the application of linear regression analysis to busi-

ness research. First advanced course in applied linear statistics models. Pr., STAT 7000 or approved equivalent.

STAT 8410 ADVANCED QUANTITATIVE METHODS MANAGEMENT II (3) LEC. 3 Pr., MNGT 8400 Introduction to multivariate techniques in business research.

Study of the theory and applications of ANOVA, ANCOVA, MANCOVA, Discriminate Analysis & Polymontic Logistic Regression. Pr., MNGT 8400 or

approved equivalent.

STAT 8420 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT III (3) LEC. 3 Pr., STAT 7100 and MNGT 8400 and MNGT 8410 Third course in statisti-
cal modeling. Emphasis on applications of Principal Components Analysis, and

Structural Equation Modeling to management research. Pr., STAT 7100, MNGT 8400, MNGT 8410 or approved equivalent.

Theatre (THEA)

Prof. Daniel Larocque - 844-4748

THEA 1010 INTRODUCTION TO THEATRE (3) LEC. 3 Coreq., THEA 1011

Intended specifically for the incoming theatre major- appreciation of theatre arts

including stage, television and films. Development of sensitive and critical sophis-
tication as articulate, discriminating theatre-goers through play and film viewing,

play-reading, critiques, and term projects.

THEA 1011 INTRODUCTORY LABORATORY FOR MAJORS (1) LAB. 2 Coreq.,

THEA 1010. Recommended specifically for the incoming theatre major, Introductory Lab

for Majors is the supplemental lab for Theatre 1010. New majors will be introduced to the wide variety of skills and disciplines necessary for success in the department. Team taught by the Auburn Theatre faculty.

THEA 1110 INTRODUCTION TO THEATRE FOR MAJORS (4) LEC. 3, LAB 2 Pr.,

THEA 1010 and THEA 1011 Comprehensive introduction to the discipline and to the

discipline areas. Through lectures, discussions and special projects, students will
develop the broad foundation necessary to successfully pursue a theatre major in Auburn.

THEA 2000 BEGINNING ACTING (3) LEC. 1, LST. 3 Introduction to basic acting

techniques, literature, and performance through improvisation, contemporary scene

study, and attendance at theatre performances.

THEA 2010 INTRODUCTION TO THEATRE (3) LEC. 3 Fine Arts Core. Appreciation of theatre arts including stage, television, and film. Development of sensitive and critical sophisti-
cation as articulate, discriminating theatre-goers. Play and film view-
ing, play-reading, critiques, and term projects.

THEA 2017 HONORS INTRODUCTION TO THE THEATRE (3) LEC. 3 Fine Arts Core. Appreciation of theatre arts. Development of sensitivity and critical skills as theatre-goers. Play attendance, reading, critiques, and term projects.

THEA 2030 PRODUCTION STUDIO I (4) STU. 4 SU. Intended for freshmen and

sophomores. Experience in the design/technical and management areas of produc-
tion. Course may be repeated for a maximum of 4 credit hours.

THEA 2080 PERFORMANCE TECHNIQUES FOR THE CAMERA (3) LEC. 1, LST.

Theory and practice of specialized performance techniques for television and film.

THEA 2100 APPLIED THEATRE I ACTING (1-2) STU. Intensive applied work in acting for students cast in AU theatre productions. Leading roles are eligible for 2

hours credit; all others for 1 hour credit. Pr., Students must be cast in AU Theatre

production. Course may be repeated for a maximum of 4 credit hours.

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THEA 2110 BEGINNING VOICE FOR THE ACTOR (3) LEC. 2, LST. 2 Basic theory and technique with an emphasis on vocal productions and speech in theatrical performance.

THEA 2120 ADVANCED VOICE FOR THE ACTOR (3) LEC. 2, LST. 2 Pr., THEA 2110 Advanced theory and techniques with an emphasis on vocal production and speech in performance of texts in heightened language.

THEA 2140 ADVANCED ACTING (3) LEC. 1, LST. 3 Pr., THEA 2000 Exploration of advanced acting theory and technique in study and performance of texts in heightened language.

THEA 2310 THEATRE TECHNOLOGY I (3) LEC. 2, LAB. 2 A comprehensive introduction to the study of technical theatre; theoretical and practical applications of equipment, materials, and techniques used in technical theatre.

THEA 2400 DESIGN AESTHETICS (3) LEC. 3 An exploration of the fundamental elements and principles of design, pictorial composition, and design theory, and their relationships and potential for application in scenic, costume, and lighting design.

THEA 2610 COSTUME CONSTRUCTION (3) LEC. 1, LST. 3 Fundamentals of machine sewing techniques, pattern drafting and draping, fabric dyes, and craftwork as they relate to theatrical costuming.

THEA 2650 STAGE MAKEUP (3) LEC. 1, LST. 3 Theories and techniques of stage makeup, practical design and execution of basic makeup techniques, special effects, and character makeups.

THEA 2810 THEATRE PRODUCTION I (3-3) STU. Coreq., THEA 2820 Intensive study of the techniques students through participation in the AU Summer Repertory Company, focusing mainly on technical work and design. Pr., departmental approval. Course may be repeated for a maximum of 12 credit hours.

THEA 2820 SUMMER REPERTORY THEATRE COMPANY I (3-3) STU. Coreq., THEA 2810 A concentrated workshop experience in all aspects of theatre production through participation in rehearsal and performance. Pr., departmental approval. Course may be repeated for a maximum of 12 credit hours.

THEA 2840 BEGINNING DANCE TECHNIQUES (3) LEC. 1, LST. 3 Beginning level dance technique and theory, focusing on dance as an art form, including a survey of dance in different cultural and historical contexts. Course may be repeated for a maximum of 6 credit hours.

THEA 3000 PRODUCTION STUDIO II (1-2) STU. 4 SU. Pr., THEA 2030 Intended for freshmen and sophomores. Experience in the design/technical and management areas of production. Course may be repeated for a maximum of 8 credit hours.

THEA 3010 PRODUCTION STUDIO III (1-2) STU. 4 SU. Pr., THEA 2030 Leadership positions in the Design/Technical and Management areas of production. Pr., Four credit hours of THEA 2030. Course may be repeated for a maximum of 8 credit hours.

THEA 3100 APPLIED THEATRE II ACTING (1-2) PRA. Intensive applied work in acting for students cast in AU theatre productions. Leading roles are eligible for 2 hours credit; all others for 1 hour credit. Pr., Students must be cast in an AU theatre production. Course may be repeated for a maximum of 8 credit hours.


THEA 3200 STAGE MANAGEMENT (3) LEC. 3 Examination of the role and responsibilities of the stage manager in the producing organization: management, organization, auditions, rehearsal, and production procedures.

THEA 3210 FUNDAMENTALS OF DIRECTING (3) LEC. 2, LST. 2 Pr., THEA 2000 Theories and techniques of stage direction including play analysis, production preparation, and direction of a performance project for a live audience. Pr., departmental approval.

THEA 3320 THEATRE TECHNOLOGY II (3) LEC. 2, LST. 2 Pr., THEA 2310 Theoretical and practical applications of equipment and techniques in technical theatre. Topics include light, sound mechanics, theatre rigging, equipment, special effects, and computer applications.

THEA 3330 SCENE PAINTING (3) LEC. 2, LAB. 2 Pr., THEA 2400 Studio oriented course introducing the principles, techniques, and media of the scenic artist. Pr., departmental approval.

THEA 3350 TECHNICAL DIRECTION/PRODUCTION MANAGEMENT (3) LEC. 3 Pr., THEA 2310 and THEA 3320 Exploration of the roles and responsibilities of the Technical Director and the Production Manager in the coordination and execution of technical elements for theatre productions. Pr., departmental approval.

THEA 3400 RENDERING FOR THE THEATRE (3) LEC. 2, LST. 2 Pr., THEA 2400 Traditional and abstract rendering techniques and media that help the designer to communicate scenic, costume, and lighting designs. Departmental approval.

THEA 3410 SCENE DESIGN I (3) LEC. 2, LST. 2 Pr., THEA 2400 Discussion, research, and execution of theory and practices of designing scenery for the stage, Emphasis on traditional style and methods of design and presentation for the proscenium theatre. Pr., departmental approval.

THEA 3420 PROPERTY DESIGN AND TECHNOLOGY (3) LEC. 2, LST. 2 Pr., THEA 3320 History, design, organization, application of materials, and techniques used in the design and construction of properties for the theatre, film, and television. Pr., departmental approval.

THEA 3450 DRAFTING FOR THE THEATRE (3) LEC. 2, LST. 2 Pr., THEA 2310 A comprehensive study of the techniques and methods used in the graphic representation of stage scenery, equipment, and properties design.

THEA 3510 LIGHTING DESIGN (3) LEC. 2, LST. 2 Pr., THEA 2310 Studio course that explores the theory, research, and practice of stage lighting, practical illumination, and effects lighting. Pr., departmental approval.

THEA 3520 SOUND DESIGN (3) LEC. 2, LST. 2 Pr., THEA 3320 A course to develop an in-depth understanding of the equipment and techniques used in sound design as both a design and technical medium. Pr., departmental approval.

THEA 3610 ADVANCED COSTUME CONSTRUCTION (3) LEC. 2, LST. 2 Pr., THEA 2610 Historical pattern making and draping, millinery skills, and craft techniques, and their practical applications in theatre costuming.

THEA 3640 COSTUME DESIGN (3) LEC. 2, LST. 2 Pr., THEA 2400 Costume design and rendering as it relates to historical and original design for the theatre. Exploration of design for television, commercials, and rock stars.

THEA 3700 ANALYSIS OF DRAMATIC LITERATURE (3) LEC. 3 Survey of plays from the major periods of theatre history with an emphasis on how to analyze a diversity of dramatic and performative styles.

THEA 3710 THEATRE HISTORY I (3) LEC. 3 Social, religious, political and artistic forces that have contributed to the development of theatre in Western civilization from its origins through 1850.

THEA 3720 THEATRE HISTORY II (3) LEC. 3 Social, religious, political and artistic forces that have contributed to the development of theatre in Western civilization from 1850 to the present.

THEA 3730 TOPICS IN HISTORY AND CRITICISM (3) LEC. 3 Advanced study of specific areas of theatre history and dramatic criticism. Individual topics announced prior to offering of the course. Course may be repeated for a maximum of 6 credit hours.

THEA 3740 COSTUME HISTORY (3) LEC. 3 History of Western costume and its uses in the theatre from ancient times to the present.

THEA 3840 INTERMEDIATE DANCE TECHNIQUES I (3) LEC. 1, LST. 3 Pr., THEA 2850 Intermediate level dance technique and theory, with an emphasis on performance qualities including work on alignment, strength, flexibility, rhythm, musicality, and dynamics, as well as the study of select contemporary choreographers. Intermediate I and II need not be taken in sequence. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

THEA 3850 INTERMEDIATE DANCE TECHNIQUES II (3) LEC. 1, LST. 3 Pr., THEA 3840 Further exploration into intermediate level dance technique and theory, with emphasis on aesthetics and contemporary topics in dance. Intermediate I and II need not be taken in sequence. Course may be repeated for a maximum of 6 credit hours. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

THEA 4050 THEATRE OPERATIONS AND MANAGEMENT (3) LEC. 3 A comprehensive study of the economic and administrative aspects of theatrical producing: business management, promotion and marketing, and audience development.

THEA 4140 SENIOR STUDIO I: ELEMENTS OF STYLE (6) LEC. 4, LST. 4 Pr., THEA 3160 Intensive team-taught studio training in advanced performance theory and technique in selected styles and periods for the B.F.A. Performance Major.


THEA 4180 MOVEMENT SPECIAL PROJECTS (1-3) LEC. Pr., THEA 2840 Intensive exploration of movement theory and practice with emphasis on circus skills, stage combat, mask work, and period dance. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

THEA 4190 ACTING SPECIAL PROJECTS (1-3) LEC. Selected advanced projects in performance. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

THEA 4290 DIRECTING SPECIAL PROJECTS (3) LEC. 1, LST. 3 Pr., THEA 3210 Direction of a long one-act or full-length play for public performance. Course may be repeated for a maximum of 9 credit hours.

THEA 4420 SCENE DESIGN II (3) LEC. 2, LST. 2 Pr., THEA 3410 Advanced course in theory and practice of scenic and lighting design for theatre. Emphasis on experimental and non-traditional staging in a variety of space. Pr., departmental approval.
THEA 4490 SCENE DESIGN SPECIAL PROJECTS (1-3) LEC. Selected projects in scenic design executed for a public production. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

THEA 4590 LIGHTING DESIGN: SPECIAL PROJECTS (1-3) LEC. Selected projects in lighting design executed for a public production. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

THEA 4650 ADVANCED STAGE MAKEUP (3) LEC. 1, LST. 3 Pr., THEA 2650 Comprehensive study of specialized makeup: film, television, mask making, prosthesis, facial hair design, and wig making. Pr., departmental approval.

THEA 4660 THEATRE TECHNOLOGY: SPECIAL PROJECTS (1-3) LEC. Selected projects in theatre technology and/or technical direction for a public production. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

THEA 4690 COSTUME DESIGN SPECIAL PROJECTS (1-3) LEC. Selected projects in costume and/or makeup design executed for a public production. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

THEA 4750 PLAYWRITING (3) LEC. 3 Cover the principles of play construction, assignment of playwriting exercises, and the completion of a one-act play.

THEA 4810 THEATRE PRODUCTION II (3-6) STU. A concentrated workshop experience in all aspects of theatre production through participation in rehearsal and performance. Pr., departmental approval. Course may be repeated for a maximum of 12 credit hours.

THEA 4820 SUMMER REPERTORY THEATRE COMPANY II (3-6) STU. Intensive and concentrated study of production skills and techniques and studio/laboratory experiences. Pr., departmental approval. Course may be repeated for a maximum of 12 credit hours.

THEA 4840 ADVANCED DANCE TECHNIQUES (3) LEC. 1, LST. 3 Pr., THEA 3850 Intensive study of advanced dance techniques in theory and practice. Course often serves as a training and preparation for public performance. Pr., departmental approval. Course may be repeated for a maximum of 12 credit hours.

THEA 4890 DANCE SPECIAL PROJECTS (1-3) LEC. Pr., THEA 2650 Selected advanced projects in dance. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

THEA 4920 PROFESSIONAL INTERNSHIP (1-8) INT. Internship with professional or community theatre in the student’s field of specialization. Each 10-hour work week equals one hour of credit. Pr., departmental approval. Course may be repeated for a maximum of 8 credit hours.

THEA 4930 DIRECTED STUDIES (1-3) IND. Directed readings, creative and tutorial projects of interest to the advanced student. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

THEA 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Subject areas to be determined between student and Theatre instructor. Course may be repeated for a maximum of 6 credit hours.

THEA 4980 SENIOR CAPSTONE PROJECT (3) LEC. 3 Research and production of a senior project in the student’s area of emphasis executed for a public audience. Required of all candidates in the BFA in Production/Design and Management program.

THEA 4997 HONORS THESIS (1-6) IND. Final projects of varying natures and in the theatre program. Course may be repeated for a maximum of 6 credit hours.

Textile Management (TXMT)

TXMT 4820 SENIOR RESEARCH I (1) IND. 1 Conclusion of an undergraduate research sequence.

TXMT 4970 SPECIAL TOPICS (1-10) IND. Reading and special projects course for overview in specific areas of textile technology and management. Departmental approval. Course may be repeated for a maximum of 12 credit hours.

Textile Technology (TXTN)

Dr. Peter Schwartz - 844-4123

TXTN 2000 INTRODUCTION TO TEXTILE TECHNOLOGY (2) LEC. 2 Survey of the technology dealing with the manufacture of textiles, including fiber, yarn, fabric, and coloration and finishing treatments.

TXTN 2110 YARN FORMATION I (2) LEC. 1, LAB. 3 Pr., TXTN 2000 Different yarn forming systems including: staple, filament and textured yarns. Interaction between raw material and machinery that creates specially-designed yarns.

TXTN 2210 FABRIC-FORMING SYSTEMS (3) LEC. 2, LAB. 3 Pr., TXTN 2110 The principles of fabric formation technologies for the production of woven, knitted, non-woven and tufted structures. Solutions for managing production and problems in production.

TXTN 2920 INDUSTRY INTERNSHIP (3) IND. 3 A directed project in an industrial setting addressing current, significant problems selected by the sponsor and approved by the course coordinator. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

TXTN 3210 STRUC AND PROPERTIES OF FIBERS (4) LEC. 3, LAB. 3 Pr., CHEM 1020 STRUCTURE AND PROPERTIES OF FIBERSCHEM 1020. The relationships between the chemical structure, fiber properties and use of textile fibers. Polymer synthesis and fiber manufacture.

TXTN 3450 TECHNICAL TEXTILES (3) LEC. 3 Pr., TXTN 2210 A survey of technical textiles used in applications other than apparel and home furnishings.

TXTN 3500 TESTING OF TEXTILE MATERIALS (3) LEC. 2, LAB. 3 Pr., TXTN 2110 Basic principles of measuring physical properties of textile fibers, yarns and fabrics. Application of testing methods and results to practical problem solving and standards evaluation.

TXTN 4967 HONORS READINGS (1-3) IND. Course may be repeated for a maximum of 3 credit hours.

TXTN 4997 HONORS THESIS (3) LEC. 3 Individual student endeavor consisting of directed research and writing of honors thesis. May be substituted for TXCH 4990/ TXCH 4910 or TXMT 4900/TXMT 4910.

SUSTAINABILITY STUDIES (SUST)

SUST 2000 INTRODUCTION TO SUSTAINABILITY (3) LEC. 3 Introduction to the interdisciplinary study of sustainability.

SUST 5000 SENIOR CAPSTONE IN SUSTAINABILITY (3) LEC. 3 Pr., SUST 2000 Capstone research seminar for students completing the Minor in Sustainability Studies.

University Courses (UNIV)

UNIV 1000 THE AUBURN EXPERIENCE (1) LEC. 1 Surveys the history of the University, current student resources, and academic programs.

UNIV 1050 SUCCESS STRATEGIES (1) LEC. 1 An introduction to essential academic and personal skills. Designed to familiarize students with university life and academic improvement skills. First-term student, 2.20 or below, or departmental approval.

UNIV 1060 SUCCESS STRATEGIES II (2) LEC. 2 SU. Designed for those in academic jeopardy, this course assists students in identifying issues impacting academic success and developing strategies to affect positive change. Must have below a 2.0 GPA.

UNIV 1100 FIRST YEAR SEMINAR (1-2) LEC/SEM. Introduce a topic of interest with contemporary importance to beginning college students. Course may be repeated for a maximum of 4 credit hours.

UNIV 1150 SPECIAL TOPICS WITH LEARNING STRATEGIES (2) LEC. 2 This course offers first-year students an opportunity to explore a topical area of interest while integrating related study skills.

UNIV 2000 FOUNDATIONS OF LEADERSHIP (3) LEC. 2, LAB. 1 Introductory course for students pursing the Leadership Minor.

UNIV 2190 INTRO TO INTERDISCIPLINARY STUDY (SU) (3) LEC. 3 Pr., ENGL 1120 or ENGL 1127 Introductory course to the theories and approaches for Interdisciplinary Degree seeking majors. Students will work alongside academic and career advisors to produce an approved plan of study for Interdisciplinary coursework to be completed.

UNIV 2710 THE HUMAN ODYSSEY I (3) LEC. 3 History Core. Examines the human endeavor from pre-history through the 17th century by exploring connections between the sciences and humanities.

UNIV 2717 HONORS HUMAN ODYSSEY I (3) LEC. 3 History Core. Examines the human endeavor from prehistory through the 17th century by exploring connections between the sciences and humanities.
UNIV 2720 THE HUMAN ODYSSEY II (3) LEC. 3 History Core. Examines the human endeavor from the 18th century through the present by exploring connections between the sciences and humanities.

UNIV 2727 HONORS HUMAN ODYSSEY II (3) LEC. 3 History Core. Examines the human endeavor from the 18th century through the present by exploring connections between the sciences and humanities.

UNIV 2777 HONORS LYCEUM (1) LEC. 1 SU. Weekly academic lectures followed by a discussion and interaction. Course may be repeated for a maximum of 2 credit hours.

UNIV 2940 AUBURN ABROAD (0) AAB. Pr., 2.25 GPA. Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/education.

UNIV 2945 AUBURN ABROAD (0) ABB/FLD. Pr., 2.25 GPA. Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/education.

UNIV 4000 LEADERSHIP IN PRACTICE (3) LEC. 3 Capstone course in interdisciplinary leadership minor.

UNIV 4900 GENERIC EXTERNAL TRANSFER CREDIT (.67-13.34) LEC. 2 Course may be repeated for a maximum of 13.34 credit hours.

UNIV 4920 CURRICULAR PRACTICAL TRAINING (0) PRA. For international students and scholars on U.S. OS EV approved Academic Training. Pr., Office of International Education authorized enrollments only.

UNIV 4940 AUBURN ABROAD (0) AAB. Pr., 2.25 GPA. Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/education.

UNIV 4945 AUBURN ABROAD (0) AAB/FLD. Pr., 2.25 GPA. Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/education.

UNC 4980 CAPSTONE EXPERIENCE (3) LEC. 3 Completion of UNIV 2190 with a grade of C or better and 90 credit hours. Capstone course designed to apply interdisciplinary Degree Coursework to a service learning, internship or senior thesis project.

UNIV 4420 UNIVERSITY GRADUATION (0) LEC.

UNIV 5940 AUBURN ABROAD (0) AAB. Pr., 3 GPA. Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/education.

UNIV 5945 AUBURN ABROAD (0) AAB/FLD. Pr., 3 GPA. Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/education.

UNIV 7010 RURAL STUDIO CERTIFICATE (0) LEC. 3

UNIV 7020 RURAL STUDIO CERTIFICATE I (0) LEC. 3

UNIV 7030 RURAL STUDIO CERTIFICATE II (0) LEC. 3

UNIV 7940 AUBURN ABROAD (0) AAB/FLD. Pr., 3 GPA. Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/education.

UNIV 7945 AUBURN ABROAD (0) AAB/FLD. Pr., 3 GPA. Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/education.

Veterinary Medicine (VMED)

Dr. Carl Pinkert - 844-3700

BIO MEDICAL SCIEN CES (VBMS)

VBMS 6111 VETERINARY ANATOMY I (4) LAB. 12 Gross anatomy of the dog and cat including skeletal and muscular systems, neck, thorax, limbs, abdomen, pelvis, head, and nervous system. Credit will not be given for both VMED 5111 and VBMS 6111. Departmental approval.

VBMS 7000 NEUROANATOMY (5) LEC. 3, LAB. 4 Functional morphology of nervous system from input/output through the long systems; limbic relations to endocrine and autonomic nervous system. Comparative among primates and domestic animals. Departmental approval.

VBMS 7020 MICROSCOPIC ANATOMY (1) LEC. 1, LAB. 4 A detailed study of and preparation of the basic tissues. Light microscopy and electron micrograph preparations are used to describe and interpret morphology. Pr., departmental approval.

VBMS 7030 MICROSCOPIC ANATOMY II (3) LEC. 1, LAB. 4 Light microscopy and electron microscopy detailed study of the cardiovascular, hemopoietic, digestive, urinary and respiratory systems of domestic animals. Pr., departmental approval.

VBMS 7050 DEVELOPMENTAL NEUROBIOLOGY (3) LEC. 3 Overview of the development of the nervous system. Emphasis will be directed towards understanding sensory systems, development, plasticity and function. Pr., departmental approval.

VBMS 7060 FUNGAL TOXINS (2) LEC. 2 Biology and epidemiology of fungi involved with diseases caused by fungal toxins. Detection, adverse health effects in diverse animal species, regulatory aspects, and control strategies. Pr., departmental approval.

VBMS 7070 ENDOCRINOLOGY (4) LEC. 4 Pr., BCHE 7200 and BCHE 7260 and BIO 650 Molecular and cellular endocrinology and physiological regulation of hormone synthesis, secretion, and action in mammalian species. Emphasis will be placed on metabolic regulatory hormones. Pr., departmental approval.

VBMS 7080 MOLECULAR ENDOCRINOLOGY (2) LEC. 2 Pr., VMED 7070 Examination of the literature of hormonal synthesis, secretion and mechanism of action with emphasis on receptors, second messenger systems, and gene regulation. Pr., departmental approval.

VBMS 7090 CLINICAL PHARMACOLOGY (3) LEC. 3 The actions and effects of drugs on human beings. Pr., Acceptable courses in biochemistry and physiology; departmental approval.

VBMS 7110 ADVANCED CARDIOVASCULAR PHYSIOLOGY (5) LEC. 5 Cellular and molecular regulation of cardiovascular function. Pr., departmental approval.

VBMS 7120 MEMBRANE PHYSIOLOGY (3) LEC. 2, LAB. 3 The classic and modern aspects of biological membranes. Labs include patch clamp, reconstruction of ion channels in bilayers, Langmuir-Blodgett techniques, and other methods. Pr., departmental approval.

VBMS 7130 VETERINARY MEDICINE DIAGNOSTIC ULTRASONOGRAPHY (3) LEC. 3 Pr., VMED 5120 and VMED 5121 The principles and practice of veterinary medical diagnostic ultrasonography as they are utilized in evaluating normal and abnormal anatomy. All animals are used in this course. Veterinary anatomy and/or DVM degree.

VBMS 7140 PHYSIOLOGY I (5) LEC. 5 Cellular, Cardiovascular, Renal and Respiratory Physiology. Pr., departmental approval.

VBMS 7150 PHYSIOLOGY 2 (4) LEC. 4 Pr., VBMS 7140 Gastrointestinal Physiology, Metabolism, Endocrinology, and Reproductive Physiology. Pr., departmental approval.

VBMS 7160 NEUROSCIENCE (3) LEC. 3 An overview of neuroscience on the subcellular, cellular and system levels. Pr., departmental approval.

VBMS 7170 ANATOMY, PHYSIOLOGY, PHARMACOLOGY SEMINAR (1) SEM. 1 Required of all graduate students in Anatomy, Physiology, and Pharmacology.

VBMS 7180 RECEPTOROLOGY (4) LEC. 4 Pr., VBMS 7070

VBMS 7210 RADIATION BIOLOGY (4) LEC. 4 Exploration of biological, physical, and chemical basis of radiotetherapy with emphasis on the biological effects of ionizing radiation at the cellular and molecular level. Effects of irradiation on the tumor, normal tissues, and the patient will be addressed. Pr., dVM degree; Residency in Radiation Oncology or Radiology or Small Animal Oncology and registered in the Graduate School.

VBMS 7240 ADVANCED SCIENCE OF CANINE AND EQUINE LOCOMOTION (3) LEC. 3 Attendees will learn about the science of biomechanics, muscle physiology and how they apply to locomotion or the athletics and working dog and horse.

VBMS 7250 NORMAL RADIOLOGICAL ANATOMY (3) LEC. 3 A detailed study of the normal structure, size and position of the various organs of the cat, dog, horse, cow, and other veterinary species as they appear on plain and contrast radiographs. Pr., dVM Degree, acceptance in an established residency program.

VBMS 7260 ADVANCED RADIOLOGY (3-5) LEC. Detailed study of concepts and techniques of all imaging procedures. Pr., For graduate students and residents in DCSP program or DVM or equivalent.

VBMS 7270 RADIOLOGICAL INTERPRETATIONS (3-5) LEC. The interpretation of various diagnostic imaging modalities used in veterinary medicine and their applications in the diagnostic work-up of clinical cases presenting to the College of Veterinary Medicine. DVM Degree.

VBMS 7280 PHYSICS OF DIAGNOSTIC IMAGING (3) LEC. 3 Principles of physics related to the imaging modalities of diagnostic radiology, ultrasoundography, magnetic resonance imaging, scintigraphy, computed tomography, and radiation therapy. Students will study physics at the atomic level but must also develop an understanding of construction, function, and hazards of modern imaging equipment. Pr., dVM Degree.

VBMS 7290 GRADUATE SEMINAR (1) SEM. 1 A mandatory graded seminar presentation, held in conjunction with the VBMS seminar series, presenting the resident student's individual Master of Science degree research topic including pertinent review, hypothesis, materials, results, and discussion of findings. Pr., departmental approval.
VBMS 7340 LARGE ANIMAL SURGERY AND MEDICINE SEMINAR (1) SEM. 1 Seminar required of all graduate students in large animal surgery and medicine. Meets at scheduled intervals each year. Pr., departmental approval.

VBMS 7350 ADVANCED LARGE ANIMAL UROGENITAL SURGERY (5) LEC. 3, LAB. 6 Research in surgery. Advanced techniques for urogenital surgical procedures in large domestic animals. Pr., departmental approval.

VBMS 7360 ADVANCED LARGE ANIMAL SOFT TISSUE SURGERY (5) LEC. 4, LAB. 2 Research in surgery. Advanced techniques for soft tissue surgical procedures in large domestic animals. Pr., departmental approval.

VBMS 7370 ADVANCED LARGE ANIMAL ORTHOPEDIC SURGERY (5) LEC. 3, LAB. 2 Research and advanced techniques for orthopedic surgical procedures in large domestic animals.

VBMS 7380 ADVANCED FOOD ANIMAL MEDICINE (3) LEC. 3 In-depth study of food animal medical diseases of all body systems with emphasis on pathophysiological mechanisms. Pr., departmental approval; DVM degree.

VBMS 7390 ADVANCED EQUINE MEDICINE (3) LEC. 3 Detailed etiology, symptoms, pathogenesis, treatment, and prevention of the medical diseases affecting the various systems and organs of the equine, bovine, ovine, and porcine species. Pr., departmental approval.

VBMS 7400 GYNECOLOGY OF LARGE DOMESTIC ANIMALS (3) LEC. 3 Diseases and problems of the reproductive system in the female domestic animals. Normal and abnormal conditions of various species are covered. Pr., departmental approval; DVM degree.

VBMS 7410 ANDROLOGY OF LARGE DOMESTIC ANIMALS (3) LEC. 3 Diseases and problems of the reproductive system in male domestic animals. Pr., departmental approval; DVM degree.

VBMS 7420 ADVANCED VETERINARY ANESTHESIOLOGY (4) LEC. 4 Pr., departmental approval.

VBMS 7430 HEALTH MAINTENANCE OF FOOD ANIMALS (3) LEC. 5 Research in production medicine. Principles of production medicine to enhance animal health and productivity. Pr., departmental approval.

VBMS 7440 ADVANCED EQUINE ARTHROSCOPIC SURGERY (5) LEC. 3, LAB. 6 Research in surgery. Advanced techniques for arthroscopic surgical procedures in the horse. Pr., departmental approval; DVM degree.

VBMS 7450 SELECTED TOPICS IN GRADUATE EDUCATION RESEARCH (1) LEC. 1 SU. Overview of research funding strategies, grant preparation, transfer of research technology and patents, research ethics, etc. Pr., departmental approval.

VBMS 7460 BACTERIAL PATHOGENESIS (3) LEC. 3 Pr., VBMS 7510 or BIOL 4520 Molecular and cellular basis of virulence of bacterial pathogens of animals. Departmental approval.

VBMS 7470 ADVANCED EPIDEMIOLOGY (3) LEC. 3 Advanced epidemiological techniques and their application to disease research, clinical retrospective and prospective studies, and disease outbreak investigation. Introductory statistics course or departmental approval.

VBMS 7480 METHODS IN IMMUNOLOGY (5) LEC. 1, LAB. 8 Theoretical concepts underlying immunological methods combined with practical hands-on immunological experimentation focused on application to research in the biological sciences. Departmental approval.

VBMS 7490 DIAGNOSTIC TECHNIQUES IN VETERINARY MICROBIOLOGY (4) LEC. 1, LAB. 9 Techniques used in modern diagnostic microbiology laboratories. Pr., departmental approval.

VBMS 7500 CELLULAR AND MOLECULAR IMMUNOLOGY (3) LEC. Pr., BIOL 6500 Current literature in immunobiology, emphasis on cellular biochemical/genetic basis of immune response. Pr., departmental approval.

VBMS 7520 EUKARYOTIC MOLECULAR BIOLOGY (3) LEC. 3 Genetic mechanisms by which eukaryotic cells replicate, communicate and differentiate. Current literature will be used extensively.

VBMS 7530 EXPERIMENTAL TECHNIQUES IN MOLECULAR AND CELL BIOLOGY (3) LEC. 2, LAB. 6 Nucleic acid detection/amplification/sequencing, protein/antibody chemistry, flow cytometry, photo/electron microscopy fluorescence, radioisotopes, centrifugation, cell/embryo culture.

VBMS 7540 CURRENT TOPICS IN MOLECULAR VIROLOGY (3) LEC. 3 Pr., VBMS 7510 and VBMS 7520 Viral gene expression and evasion of host defense mechanisms. Pr., departmental approval.

VBMS 7550 PATHOLOGY (1-3) LEC. SU. Diagnostic interpretation of lesions and test results. Special topics or current issues in pathology to meet the particular needs of students. Pr., DVM degree or equivalent; Departamental approval. Course may be repeated for a maximum of 3 credit hours.

VBMS 7560 GENERAL PATHOLOGY (4) LEC. 3, LAB. 3 Fundamental alterations of disease. Pr., departmental approval; Satisfactory courses in histology and physiology.

VBMS 7570 DIAGNOSTIC PATHOLOGY (1-3) LEC. SU. Diagnosis of animal diseases using necropsy procedures and histopathology. Required every semester of all graduate students and residents in pathology. Pr., DVM degree. Course may be repeated for a maximum of 3 credit hours.

VBMS 7580 SURGICAL PATHOLOGY (1-3) LEC. SU. Histopathologic diagnosis of surgical biopsy specimens. Required every semester for all graduate students and residents in pathology. Pr., DVM degree. Course may be repeated for a maximum of 3 credit hours.

VBMS 7590 AVIAN PATHOLOGY (4) LEC. 4 Comparative avian pathology emphasizing cause, pathogenesis and lesions associated with diseases; differential diagnosis and diagnostic procedures to confirm a diagnosis. Pr., departmental approval.

VBMS 7600 ADVANCED CLINICAL PATHOLOGY I (3) LEC. 3 Pr., VMED 5230 The lymphohematopoietic system. Normal components and evaluation of disease states. Departmental approval.

VBMS 7610 ADVANCED CLINICAL PATHOLOGY II (3) LEC. 3 Pr., VBMS 5230 Laboratory evaluation of organ function; disease pattern recognition. Pr., departmental approval.

VBMS 7620 DIAGNOSTIC ONCOLOGY (3) LEC. 3 Pr., VMED 5220 Principles of gross and microscopic interpretation of animal neoplasms using basic and specialized techniques. Pr., departmental approval.

VBMS 7630 BASIC AND CLINICAL ONCOLOGY (3) LEC. 3 Comparative aspects of the etiology, pathophysiology, diagnosis and treatment of cancer.

VBMS 7640 MECHANISMS OF DISEASE (3) LEC. 3 Pr., VMED 5220 or equivalent, departmental approval. Disease processes, disorders; morphologic, molecular and genetic aspects of disease processes. Pr., departmental approval.

VBMS 7650 VETERINARY PROTOZOOLOGY AND ENTOMOLOGY (3) LEC. 3 Current topics in immunology, physiology, molecular biology, pathogenicity, etc. of selected protozoal and arthropod parasites. Pr., departmental approval.

VBMS 7660 VETERINARY HELMINTHOLOGY (3) LEC. 3 Current topics in immunology, physiology, biochemistry, molecular biology, epidemiology, and pathogenicity of selected helminth parasites. Departmental approval.

VBMS 7670 PATHOLOGY PARASITIC DISEASES (3) LEC. 2, LAB. 2 Pr., VBMS 7560 Gross and microscopic pathology of parasitic diseases of veterinary importance. Pr., departmental approval.

VBMS 7680 PATHOLOGY SEMINAR (1) LEC. 1 Pr., VMED 5220 Weekly conference to discuss gross and histologic pathology in animal tissues. Pr., departmental approval.

VBMS 7690 READINGS IN IMMUNOLOGY AND INFECTIOUS DISEASE (1) LEC. 1 SU. Pr., BIOL 6500 or VBMS 7500 To familiarize students with current scientific literature in immunology and the methods employed.

VBMS 7700 COMBINATORIAL BIOCHEMISTRY AND PHAGE DISPLAY (4) LEC. 1, LAB, 6 In-depth study of combinatorial biochemistry and phage display as a tool for development of new drugs, vaccines and diagnostics for veterinary medicine.

VBMS 7710 ADVANCED EUKARYOTIC MOLECULAR BIOLOGY (3) LEC. 3 Pr., VBMS 7520 Current literature in molecular mechanisms of information transfer and regulation in eukaryotes.

VBMS 7720 DEVELOPMENTAL MOLECULAR BIOLOGY (3) LEC. 3 Pr., VBMS 7520 Genetic mechanisms by which eukaryotes differentiate from single cells to complex multicellular organisms will be covered. Important examples of biomedical dysfunction will be used to illustrate developmental pathways. Current literature will be used extensively.

VBMS 7750 GRADUATE COLOQUIUM IN VETERINARY CLINICAL SCIENCE (1) CLN. 1 Forum to present topics relevant to the students clinical and research interests. This a mandatory seminar for graduate students in the Department of Clinical Science. Pr., DVM degree or departmental approval. Course may be repeated for a maximum of 5 credit hours.

VBMS 7760 ADVANCED NEUROSURGERY (4) LEC. 2, LAB. 6 Applied anatomy, physiology, physical and radiographic diagnosis and surgical correction of lesions affecting the nervous system of small pet animals.

VBMS 7770 ADVANCED SMALL ANIMAL GENERAL SURGERY (3) LEC. 2, LAB. 3 Application of critical thinking skills to perioperative plans and tasks. Pr., DVM or VMED degree, or equivalent.

VBMS 7780 VETERINARY WOUND MANAGEMENT AND RECONSTRUCTIVE SURGERY (4) LEC. 2, LAB 2 Techniques in veterinary wound management and reconstructive surgery in large and small animals. Pr., DVM degree or equivalent.

VBMS 7790 SMALL ANIMAL ORTHOPEDICS (3) LEC. 3 Review of orthopedic diseases in small animals, interactive review of recent literature and advanced laboratory sessions intended for residents in small animal surgery. Pr., DVM degree or equivalent.

VBMS 7800 ADVANCED SMALL ANIMAL NEUROLOGY (3) LEC. 3 Advanced study of neurodiagnostics and non-surgical therapy of neurological disorders in small domestic animals.

VBMS 7810 ADVANCED SMALL ANIMAL MEDICINE I (3-5) LEC. Special study of the causes, methods of diagnosis, treatment and control of non-surgical urogenital
diseases of small animals. Pr., dVM degree; Departmental approval. Course may be repeated for a maximum of 5 credit hours.

**VMED 7820 ADVANCED SMALL ANIMAL MEDICINE II (3-5)** LEC. 3 Special study of the causes, methods of diagnosis, treatment and control of non-surgical gastrointestinal diseases of small animals. Pr., dVM degree; Departmental approval. Course may be repeated for a maximum of 5 credit hours.

**VMED 7830 ADVANCED SMALL ANIMAL MEDICINE III (3-5)** LEC. 3 Special study of the causes, methods of diagnosis, treatment and control of non-surgical cardiovascular and respiratory diseases of small animals. Pr., dVM degree; Departmental approval. Course may be repeated for a maximum of 5 credit hours.

**VMED 7840 ADVANCED SMALL ANIMAL MEDICINE IV (3-5)** LEC. Molecular biology lectures and techniques related to diagnostic and research application to clinical problems in small animal veterinary medicine. Pr., dVM degree; Departmental approval. Course may be repeated for a maximum of 5 credit hours.

**VMED 7850 ADVANCED VETERINARY MEDICAL SPECIALTY TRAINING (1-4)** LEC. 1, LAB. 2 Course may be repeated for a maximum of 4 credit hours.

**VMED 7870 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC MEDICINE (3)** LEC. 3 Advanced ophthalmology with emphasis on diagnosis, pathophysiology and treatment of ocular diseases of domestic animals. Pr., dVM degree or equivalent.

**VMED 7880 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC BASIC SCIENCES (3)** LEC. 3 Advanced ophthalmology with emphasis on diagnosis, pathophysiology and treatment of ocular diseases of domestic animals. Pr., dVM degree or equivalent.

**VMED 7910 ADVANCED EQUINE CRITICAL CARE I (2)** LEC. 2 Introduce students to the mechanisms of disease, state of the art knowledge/procedures & treatment of conditions relevant to the critical equine patient.

**VMED 7920 ADVANCED EQUINE CRITICAL CARE II (2)** LEC. 2 Introduce students to the mechanisms of disease, state of the art knowledge/procedures & treatment of conditions relevant to the critical equine patient.

**VMED 7950 GRADUATE SEMINARS IN VETERINARY CLINICAL SCIENCES (1)** SEM. 1 SU. Presentation of thesis research. Pr., dVM degree or departmental approval.

**VMED 7970 RESEARCH PROBLEMS IN BIOMEDICAL SCIENCES (1-5)** RES. Research problems for graduate students, under supervision of faculty, in variety of specialized disciplines related to the biomedical sciences. Pr., Faculty approval. Course may be repeated for a maximum of 15 credit hours.

**VMED 7980 NON-THESIS PROJECT (1-3)** LEC. 3 SU. Non-thesis project, to be determined by faculty advisor and student’s graduate advisory committee. Pr., dVM degree or departmental approval.

**VMED 7990 RESEARCH AND THESIS IN BIOMEDICAL SCIENCES (1-10)** MST. Credit to be arranged. Course may be repeated with change in topics.

**VMED 8950 BIOMEDICAL SCIENCES SEMINAR (1)** SEM. 1 SU. Recent advances in biochemistry, cell biology and molecular biology will be critically presented and discussed by graduate faculty and students.

**VMED 8990 RESEARCH AND DISSERTATION (1-10)** DSR. Course may be repeated with change in topics.

**VETERINARY MEDICINE (VMED)**

**VMED 5000 ORIENTATION TO VETERINARY MEDICINE (0)** SEM. 1 SU. Overview of organized veterinary medicine, history of the profession, professional responsibilities and privileges, and career opportunities within the profession.

**VMED 5010 VETERINARY MEDICAL ETHICS (1)** LEC. 1 Ethical issues confronting veterinarians in every phase of the profession.

**VMED 5012 PROBLEM-SOLVING IN VETERINARY MEDICINE I (1)** LEC. 1 SU. Moderator-guided, student-directed solving of problems selected by faculty to reflect integration of course material presently and previously covered in the CVM curriculum.

**VMED 5020 VETERINARY MEDICINE AND THE LAW (1)** LEC. 1 Laws relating to the veterinary profession, public policies, and government regulations.

**VMED 5022 PROBLEM-SOLVING IN VETERINARY MEDICINE II (1)** LEC. 1 SU. Moderator-guided, student-directed solving of problems selected by faculty to reflect integration of course material presently and previously covered in the CVM curriculum.

**VMED 5030 VETERINARY PUBLIC HEALTH (4)** LEC. 4 Zoonoses, principles of epidemiology and food hygiene, role of veterinarian in public health.

**VMED 5032 PROBLEM SOLVING IN VETERINARY MEDICINE III (1)** LEC. 1 SU. Moderator-guided, student-directed solving of problems selected by faculty to reflect integration of course material presently and previously covered in the CVM curriculum.

**VMED 5042 PROBLEM SOLVING IN VETERINARY MEDICINE IV (1)** LEC. 1 SU. Moderator-guided, student-directed solving of problems selected by faculty to reflect integration of course material presently and previously covered in the CVM curriculum.

**VMED 5052 PROBLEM SOLVING IN VETERINARY MEDICINE V (1)** LEC. 1 SU. Moderator-guided, student-directed solving of problems selected by faculty to reflect integration of course material presently and previously covered in the CVM curriculum.

**VMED 5110 PHYSIOLOGY I (5)** LEC. 5 Cellular, Cardiovascular, Renal, and Respiratory Physiology.

**VMED 5111 VETERINARY ANATOMY I (SMALL ANIMAL) (4)** LAB. 12 Basic concepts of body structure and small animal gross anatomy with veterinary medical applications. Credit will not be given for both VMED 5111 and VMED 8111.

**VMED 5120 PHYSIOLOGY II (4)** LEC. 4 Gastrointestinal Physiology, Metabolism, Endocrinology, and Reproductive Physiology.

**VMED 5121 VETERINARY ANATOMY II (3)** LAB. 9 In-depth study of the gross anatomy of the ox, horse, and minor species with inclusion of clinical relevance.

**VMED 5130 CELL PHYSIOLOGY AND MOLECULAR GENETICS (2)** LEC. 2 Introduction to advanced concepts in the mechanisms regulating cell function and molecular biology and genetics.

**VMED 5131 BASIC MICROANATOMY/DOMESTICS ANIMALS (3)** LEC. 1, LAB. 4 Functional comparative microstructure of cells, basic tissues, cardiovascular system, urinary system, skeleton and osteogenesis, respiratory system, and blood of domestic animals.

**VMED 5141 ORGANANOLOGY OF DOMESTIC ANIMALS (2)** LAB. 4 Comparative microstructure of the digestive system, lymphoid system, endocrine system, integumentary system, reproductive system, and placenta ion of domestic animals.

**VMED 5150 DIAGNOSTIC IMAGING (2)** LEC. 1, LAB. 1 Basic radiographic and ultrasonographic physics; introduction to computed tomography, magnetic resonance imaging, and nuclear imaging.

**VMED 5151 VETERINARY NEUROSCIENCES (5)** LEC. 4, LAB. 2 Gross and microscopic morphology and physiology of the peripheral and central nervous systems.

**VMED 5180 VETERINARY ETOLOGY (1)** LEC. 1 Basic concepts of etiology and other approaches to animal behavior, introduce diagnostic and treatment methods, discuss relevant cases.

**VMED 5200 VETERINARY PARASITOLOGY I (3)** LEC. 2, LAB. 2 Platyhelminthes, trematodes, and nematodes of domestic animals.

**VMED 5210 VETERINARY PARASITOLOGY II (2)** LEC. 2, LAB. 2 Arthropods, protozoa, helminths, and acanthocephalans of domestic animals. Parasitcides.

**VMED 5220 PRINCIPLES OF VETERINARY PATHOLOGY (3)** LEC. 2, LAB. 2 General principles of pathology and mechanisms of disease processes affecting animals.

**VMED 5230 VETERINARY CLINICAL PATHOLOGY (3)** LEC. 3 Laboratory test principles and results interpretations in evaluation of hematopoietic, coagulation, hepatic, renal, gastrointestinal, acid/base and fluid status of animals.

**VMED 5240 PRINCIPLES OF VETERINARY IMMUNOLOGY (3)** LEC. 3 Principles underlying the immune system’s ability to protect animals from disease and mechanisms by which immune responses contribute to disease.

**VMED 5250 PRINCIPLES OF VETERINARY INFECTIOUS DISEASE (4)** LEC. 3, LAB. 2 Principles of infectious agents and their pathogenic attributes, infectious diseases of animals, and mechanisms of antimicrobial agents.

**VMED 5260 VETERINARY PHARMACOLOGY (3)** LEC. 3 Overview of drugs relevant to veterinary practice; pharmacodynamics, pharmacokinetics, clinical application.

**VMED 5301 PHYSICAL DIAGNOSES OF LARGE AND SMALL ANIMALS (2)** LEC. 1, LAB. 2 Basic approach to physical examination of large and small animals.

**VMED 5310 INTRODUCTION TO SURGERY (1)** LAB. 1 Basics of surgical instrument use, aseptic technique, wound healing, approaches and management of surgery of abdomen and thorax, fluid and nutritional needs of perioperative patients.

**VMED 5311 SURGICAL PRACTICUM (2)** PRA. 4 Aseptic technique, instrument handling, suture patterns, surgical ties, anesthetic administration/monitoring, surgical incision/tissue handling, wound closure, postoperative patient management.

**VMED 5320 CLINICAL VETERINARY NUTRITION (2)** LEC. 2 Nutritional requirements and feeding programs of cats, dogs, horses, cows, sheep, goats, llamas and some exotic pets.

**VMED 5330 MULTISPECIES MEDICINE (3)** LEC. 3 Cause, pathology, diagnosis, and control of common diseases of poultry, companion birds, small mammal, fish, amphibian, and reptile pets.

**VMED 5340 EMERGENCY MEDICINE AND CRITICAL CARE (2)** LEC. 2 Emergency presentations, critical care management.
Vmed 5360 production preventative medicine (3) LEC. 3 Principles of disease prevention and maximization of production application of food safety principles.

Vmed 5370 oncology (1) LEC. 1 Diagnostic and therapeutic measures used to manage animals with oncologic diseases.

Vmed 5502 current topics in veterinary medicine (1) LEC. 1 SU. Emerging topics in veterinary medicine, current literature. Course may be repeated for a maximum of 15 credit hours.

Vmed 5510 hemolymph/integumentary system (4) LEC. 4 Diagnosis, treatment and prevention of diseases affecting the integumentary and hemolymphatic systems.

Vmed 5520 cardiovascular system (2) LEC. 2 Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the cardiovascular system.

Vmed 5530 respiratory system (3) LEC. 3 Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the respiratory system.

Vmed 5540 alimentary system (5) LEC. 5 Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the alimentary system.

Vmed 5550 urinary system (2) LEC. 2 Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment, and prevention of disease affecting the urinary system.

Vmed 5560 endocrine system (2) LEC. 2 Pathophysiology, pathologic lesions, diagnosis, treatment and prevention of diseases of the endocrine system.

Vmed 5570 reproductive system (5) LEC. 5 Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment; and prevention of diseases of the reproductive system.

Vmed 5580 nervous system (2) LEC. 2 Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment, and prevention of diseases affecting the nervous system.

Vmed 5590 musculoskeletal system (3) LEC. 3 Pathophysiology; pathologic, radiographic and ultrasonographic lesions; diagnosis; treatment; and prevention of diseases affecting the musculoskeletal system.

Vmed 5601 veterinary clinical rotations (3) LEC. 3 Clinical experiences through various specialty services in the Veterinary Medical Teaching Hospital. Course may be repeated with change in topics.

Vmed 5602 research problems in biomedical science (1-10) RES. SU. Research problems in a variety of specialized disciplines for veterinary students and advanced undergraduates. Pr., departmental approval. Course may be repeated for a maximum of 10 credit hours.

Vmed 5611 veterinary clinical rotations-electives (3) CLN. 3 SU. Clinical experiences through various specialty services in the Veterinary Medical Teaching Hospital. Course may be repeated for a maximum of 9 credit hours.

Vmed 5650 canine sports medicine and rehabilitation (1) LEC. 1 SU. Activities, requirements, and disorders encountered in canine athletes; role of veterinarian in care and rehabilitation; current research.

Vmed 5660 laboratory animal medicine (1) LEC. 1 SU. Handling, and diseases of common laboratory animals.

Vmed 5680 pocket pet medicine (1) LEC. 1 SU. Diseases, treatment, restraint, examination, sample collection in rabbits, guinea pigs, hamsters, rats, mice, and ferrets.

Vmed 5690 reptile and amphibian medicine (1) LEC. 1 SU. Diseases, treatment, husbandry, handling, restraint, examination, sample collection in reptiles and amphibians.

Vmed 5702 writing reinforcement for the health professional (1) LEC. 1 SU. Written and oral presentation of project emphasizing health promotion and disease prevention in the 21st century. Pr., departmental approval.

Vmed 5710 practice management (1) LEC. 1 SU. Fundamental principles of effective client, personnel, practice and business management for the veterinarian.

Vmed 5720 disaster medicine for veterinarians (2) LEC. 2 SU. Role of the veterinarian in responding to natural and man-made disasters.

Vmed 5721 applied anatomy I (1) LAB. 3 PR., Vmed 5111 Detailed anatomical basis for small animal surgical approaches.

Vmed 5730 avian and exotic animal physiology (1) LEC. 1 PR., Vmed 5110 and Vmed 5120 Homeostatic physiologic mechanisms of birds, reptiles, fish, and other species, differences from mammals emphasized.

Vmed 5731 applied anatomy II (1) LAB. 3 PR., Vmed 5111 Detailed anatomical basis for small animal diagnostics and therapeutics.

Vmed 5740 applied companion animal behavior (2) LEC. 2 PR., Vmed 5300 and Vmed 5180 Diagnosis, treatment and client education on selected behavioral problems in companion animals.

Vmed 5741 equine limb joints and foot (1) LAB. 3 SU. Pr., Vmed 5121 A study of the functional anatomy of the joints and foot of the horse fore and hind limbs.

Vmed 5750 diagnostic veterinary ultrasonography (2) LEC. 1, LAB. 2 PR., Vmed 5211 and Vmed 5150 Basic physics, instrumentation, and scanning techniques of ultrasonography. Normal sonographic anatomy correlated with the cross-sectional anatomy of body structures and organs.

Vmed 5760 advanced clinical ophthalmology (1) LEC. 1 SU. Pr., Vmed 5900 Strategies and methods of diagnosis, treatment and prevention of diseases of the eye in large and small animals.

Vmed 5770 advanced veterinary dermatology (1) LEC. 1 SU. Pr., Vmed 5510 Clinical dermatology in a case-based format.

Vmed 5780 advanced small animal oncology (1) LEC. PR., Vmed 5370 Current diagnostic and therapeutic methods used in small animal oncology.

Vmed 5790 small animal wound management and surgery (1) LEC. 1 SU, PR., Vmed 5510 and Vmed 5310 Wound management, reconstructive/salvage surgery.

Vmed 5800 applied small animal neurology (1) LEC. 1 SU. Pr., Vmed 5580 Clinical management of commonly occurring neurologic diseases of small domestic animals.

Vmed 5801 preceptorship (3) LAB. 20 SU. Training in a practice situation under the direct supervision of a veterinarian or, under certain conditions, in specialized programs. Pr., Approval of Preceptorship Committee.

Vmed 5820 advanced reproductive techniques (2) LEC. 2 PR. Vmed 5120 Techniques associated with embryo transfer, fetal sexing, in-vitro fertilization, applied and experimental techniques in cattle emphasized.

Vmed 5830 veterinary medicine and the public (1) LEC. 1 SU. News events related to veterinary medicine and the role of the veterinarian in public education and public policy.

Vmed 5840 wildlife diseases (2) LEC. 2 SU. Control and role of veterinarian in prevention of disease in wild animals, specifically wildlife indigenous to U.S.

Vmed 5850 cattle practice (1) LEC. 1 SU. Techniques for handling, examination, sample collection, diseases, and nutrition of cattle.

Vmed 5850 advanced techniques in population medicine (1) LEC. 1 SU. Techniques for investigation of disease problems in populations with emphasis on computer software specialized for outbreak investigation and disease mapping.

Vmed 5870 aquarium fish medicine (1) LEC. 1 Prevention, diagnosis, and treatment of freshwater and marine aquarium fish diseases.

Vmed 5880 equine reproduction (1) LEC. 1 Reproductive physiology, endocrinology, breeding soundness evaluation, breeding management and advanced technologies.

Vmed 5890 beef production/computer record system (1) LAB. 1 PR., Vmed 5360 Hands-on experience with computerized record systems for beef cattle operations.

Vmed 5930 special senses (1) LEC. 1 Pathophysiology, pathologic lesions, diagnosis, treatment and prevention of diseases affecting eyes, ears and nose.

Vmed 5940 introduction to anesthesia (3) LEC. 2, LAB. 2 Principles and practices of veterinary anesthesia in large and small animals.

Vmed 5950 clinicopathologic conference (6) SEM. 1 SU. Oral presentation of veterinary clinical case or case material.

Vmed 5960 special problems (1) LEC. 1 SU. Introduction to veterinary literature, evaluation of recent articles, references, reports on veterinary medicine.

Vmed 5995 veterinary clinical rotations - externships (6) CLN. SU. Successful completion of didactic veterinary curriculum. Students will participate in clinical rotations including specialty rotations.

Women’s Studies (WMST)

Dr. Ruth Crocker - 844-6647

WMST 2100 Introduction to Women's Studies (3) LEC. 3 Interdisciplinary examination of the definitions of gender and impact of culture on the construction of gender. Diversity of representation, reflecting upon the histories of women from a local and global perspective will be the keynote of the course.

WMST 3900 directed readings in women studies (1-3) LEC. Directed study in an area of special interest. Pr., departmental approval. Course may be repeated for a maximum of 3 credit hours.

WMST 4980 Feminist Theory (3) LEC. 3 PR. WMST 2100 Focus on the feminist theorists who have analyzed gender subordination. Students will become acquainted with a variety of the theorists and with the history of feminist activism. Pr., departmental approval.