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 listed 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.

Courses are numbered according to the following system:

1XXX-Undergraduate courses primarily for freshmen.
2XXX-Undergraduate courses primarily for sophomores.
3XXX-Undergraduate courses primarily for juniors.
4XXX-Undergraduate courses primarily for seniors.
5XXX-Professional school courses and courses for fifth-year students.
6XXX-Graduate courses; open also to advanced undergraduates (Junior or Senior Standing Required).
7XXX-Graduate courses. Not available to undergraduates.
8XXX-Graduate courses. Not available to undergraduates.
9XXX-Undergraduate and Professional Distance Education courses (Graded Option)
XXX6-Graduate outreach courses.

SUBJECT AREA INDEX

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Accountancy (ACCT)
Dr. Richard H. Taber - 844-5340

A 2.0 GPA is required for enrollment in any Business course at the 3000-level or above. This rule applies to Business and non-Business students.

ACCT 2110 PRINCIPLES OF FINANCIAL ACCOUNTING (3).LEC. 3. Pr., Sophomore standing and successful completion of University IT Exam or COMP 1000. Basic accounting principles with focus on preparation and use of financial statements. Credit will not be given for both ACCT 2110 and 2910.

ACCT 2210 PRINCIPLES OF MANAGERIAL ACCOUNTING (3).LEC. 3. Pr., ACCT 2110. A continuation of ACCT 2110, with emphasis on cost accounting, budgeting, and decision-making using managerial accounting information.


ACCT 2920 INCOME TAXES FOR NON-ACCOUNTANTS (3).LEC. 3. Pr., ACCT 2110 or 2910. Tax principles for individuals and entities.

ACCT 2990 BUSINESS LAW (3).LEC. 3. Introduction to contracts, sales, torts, ethics and the judicial system. Focus is on the business environment.

ACCT 2991 LEGAL ENVIRONMENT OF BUSINESS (3).LEC. 3. Legal and social environment for business operations with emphasis on contemporary issues.


ACCT 3120 FINANCIAL ACCOUNTING AND REPORTING II (3).LEC. 3. Pr., ACCT 3110 with a grade of C or better. Continuation of ACCT 3110, with emphasis on fixed assets, capital structure, and cash flows.


ACCT 3710 SMALL BUSINESS ACCOUNTING AND TAX CONSULTING (3).LEC. 3. Pr., ACCT 2210 or 2910. Focus on financial statements for closely-held companies and designing strategies for wealth accumulation and asset management.

ACCT 3990 ADVANCED BUSINESS LAW (3).LEC. 3. Pr., ACCT 2990. Legal principles concerning secured transactions, bankruptcy, trusts and estates, partnership law, property, corporations, accountant’s legal liability, and negotiable instruments.

ACCT 4130 FINANCIAL ACCOUNTING AND REPORTING III (3).LEC. 3. Pr., ACCT 3120, minimum 2.5 GPA in ACCT 3110 and 3120, and minimum 2.7 GPA in all Pr., accounting courses taken. Emphasis on combinations and segment reporting.


ACCT 4210 MANAGERIAL DESIGN AND USE OF ACCOUNTING INFORMATION (3).LEC. 3. Pr., ACCT 3510. A study of how cost data for products, projects, or services are recorded, analyzed, and used for decision-making.

ACCT 4310 CONTROL AND ASSURANCE OF ACCOUNTING INFORMATION (3).LEC. 3. Pr., ACCT 3510. Design of internal controls and assurance services that identify and control business risks.

ACCT 4410 INCOME TAX I (3).LEC. 3. Pr., ACCT 3110. Principles of federal taxation as it applies to individuals and property transactions.

ACCT 4920 ACCOUNTING INTERNSHIP (3).LEC. 3. Internship opportunity with an accounting firm, corporation, or governmental entity.

ACCT 6210/6216 CONTROLLERSHIP (3).LEC. 3. Pr., ACCT 4210 or departmental approval. The impact of ethical, international, environmental, and personnel issues on corporate accounting.


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

ACCT 6610/6616 GOVERNMENTAL AND NOT-FOR-PROFIT ACCOUNTING (3).LEC. 3. Pr., ACCT 3120 or departmental approval. 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 4130 or departmental approval. Advanced accounting topics with focus on developing research skills using LEXIS/NEXIS and EDGAR.

ACCT 7120/7126 INTERNATIONAL ACCOUNTING (3).LEC. 3. Pr., ACCT 4130 or departmental approval. Accounting issues unique to international business activity.

ACCT 7210/7216 ACCOUNTING FOR DECISION MAKING AND CONTROL (3).LEC. 3. Pr., ACCT 4210 or departmental approval. Relationship between management accounting and information systems and analysis of costs.

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

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


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


ACCT 7980/7986 INTEGRATED ACCOUNTING CONCEPTS FOR DECISION MAKING (3).LEC. 3. Capstone course for majors.

Aerospace Engineering (AERO)
Dr. John E. Cochran - 844-4874

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. Pr., Sophomore standing. 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 airflows, three dimensional wings, drag, and flight performance.


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, MATH 2650. Modeling of system elements, classical feedback control techniques used in the analysis of linear systems, analysis of systems undergoing various modes of operation connected with flight.

AERO 3230 FLIGHT DYNAMICS (4).LEC. 3. LAB. 3. Pr., AERO 3110, ENGR 2350, 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, 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 material properties and structural response.

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 4640 AEROSPACE STRUCTURES III (2).LEC. 1, LAB. 3. Pr., AERO 4620. Computer methods applied to aircraft and space vehicle structural components.

AERO 4710 AIRCRAFT DESIGN I (3).LEC. 2, LAB. 3. Pr., AERO 3120. Aircraft and space vehicle structural design. Introduction to the principles of Class I and Class II fixed-wing aircraft design.

AERO 4720 AIRCRAFT DESIGN II (3).LEC. 2, LAB. 3. Pr., AERO 4710. Application of the principles of Class I and Class II fixed-wing aircraft design through construction of an actual small-scale glider.

AERO 4730 SPACE MISSION DESIGN (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 4769 SPECIAL TOPICS IN AEROSPACE ENGINEERING (1-3). LEC. Pr., departmental approval. Investigation of current state-of-the-art technologies in aerospace engineering. Course may be repeated for a maximum of 3 credit hours.

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


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


AERO 6320 APPLICATIONS OF THE GLOBAL POSITONING SYSTEM (3). LEC. 3. Pr., departmental approval. 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.

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 SATELLITE APPLICATIONS (3). LEC. 3. Pr., 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 651L/15256 ROCKET PROPULSION (3). LEC. 3. Pr., AERO 4510. Analysis of the thermodynamics, gas dynamics and design of liquid and solid propellant rocket engines.


AERO 6750/6756 LEGAL ASPECTS OF ENGINEERING PRACTICE (3). LEC. 3. Pr., AERO 4150. The role of the law in the manufacture of a product. Ethical issues that may confront designers and engineers.


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


AERO 7140 COMPUTATIONAL FLUID DYNAMICS (3). LEC. 3. Pr., AERO 4140. Introduction to the application of modern numerical computational techniques to problems arising in fluid dynamics. Emphasis on solving practical problems and understanding the basic physical phenomenon involved.

Agricultural Economics (AGEC)

**Agricultural Economics (AGEC)**

Dr. J. Lavaughn Johnson - 844-4800

**AGEC 2100 MICROCOMPUTER APPLICATIONS IN AGRICULTURE** (3). LEC. An introduction to the use of computer technology: hardware and software including languages, electronic spreadsheet, word processing, data-based management, and programmed products; interface with data sources and processing systems.

**AGEC 3010 AGRIBUSINESS MARKETING** (3). LEC. 3. Pr., ECON 2020 and AGEC 2100. 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 and AGEC 2100, or departmental approval. Functions, institutions, economic performance, and practices and procedures involved in utilizing futures and options markets to manage market price risks.

**AGEC 3920 AGRICULTURAL BUSINESS AND ECONOMICS INTERNSHIP** (1-2). INT. Pr., departmental approval and sophomore standing. 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 2 credit hours.


**AGEC 4070 AGRICULTURAL LAW** (3). LEC. 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 4930 DIRECTED STUDIES IN AGRICULTURAL ECONOMICS** (1-2). IND. Pr., departmental approval, junior standing. 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 2 credit hours.

**AGEC 4950 UNDERGRADUATE SEMINAR** (0). SEM. Pr., junior standing. 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 READINGS** (1-3). IND. Pr., membership in the Honors College and junior standing. Topics in agricultural economics. Course may be repeated for a maximum of 3 credit hours.

**AGEC 4997 HONORS THESIS** (1-3). LEC. 3. Pr., membership in the Honors College and junior standing. Directed research and writing of honors thesis. Course may be repeated for a maximum of 3 credit hours.

**AGEC 6000 PRINCIPLES OF AGRIBUSINESS MANAGEMENT** (3). LEC. 3. Pr., ECON 2020, AGEC 2100 junior standing. Economics 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.)

**AGEC 6010 FARM MANAGEMENT** (3). LEC. 3. Pr., AGEC 2100 and ECON 3020, or equivalents. 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 or equivalent; Math 1610 and Math 2510 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.

**AGEC 6090 RESOURCE ECONOMICS I** (3). LEC. 3. Pr., AGEC 2100 and ECON 3020. Supply, demand, future requirements and availability of natural resource 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, AGEC 2100 and AGEC 4040, and ACCT 2120, or departmental approval. Principles and problems in acquiring or starting, organizing, and operating successful agribusiness; financial and operational efficiency; human resource and payroll management; decision-making methods.

**AGEC 6120 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS** (3). LEC. 3. Economic principles related to common property, public goods, property rights, externalities and resource scarcity and allocation applied to current issues.

**AGEC 7000 ADVANCED AGRICULTURAL AND ENVIRONMENTAL POLICY** (3). LEC. 3. Pr., AGEC 6090 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 7030 ADVANCED AGRICULTURAL PRICES** (3). LEC. 3. Pr., AGEC 6030 and ECON 6020. Theory and measurement of farm supply, retail demand and marketing-margin relationships. 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. 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 and case studies of development programs.


**AGEC 7250 AQUACULTURAL ECONOMICS II** (3). LEC. 3. Pr., AGEC 7200 or departmental approval. 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, STAT 2610 or equivalent. 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, heteroscedasticity, autocorrelation and measurement errors.

**AGEC 7700 RESEARCH METHODS IN AGRICULTURAL ECONOMICS** (3). LEC. 3. 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. A forum for sharing research information and interaction on topics and issues of current interest.

**AGEC 7970 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS** (1-3). LEC. 3. Pr., departmental approval. Individualized direction/instruction by faculty on research, teaching and/or outreach issues. Course may be repeated for a maximum of 3 credit hours.

**AGEC 7990 RESEARCH AND THESIS** (1-10). MST. Course may be repeated for a maximum of 10 credit hours.

**AGEC 8060 THEORY OF AGRICULTURAL MARKETS** (3). LEC. 3. Pr., AGEC 7950 and ECON 6020 or departmental approval. Theory and methods for analyzing complete demand systems (e.g., LEA, AUS, 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 investments.


**AGEC 8990 RESEARCH AND DISSERTATION** (1-10). DSR. Course may be repeated for a maximum of 10 credit hours.

**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.

AGRN 4610 RURAL SOCIOLOGY (3).LEC. 3. Pr., SOCCY 1000. 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 4930 DIRECTED STUDIES IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (1-3). IND. Pr., departmental approval, junior standing. 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 4980 DIRECTED FIELD EXPERIENCE (3).LEC. 3. Pr., departmental approval, junior standing. Structured intensive involvement within an agency or organization serving people in communities or rural areas. Supervision is shared between agency personnel and department faculty who plan, consult, discuss, and evaluate student activities and reports.

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 7610 RURAL SOCIOLOGY (3).LEC. 3. Pr., SOCCY 1000. 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 7650 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 7650 POLITICAL ECONOMY OF DEVELOPMENT (3).LEC. 3. Theories of societal development applied to contemporary issues associated with change in non-industrialized nations. Exploration of institutional, class, and state interests that guide development processes, as well as alternative participatory development strategies.

RSOC 7640 SOCIOLOGY OF COMMUNITY DEVELOPMENT (3).LEC. 3. Pr., SOCCY 1000 or departmental approval. 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 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., SOCCY 3700 or departmental approval. Problem identification and hypothesis development and empirical analysis. Quantitative and qualitative procedures for obtaining social data using surveys, direct observation and secondary sources.

RSOC 7970 SPECIAL PROBLEMS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (1-3).LEC. Pr., departmental approval. Individual study in a particular area or topic of interest involving an in-depth review of the literature, a research project, or an outreach education activity. Course may be repeated for a maximum of 3 credit hours.

RSOC 7990 RESEARCH AND THESIS (1-10). MST. Course may be repeated for a maximum of 10 credit hours.

Agriculture (AGRI)

AGRI 3800 AGRICULTURAL LEADERSHIP DEVELOPMENT (2).LEC. 1, LAB. 2. Pr., sophomore standing, COMM 1000. Programmed sessions and activities designed to enhance self-awareness of leadership skills and enable students to become effective leaders.

Agronomy and Soils (AGRN)

AGRN 1000 BASIC CROP SCIENCE (4).LEC. 3. LAB. 2. Basic agronomic principles involved in classification, growth, structure and soil-plant relationships of field crops. Emphasis is on the influence of man and environment on crop growth, and the local and global importance of crop production in world food production. Fall, Spring.

AGRN 2040 INTRODUCTION TO SOILS (4).LEC. 3, LAB. 2. Pr., CHEM 1010 and CHEM 1011. For non-majors only. Soil development, morphology, chemical properties, fertility and tillage as related to crop growth. Credit will not be given for both AGRN 2040 and 3040. Spring, Summer, Fall.

AGRN 3040 BASIC SOILS (4).LEC. 3, LAB. 2. Pr., CHEM 1040 and 1041. Formation, classification, composition, properties, management, fertility and conservation of soils in relation to the production of crops. Credit will not be given for both AGRN 2040 and 3040. Fall, Spring.

AGRN 3100 SOILS IN AGRICULTURAL AND EARTH SYSTEMS (4).LEC. 3. LAB. 2. Pr., GEO 1100, 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 both 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, BIOL 3100, and AGRN 2040 or 3040. Weed identification and biology, methods of weed management and classification of herbicides and how they are used in weed control. Laboratory subjects are weed identification and sprayer calibration. Fall.

AGRN 3150 TURFGRASS MANAGEMENT (4).LEC. 3. LAB. 2. Pr., BIOL 1020 and AGRN 2040 or 3040. The management of recreational and home area turfgrass will be studied including establishment and maintenance of turf and the effects of light, traffic, soil fertility and water on its growth. Fall.

AGRN 3210 AGRICULTURAL LEADERSHIP DEVELOPMENT (3).INT. 3. Pr., departmental approval. Practical experience under the supervision of an approved employer and the department. Internship may be in the areas of production, business, turf or science.


AGRN 4000 ADVANCED CROP PRODUCTION (3).LEC. 3. Pr., AGRN 1000 or BIOL 1030 and either AGRN 2040 or AGRN 3040. Application, expansion and integration of principles from undergraduate agricultural, biological and physiological sciences courses to crop management of crop production systems with emphasis on discussion and problem-solving. Spring.

AGRN 4010 FORAGE PRODUCTION AND UTILIZATION (3).LEC. 3. Pr., junior standing. 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. Pr., AGRN 2040 or AGRN 3040. Description, evaluation and interpretation of soil-profile characteristics. Fall.

AGRN 4970 SPECIAL PROBLEMS (1-3).IND. 1. Pr., departmental approval, junior standing. Work under the direction of a staff member on special problems in soils or soil science. Course may be repeated for a maximum of 3 credit hours.

AGRN 5000 SOILS AND ENVIRONMENTAL QUALITY (3).LEC. 3. Pr., AGRN 3040. 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. Fall.

AGRN 6000 SOILS AND ENVIRONMENTAL QUALITY (3).LEC. 3. Pr., AGRN 4000. Work under the direction of a staff member on special problems in soils or soil science. Course may be repeated for a maximum of 3 credit hours.

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


AERF 2011 AFROTC LEADERSHIP LABORATORY (0). LAB. 2. Coreq., AERF 2020 or departmental approval. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.


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

AERF 3011 AFROTC LEADERSHIP LABORATORY (0). LAB. 2. Coreq., AERF 3010 or departmental approval. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.

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

AERF 3021 AFROTC LEADERSHIP LABORATORY (0). LAB. 2. Coreq., AERF 3020 or departmental approval. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.

AERF 4010 NATIONAL SECURITY AFFAIRS AND PREPARATION FOR ACTIVE DUTY (3). LEC. 3. Pr., AERF 4020 or departmental approval. Coreq., AERF 4011. For AFROTC senior cadets. The role of military officers in American society.

AERF 4011 AFROTC LEADERSHIP LABORATORY (0). LAB. 2. Coreq., AERF 4010 or departmental approval. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.


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

Aerospace Studies (AERF)


AIRF 1011 AFROTC LEADERSHIP LABORATORY (0). LAB. 2. Coreq., AIRF 1010 or departmental approval. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.

AMLG 3050 AVIATION METEOROLOGY (3). LEC. 3. Pr., departmental approval. Meteorology as it applies to the operation of aircraft with emphasis on observations of weather elements and interpretation of flight planning weather information.


AMLG 3140 AEROSPACE MANAGEMENT AND OPERATIONAL PROBLEMS (3). LEC. 3. Pr., computer competency, 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.


AMLG 3330 ADVANCED AERODYNAMICS (3). LEC. 3. Pr., PHYS 1510. The principles of aerodynamics and aircraft design and how aerodynamic factors affect aircraft performance. Sign lift, the air traffic performance in modern society. Flight control. All the steps in the aircraft design process, from concept to test flight and the reasoning behind them.

AMLG 3710 INTRODUCTION TO LOGISTICS (3). LEC. 3. Pr., 2.0 GPA, junior standing. Coreq., MKTG 3310. Logistics activities and their interrelationships in the management of the materials supply and distribution process.

AMLG 3720 PRINCIPLES OF TRANSPORTATION (3). LEC. 3. Pr., 2.0 GPA, ECON 2020. The study of transportation systems and their role in domestic and international trade.

AMLG 4030 GENERAL AVIATION MANAGEMENT (3). LEC. 3. Pr., MNQT 3100. An overview of the aviation industry including a study of the various users, the suppliers and service organizations, the aircraft and facilities and regulatory framework.

AMLG 4040 GENERAL AVIATION OPERATIONS (2). LEC. 2. Pr., junior standing. Current principles and practices in commercial and business/corporate flight operations including organization sources of revenue, functions, operation and typical problems.

AMLG 4050 AVIATION SAFETY (3). LEC. 3. Pr., junior standing. Problems and issues of aviation safety including aircraft accidents, their cause, effect and the development of safety programs and procedures.

AMLG 4050 AVIATION ACCIDENT CAUSES AND INVESTIGATION (3). LEC. 3. Pr., junior standing. Analysis and insight into the sequence of circumstances that can occur and cause an aircraft accident to happen as well as the techniques, processes and limitations in determining aircraft accident causation.

AMLG 4080 AIR TRANSPORT PLANNING (3). LEC. 3. Pr., AMLG 4090. Management decision making involved in selection of equipment, routes and the establishment of rates by certified and non-certified air carriers.

AMLG 4090 AEROSPACE LAW AND INSURANCE (3). LEC. 3. Pr., departmental approval. The legal structure of aviation including federal, local and state statutes, contracts, insurance and liability, regulatory statutes and case law.


AMLG 4140 AIRPORT PLANNING AND DESIGN (3). LEC. 3. Pr., AMLG 4130. Principles and procedures pertaining to planning airport facilities required to meet the immediate and future air transportation of a community or region.

AMLG 4160 AIRLINE OPERATIONS (3). LEC. 3. Pr., junior standing or departmental approval. The management of the airline industry including the flow of product and its accompanying information around the world.

AMLG 4170 AIRLINE MANAGEMENT (3). LEC. 3. Pr., junior standing or departmental approval. Aeroplane manufacturing economic and operational/managerial issues, research and development and competition issues and a survey of the world’s major aerospace manufacturing companies.

AMLG 4180 INTERNATIONAL AIRLINE OPERATIONS (3). LEC. 3. Pr., departmental approval or junior standing. International foreign air carriers, influences of ICAO and IATA, national ownership, determinants of power, operational and management practices, routes and fares.

AMLG 4190 AIR TRAFFIC CONTROL FUNDAMENTALS (3). LEC. 3. Pr., departmental approval. Air traffic control procedures, facilities, center, and operations. Theory of radar operation and air traffic separation using computer-based RTCA radar simulators.

AMLG 4200 AIR TRANSPORT OPERATIONS (3). LEC. 3. Pr., junior standing. Domestic and international air cargo operations with emphasis on cargo economics, equipment, domestic and international regulatory issues, agents, operational techniques, systems and problems.

AMLG 4210 COMMUTER AIRLINE OPERATIONS AND MANAGEMENT (3). LEC. 3. Pr., departmental approval. Management practices and operational characteristics of the commuter airline and its place in the air transportation system.

AMLG 4220 COMPARATIVE AIRLINE MANAGEMENT AND OPERATIONS (3). LEC. 3. Pr., junior standing or departmental approval. 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.

AMLG 4260 MULTI-ENGINE TRAINING I (1). LEC. 1. Pr., AMLG 2271 or departmental approval. Principles of personnel transportation in night and IFR operations; includes aircraft operation, flight planning weather decision, and passanger evacuation procedures.

AMLG 4271 MULTI-ENGINE TRAINING II (1). LEC. 2. Pr., AMLG 2271 or Commercial Pilot Certificate with Instrument rating and/or Pr., departmental approval. Instruction in methods and techniques of multi-engine aircraft flight operation. Sufficient ground and flight instruction is given to qualify for the FAA Multi-engine Land Class Special Flight Authorization.


AMLG 4331 TRANSPORT AIRCRAFT FLIGHT TRAINING (1). LAB. 2. Pr., AMLG 2271 and departmental approval. Includes instrument and night instrument flight, emergency procedures and actual air transportation operations.


AMLG 4380 HUMAN FACTORS CREW/RESOURCE MANAGEMENT (3). LEC. 3. Pr., junior standing. Maximizing all of the accessible resources to accomplish the safe and competent execution of any aviation task while using a multi-person work crew.

AMLG 4351 INSTRUMENT FLIGHT INSTRUCTOR TRAINING (1). LAB. 2. Pr., AMLG 4280, AMLG 4291, or CFII and departmental approval. Discussion, instruction and arranged practice in instrument flight instruction in preparation for the FAA Instrument Instructor Certificate. Special fees.


AMLG 4380 HUMAN FACTORS CREW/RESOURCE MANAGEMENT (3). LEC. 3. Pr., junior standing. Maximizing all of the accessible resources to accomplish the safe and competent execution of any aviation task while using a multi-person work crew.

AMLG 4770 SUPPLY CHAIN MANAGEMENT (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3310 and AMLG 3710. Problems and analysis in the design and management of the retail, industrial and service supply chain.

AMLG 4780 INTERNATIONAL TRANSPORTATION MANAGEMENT IN THE SUPPLY CHAIN (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in AMLG 3720. Strategies for managers involved in the transportation industry covering the perspectives of both shippers and carriers.

AMLG 4790 LOGISTICS IN THE SERVICE INDUSTRIES (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in AMLG 3710. The management of logistics processes in the retail, banking and communications industries.

AMLG 4800 INTERNATIONAL SUPPLY CHAIN MANAGEMENT (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in AMLG 3710. International aspects of managing the flow of product and its accompanying information around the world.

AMLG 4880 LOGISTICS DECISION MAKING (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in AMLG 3710, College of Business Information Pr., Technology requirement. Managerially-applied course utilizing data analysis packages and logistics software applications for logistics decision-making.

AMLG 4890 INTERMODAL DISTRIBUTION (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in AMLG 3710. The management of intermodal distribution and intermodal marketing operations.

AMLG 4900 SPECIAL PROBLEMS IN LOGISTICS (3). LEC. 3. Pr., 2.0 GPA, senior standing, departmental approval. Advanced research, reading and study in the area of logistics.

AMLG 4920 INTERNSHIP IN AVIATION MANAGEMENT (1-4). INT. Pr., departmental approval. 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 4 credit hours.

AMLG 4930 LOGISTICS STUDENT INTERNSHIP PROGRAM (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in AMLG 3710, AMLG 3720, approval of the Pr., Logistics Intern Program committee. Work experience in a logistics or logistics-related business, industry or organization.

AMLG 4950 AVIATION SEMINAR (1). SEM. 1. Pr., senior standing. A capstone course in which, special problems and current status of the aviation and aerospace industries are analyzed through a problem solving exercise.
ANSC 3000 CAREERS IN ANIMAL SCIENCE (1). LEC. 1 Pr., Junior standing. Career opportunities for animal science graduates. Identifying and implementing career strategies and planning one’s own professional preparations for employment or post-baccalaureate education.

ANSC 4010 BEEF PRODUCTION (4). LEC. 3, LAB. 2 Pr., ANSC 3400, 3500, 3600 or departmental approval for non-majors. 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, ANSC 3500, ANSC 3600 or departmental approval for non-majors. 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, ANSC 3500, ANSC 3600 or departmental approval for non-majors. Practical application and integration of nutrition, breeding and genetics, herd health, reproduction, economics, housing and management techniques for efficient swine production.

ANSC 4090 SHEEP PRODUCTION (4). LEC. 3, LAB. 2 Pr., ANSC 1000, or departmental approval for non-majors. 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 or departmental approval. Basic information on behavior, its purpose and measurement. Examinations 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 and departmental approval. 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 1 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 criteria, performance records and other advanced technologies. Course may be repeated for a maximum of 1 credit hours.

ANSC 4310 ADVANCED MEAT JUDGING (1). LEC. 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 intercollegiate competition. Course may be repeated for a maximum of 1 credit hours.

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

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

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 4800 ISSUES IN ANIMAL AGRICULTURE (2). LEC. 4 Pr., Junior standing, ANSC 1000, COMM 1000, or departmental approval. Issues affecting animal agriculture, dealing with concerns of consumers and activists, involvement in public debate and the political process.

ANSC 4810 PROFESSIONAL DISCOURSE IN AGRICULTURE (1). LEC. 2 Pr., Junior standing, COMM 1000 or departmental approval. ANSC 4800. Methods for enhancing effective discourse concerning issues facing the livestock industry.

ANSC 4920 INTERNSHIP IN ANIMAL AND DAIRY SCIENCES (5-15). INT. Pr., department approval. Course may be repeated for a maximum of 15 credit hours.

ANSC 4967 HONORS READINGS (3-6). IND. Pr., membership in the Honors College, junior standing, departmental approval. Consult Honors Program Adviser for more details. Course may be repeated for a maximum of 6 credit hours.

ANSC 4970 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 5 credit hours.

ANSC 4997 HONORS THESIS (3-6). IND. Pr., membership in the Honors College, junior standing, departmental approval. See Honors Program Adviser for more details. Course may be repeated for a maximum of 6 credit hours.

ANSC 6100 STOCKER CATTLE PRODUCTION (4). LEC. 3, LAB. 4 Pr., departmental approval. 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 traveling.
BCHE 7200 ADVANCED BIOCHEMISTRY I (3). LEC. 3. Grad. credit will not be given for both BCHE 6190 and BCHE 7200.

BCHE 7201 ADVANCED BIOCHEMISTRY II (3). LEC. 3. Pr., CHEM 2080 or equivalent. Structure and function of macromolecules participating in the flow of molecular information. Grad. credit will not be given for both BCHE 6180 and BCHE 7210.

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


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

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

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

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

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

ANSC 7410 NON-RUMINANT NUTRITION (3). LEC. 3. Pr., BCHE 7210 or departmental approval. Digestion, absorption and utilization of macro and micro nutrients, nutrient interrelationship in swine and other non-ruminant species.

ANSC 7420 NUTRITIONAL TOXICOLOGY (3). LEC. 3. Pr., graduate standing. 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 or departmental approval, STAT 7010. Principles of population genetics; gene frequencies; biometric relationships between relatives, additive, dominance and epistatic effects, estimation and use of repeatability, heritability, genetic correlations, and breeding values.

ANSC 7600 PHYSIOLOGY OF REPRODUCTION (3). LEC. 3. Pr., ANSC 3600, BIOL 6240 or departmental approval. Physiological, endocrinological, cellular and molecular mechanisms regulating reproduction, with emphasis on mammalian systems.

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

ANSC 7700 MUSCLE FOODS AND APPLIED MUSCLE BIOLOGY (4). LEC. 3. LAB. 2. Pr., ANSC 3700, BCHE 7210 or departmental approval. 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. An intensive study of selected topics in some facet of animal sciences.

ANSC 7970 SPECIAL PROBLEMS (1-5). LEC. 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 5 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 for a maximum of 15 credit hours.


ANSC 8410 VITAMIN AND MINERAL METABOLISM (3). LEC. 3. Pr., BCHE 7210 or departmental approval. 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 index and mixed linear model genetic theory for 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 be discussed.

ANSC 8610 MUSCLE PHYSIOLOGY AND BIOCHEMISTRY (3). LEC. 3. Pr., BCHE 7210, BIOL 6600 or departmental approval. 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 for a maximum of 15 credit hours.

Architecture (ARCH)

Dr. Betty Fendley - 844-4516

ARCH 1000 CAREERS IN DESIGN AND CONSTRUCTION (2). LEC. 2. Introduction to the environmental design and construction professions and the curricula in the chosen field.

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

ARCH 1060 VISUAL COMMUNICATION (3). LEC. 3. Pr., ARCH 1000. 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 2010 STUDIO 1 (6). LEC. 2. STU. 10. Pr., ARCH 1010. Basic issues of architectural design centered around the thoughtful creation of exterior and interior space. Studies of light, material, texture, proportion, scale and site are integrated into each project.


ARCH 2110 ARCHITECTURAL HISTORY I: HISTORY OF THE BUILT ENVIRONMENT (3). LEC. 3. Pr., ARCH 1010. Examination of the social determinants that shape the public beliefs and practices that produce buildings.


ARCH 3110 ARCHITECTURAL HISTORY II: HISTORY OF EUROPEAN ARCHITECTURE 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. The history of architecture, 1850-present, with an emphasis on the rise of the modern movement in Europe and the U.S.

ARCH 3320 MATERALS AND CONSTRUCTION I (3). LEC. 3. Pr., ARCH 1010. 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 representation. Complete descriptions of specific courses and their prerequisites are available from the School of Architecture. Course may be repeated for a maximum of 3 credit hours.

ARCH 3500 SEMINAR IN METHODS AND PROCESS (3). LEC. 3. Pr., ARCH 2020. The tools and techniques available to the design professional including specific design specializations, and design methodologies. Descriptions of specific seminars are available from the School of Architecture. Course may be repeated with change in topic.

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 3120. Investigation of theories, schools or periods to examine the potential and limitations 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 architectural design, such as form, space, style, meaning, perception, culture. Descriptions of specific seminars available from the School of Architecture. Course may be repeated with change in topic.

ARCH 4020 STUDIO 6 (6). LEC. 2, STU. 10. Pr., ARCH 3020, ARCH 3320, ARCH 2110, BSCI 3400. Coreq., ARCH 4900. Architectural design in the community, including 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 4120 ELECTIVE STUDIO: THE RURAL STUDIO (6). LEC. 6. Pr., ARCH 3020, ARCH 3320, ARCH 2110, BSCI 3400. This context-based elective studio is designed to give students first hand exposure to rural communities and help them understand the complex relationship between form and technique; and the role of material and construction method in the explicit expression of built form.

ARCH 5020 STUDIO 5: EUROPE TRAVEL STUDIO (6). LEC. 6. Pr., ARCH 4010. Coreq., ARCH 4900. 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. Architects' legal responsibilities, frameworks of professional practice, office organization, building codes, travel, project management, marketing, project delivery, internship and professional ethics and leadership.

ARCH 4900 SPECIAL PROBLEMS (1-6). IND. Pr., ARCH 1010 and departmental approval. Development of an area of special 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.


ARCH 5030 APPLIED TECTONICS (2). LEC. 2. Coreq., ARCH 5010. Connections between broad architectural ideas and the way the idea is realized; relationship between form and technique; and the role of material and construction method in the explicit expression of built form.

ARCH 5990 INTRODUCTION TO THESIS RESEARCH (2). LEC. 2. Coreq., ARCH 5010. The tools, techniques and strategies required to select, develop, refine, and present a thesis argument.


Interior Architecture (ARIA)

Dr. Betty Fendley - 844-4516


ARIA 4020 STUDIO 6-A INTERIOR ARCHITECTURE (6). LEC. 2, STU. 10. Pr., ARCH 4010, ARCH 3020, ARCH 3320, ARCH 2110, 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.


Community Planning (CPLN)

Dr. John Pittari - 844-4516

CPLN 6100 URBAN DESIGN METHODS (3). LEC. 3. Pr., senior level or departmental approval. Techniques and methodologies in urban design problem-solving and strategies for implementation.

CPLN 6200 HISTORY AND THEORY OF URBAN FORM (3). LEC. 3. Pr., senior level or departmental approval. The vocabulary and historical development of urban design, focusing on the environmental and cultural forces that design, shape, and influence the urban fabric.

CPLN 6300 REAL PROPERTY DEVELOPMENT (3). LEC. 3. Pr., fourth-year standing or departmental approval. 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. Pr., senior-level or departmental approval. Planning for the preservation, restoration, conservation and adaptive reuse of historic buildings, sites and districts within the comprehensive planning process.

CPLN 7200 URBAN DESIGN STUDIO (6). STU. 12. Pr., departmental approval. Coreq., CPLN 7220 and CPLN 7240. 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 7220 PLANNING IMPLEMENTATION (3). LEC. 3. Pr., departmental approval. Coreq., CPLN 7200. The programming of public and private action to support community growth and development, including policy formulation, information systems, taxation policies and capital improvement programming.

CPLN 7240 PLANNING METHODS (3). LEC. 3. Pr., departmental approval. Coreq., CPLN 7200. Introduction to methods useful in the comprehensive planning process, including population and employment projections, resource analysis and allocation, and land development.

CPLN 7400 COMMUNITY PLANNING STUDIO (6). STU. 12. Pr., CPLN 7200 or departmental approval. Coreq., CPLN 7240. 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 7420 PLANNING LAW (3). LEC. 3. Pr., CPLN 7200 or departmental approval. Coreq., CPLN 7400. Legal basis for local government planning to guide development and conservation of land and other resources, including police powers and eminent domain, zoning, subdivision regulations, permitting and administrative review.

CPLN 7440 HISTORY AND THEORY OF PLANNING (3). LEC. 3. Pr., CPLN 7200 or departmental approval. Coreq., CPLN 7400. 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 7600 SYNTHESIS STUDIO I (6). STU. 12. Pr., CPLN 7400 or departmental approval. Coreq., CPLN 7620. 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 problem.

CPLN 7620 RESEARCH METHODS (3). LEC. 3. Pr., CPLN 7400 or departmental approval. Coreq., CPLN 7660. The tools for conducting research that are essential for the development of a comprehensive community planning and design synthesis project.

CPLN 7800 SYNTHESIS STUDIO II (6). STU. 12. Pr., CPLN 7600 and CPLN 7620. Coreq., CPLN 7950. 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.

CPLN 7950 SYNTHESIS SEMINAR (1). LEC. 1. Pr., CPLN 7600 and CPLN 7620. Seminar to familiarize students in depth with current and compelling issues in the relevant fields of community planning and design through readings, discussions and presentations.

CPLN 7970 SPECIAL PROBLEMS IN PLANNING (1-3). LEC. 1. Pr., departmental approval. Directed study in an area of special interest; topic and credit are based on student proposal and defined product as arranged with adviser and approved by program director or instructor. Course may be repeated for a maximum of 3 credit hours.

Landscape Architecture (LAND)

Prof. John G. Williams - 844-4516

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 LANDSCAPE ARCHITECTURAL DESIGN STUDIO (6). STU. 12. LAND 5110. A continuation of the basic design studio emphasizing research, planning, and design problems at community to regional scales.
LAND 5130 HISTORY OF LANDSCAPE ARCHITECTURE I (3). LEC. 3. The heritage and traditions of landscape architecture from antiquity to the 17th Century using various black and white media.

LAND 5140 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 5150 LANDSCAPE ARCHITECTURE: CONSTRUCTION I; LANDFORM, GRADING, DRAINAGE (3). LEC. 3. Fundamental skills necessary to analyze, understand, and manipulate landforms to maximize use and minimize environmental impact.

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 responsibility, and professional ethics.

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

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

LAND 5220 ENVIRONMENTAL PLANNING STUDIO (6). STU. 12. Pr., level-II standing. Natural systems analysis as a basis for site planning and large scale facility designs.


LAND 5240 LAND ETHICS AND ENVIRONMENTAL RESPONSIBILITY (3). LEC. 3. Explores the ethical relationship of man and nature.

LAND 5250 SEMINAR IN HISTORY OF LANDSCAPE ARCHITECTURE (3). LEC. 3. Examination 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 in topic.


LAND 5270 STUDY ABROAD (3-15). FLD Pr., level-II standing. Study abroad, China, Europe or Canada. 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 (THEESIS) (6). STU. 12. Pr., level-III standing, departmental approval. Coreq., LAND 5330. Extensive exploration and development of a landscape architecture issue of the students choice beyond the level associated with entry to the profession.

LAND 5320 INDEPENDENT STUDY (THEESIS) (6). STU. 12. Pr., LAND 5310. Coreq., LAND 5340. A major integrative investigation of a focused problem area, defined and pursued by the student under the direction of a faculty member.


Art (ARTS)

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

ARTS 1030 BASIC CERAMICS (3). STU. 9. Pr. Credit not applicable to BFA. 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.

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

ARTS 1110 DRAWING I (3). 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.

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/or color media.

ARTS 1210 2-D DESIGN FOR FINE ART AND GRAPHIC DESIGN (3). STU. 9. Elements and principles of basic two-dimensional design. Emphasis on composition, color theory, and craftsmanship.

ARTS 1220 3-D DESIGN FOR FINE ART AND GRAPHIC DESIGN (3). STU. 9. Elements and principles of basic three-dimensional design. Emphasis on spatial organization, color, and craftsmanship.

ARTS 1710 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 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 art and culture with an emphasis on the development of art and artists in relation to the society in which it was produced.

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 2110 FIGURE DRAWING (3). STU. 9. Pr., ARTS major; ARTS 1120, 1210, 1220, two 1000-level art history courses. The human figure as a compositional element. Measuring and sighting for proportion. Drawing from casts, skeletons and live nude models.

ARTS 2140 ADVANCED DRAWING I (3). STU. 9. Pr., ARTS major only. 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 2220 TYPOGRAPHICS I (3). STU. 9. Pr., ARTS 1120, ARTS 1210, ARTS 1220. 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.


ARTS 2410 PRINTMAKING I (3). STU. 9. Pr., ARTS 1120, ARTS 1210, ARTS 1220, two 1000-level art history courses. Instruction in basic forms, concepts, and materials of printmaking. Mono printing, relief and multiple originals are covered.


ARTS 2610 HISTORY OF GRAPHIC DESIGN (3). LEC. 3. Pr., 6 hours from ARTS 1710, ARTS 1720 or ARTS 1730; sophomore standing. A chronological survey of graphic design from its Paleolithic origins to the present. Emphasis on social and cultural contexts, symbolic application, formal characteristics, and significant art and design movements.


ARTS 3150 ADVANCED DRAWING II (3). STU. 9. Pr., ARTS 2140. ARTS majors only. Medium and subject determined by student with approval of instructor. Emphasis on strengthening the student's aesthetic awareness and technical skills.

ARTS 3200 INTRODUCTION TO GRAPHIC DESIGN (4). STU. 12. Pr., ARTS 1710, ARTS 1720, ARTS 1730, ARTS 2210 and ARTS 2220. Design and layout, and image making procedures for creative problem solving in graphic design, emphasis on presentation, creativity and visualization.


ARTS 3220 PHOTO COMMUNICATIONS (4). STU. 12. Pr., ARTG major. ARTS 1710, 1720, 1730, 2210,2220, 3200, 3210. Photography as applied communication such as advertising, editorial photography, and annual report photography. Emphasis on advanced technological and studio techniques.


ARTS 3320 PAINTING II (3). STU. 9. Pr., ARTS 2140, ARTS 2310. Instruction in painting concepts, materials and techniques with emphasis on the development of technical skills and a personal vision and individual approach.
BCHE 4240 PLANT METABOLIC PATHWAYS (3). LEC. 3. Pr., CHEM 2080. Fundamental processes of metabolism specific to plants.

BCHE/CHM 6181 BIOCHEMISTRY I LABORATORY (1). LAB. 3. Coreq., BCHE 6180 or CHM 6180. Laboratory techniques required for identification and quantification of important biochemical compounds.

BCHE/CHM 6190 BIOCHEMISTRY II (3). LEC. 3. Pr., BCHE 6180. Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways.

BCHE/CHM 6191 BIOCHEMISTRY II LABORATORY (1). LAB. 3. Coreq., BCHE 6190 or CHM 6180. Laboratory techniques required for partial purification, kinetic studies and characterization of enzymes and nucleolectides from various plants, animals and bacteria.

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. Pr., CHEM 2080 or equivalent. 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.

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

BCHE 7230 BIOCHEMISTRY OF MACROMOLECULES (3). LEC. 3. Pr., CHEM 2080. Fundamental properties of metabolism specific to plants.

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

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

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

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

**Biology (BIOL)**

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.

BIOL 1001 INTRODUCTION TO BIOLOGY LABORATORY (0). LEC. 3. Coreq., BIOL 1000 Laboratory course for BIOL 1000.

BIOL 1010 A SURVEY OF LIFE (4). LEC. 3, LAB. 2. Science Core. Emphasis on contrasting strategies employed by organisms to meet similar biological needs.

BIOL 1011 A SURVEY OF LIFE LABORATORY (0). LEC Coreq., BIOL 1010. Laboratory course for BIOL 1010.

BIOL 1020 PRINCIPLES OF BIOLOGY (4). LEC. 3, LAB. 2. Science Core. Introduction to the physical, chemical, and biological principles common to all organisms.

BIOL 1021 PRINCIPLES OF BIOLOGY LABORATORY (0). LEC. 3. Coreq., BIOL 1020. Laboratory Course for BIOL 1020.

BIOL 1030 ORGANIC BIOLOGY (4). LEC. 3, LAB. 2 Pr., membership in the Honors College. Science Core. Introduction to the physical, chemical, and biological principles common to all organisms.

BIOL 1030 ORGANISAL BIOLOGY (4). LEC. 3, LAB. 2. Pr., membership in the Honors College and BIOL 1020 or BIOL 1030. Science Core. Principles and fundamentals of biology at the organismal level.

BIOL 1031 ORGANISAL BIOLOGY LABORATORY (0). LEC. 3. Coreq., BIOL 1030. Laboratory Course for BIOL 1030.

BIOL 1037 HONORS ORGANISAL BIOLOGY (4). LEC. 3, LAB. 2. Pr., membership in the Honors College and BIOL 1020 or BIOL 1030. Science Core. Principles and fundamentals of biology at the organismal level.

BIOL 2000 MICROBIOLOGY AND PUBLIC HEALTH (4). LEC. 3. LAB. 1. Pr., BIOL 1000 or BIOL 1020. 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).

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


BIOL 4950 UNDERGRADUATE SEMINAR (1). LEC. 1. Pr., departmental approval. 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 1 credit hour.

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

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

BIOL 4997 HONORS THESIS (1-3). IND Pr., membership in the Honors College. Undergraduate research and thesis. Course may be repeated for a maximum of 3 credit hours.

BIOL 6020 DEVELOPMENTAL BIOLOGY (3). LEC. 3. Pr., BIOL 4100, BIOL 4470. Consideration of induction, constancy of the genome, pathfinding by migrating cells, morphogenetic movements, and other developmental processes.

BIOL 6030 VERTEBRATE REPRODUCTIVE BIOLOGY (3). LEC. 3. Pr., departmental approval. Study of reproductive biology on the genetic, morphological, developmental, physiological, and evolutionary levels.

BIOL 6110 PARASITOLOGY (4). LEC. 3. LAB. 3. Pr., BIOL 1030 or BIOL 1037 or BIOL 2500. BIOL 2510. Development, identification, host-parasite relationships and medical significance of parasitic protozoa, helminthes, and arthropods that infect humans, domestic animals and wildlife.


BIOL 6160 FIELD BIOLOGY AND ECOLOGY (03-15). LEC. 3. Pr., 15 hours of biology and departmental approval. Intensive classroom and field studies of an area outside Alabama. Course may be repeated for a maximum of 15 credit hours.

BIOL 6170 POPULATION GENETICS (3). LEC. 3. Pr., BIOL 3000. Examination of the theories relating to maintenance of variation in natural populations of plants and animals.

CMML/Biology 6190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3). LEC. 3. Pr., BIOL 3000, BIOL 4100, BIOL 4220, CHEM 2090. Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic and biochemical approaches.


BIOL 6240 ANIMAL PHYSIOLOGY (4). LEC. 3. LAB. 3. Pr., BIOL 4100 or CHEM 2070 or CHEM 2080. General overview of the function of the major physiological systems in animals, including evolution and adaptation to specific environments.


BIOL 6375 MARINE SCIENCE FOR ELEMENTARY SCHOOL TEACHERS (3). LEC. 3. Pr., 6 hours in basic biological science and departmental approval. Principle-centered training in a broad spectrum of subjects relating marine
BIOL/FISH 6210 ULTRASTRUCTURE PLANT CELLS AND MICROBES (5).LEC, 3. LAB. 4., departmental approval. Theory and practice of transmission and scanning electron microscopy and their applications to the biological sciences. Credit will not be given for both BIOL 7270 and CMBL 7270. Spring.

BIOL 7280 PLANT HORMONES (2).LEC, 2. PR., BIOL 6130. Synthesis, physiology, and mode of action of the major plant hormones including abscisic acid, auxins, cytokinins, ethylene and gibberellins.

CMBL/BIOL 7290 EVOLUTIONARY GENETICS (3).LEC, 3. PR., BIOL 3000. BIOL 6170 or departmental approval. The role of population processes as mechanisms for evolution; and evolution at the molecular level. Credit will not be given for both BIOL 7290 and CMBL 7290.

BIOL 7290 PLANT ANATOMY AND DEVELOPMENT (4).LEC, 2. LAB. 4., BIOL 6130 or departmental approval. The study of the structure and ontogeny of plant cells, tissues, and organs. Fall.

CMBL/BIOL 7320 PLANT GENE EXPRESSION (4).LEC, 4. PR., BIOL 4320 or departmental approval. Genetic expression of genetic elements in plants from the recent literature. Credit will not be given for both BIOL 7320 and CMBL 7320.

CMBL/BIOL 7330 MOLECULAR BIOLOGY OF PLANT DEVELOPMENT (2).LEC, 2. PR., BIOL 6130, BIOL 7280, or departmental approval. Physiological, biochemical and molecular aspects of plant growth and development. Credit will not be given for both CMBL 7330 and BIOL 7330.

BIOL 7340 WATER RELATIONS AND ENVIRONMENTAL STRESS (2).LEC. BIOL 7360 POPULATION ECOLOGY (4).LEC, 4. PR., BIOL 3060 or departmental approval. Quantitative study of populations, including life tables, Leslie matrices, exponential and logistic models, metapopulations and life-history theory.

BIOL 7370 STREAM ECOLOGY (4).LEC, 3. LAB. 3., PR., BIOL 1030 and BIOL 3060. Physical, chemical, and biological aspects of stream ecosystems emphasizing effects of natural and environmental factors and human influences on stream biota, and quantitative methods used to study stream ecology.

BIOL 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.

CMBL/BIOL 7440 ADVANCED CELL BIOLOGY (3).LEC, 3. PR., BIOL 4100. Examination of current areas of research in cell and developmental biology by directed reading and discussion. Credit will not be given for both BIOL 7440 and CMBL 7440.

BIOL 7490 PHYSIOLOGICAL ECOLOGY (3).LEC, 3. PR., 20 hours of biology beyond 1000-level to include a course in ecology. A study of the physiological adaptations that allow animals to survive in unusual environments.

BIOL 7500 BIOGEOGRAPHY (3).LEC, 3. PR., departmental approval. Patterns and processes associated with the distribution of living and fossil organisms.


BIOL 7520 MICROBIOLOGY OF INFECTIONS (3).LEC, 3. PR., BIOL 4200 or departmental approval. Epidemics of communicable disease outbreaks are analyzed according to the hosts, modes of transmission, environment, and pathogenesis of the agents.

BIOL 7705 TROPICAL BIOLOGY: ECOCLOGICAL APPROACH (8).LEC, 4. LAB. 12. PR., 75 hours of graduate level biological science. An in-depth introduction to the principles of ecology in the tropics. Orientation and introductory lecture in San Jose, Costa Rica followed by field work during an 8 week period.

BIOL 7715 TROPICAL AGRICULTURAL ECOLOGY (8).LEC, 4. LAB. 12. PR., 20 hours of graduate level biological science. Application of ecological principles to tropical agricultural systems with emphasis on research training. Orientation in San Jose, Costa Rica followed by visits to 3 main habitats.

CMBL/BIOL 7720 PROKARYOTIC GENE REGULATION (3).LEC, 3. PR., BIOL 3200, BIOL 4210 and BCHE/CEM 6180. Discussion of gene expression in bacteria using the current literature.

BUSI 2010 CONTEMPORARY ISSUES IN BUSINESS ADMINISTRATION II (1). LEC. 1. Pr., BUSI 1010. Orientation to business administration. Business majors should take during student’s second academic year.

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

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


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

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

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

BUSI 7230/7236 COST ANALYSIS AND SYSTEMS (3). LEC. 3. Pr., departmental approval. Integrates production and cost theory from economics with applications in cost accounting systems.
not otherwise covered in existing courses. Course may be repeated for a maximum of 3 credit hours.

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

Consumer Affairs (CAHS)
Dr. Carol L. Warfield - 844-4084
CAHS 1000 STUDIO I: INTRODUCTION TO INTERIOR DESIGN (4). LEC. 3. STU. 3. Introduction and application of design theory to interior design and consumer products.


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.

CAHS 1750 FUNDAMENTALS OF PRODUCT DEVELOPMENT (4). LEC. 2. STU. 6. Pr., CAHS 1600. Introduction to apparel planning and production for merchandisers, designers and production managers.

CAHS 2000 GLOBAL CONSUMER CULTURE (3). LEC. 3. Cultural, commercial, and aesthetic factors influencing the selection and usage of consumer products and services that create and express social identity.


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

CAHS 2400 INTERIOR MATERIALS AND COMPONENTS (3). LEC. 3. Pr., CAHS 1750. Survey of finishes, textiles, materials and components. Introduction to health, safety and environmental issues that impact consumers. Fall.

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


CAHS 2760 VISUAL MERCHANDISING (4). LEC. 2. STU. 6. Pr., CAHS 1600 or departmental approval. History, equipment, application and theory of display techniques in store and non-store settings. Fall.


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. Spring.


CAHS 3750 FASHION ANALYSIS AND FORECASTING (3). LEC. 3. Pr., CAHS 1600, THE 1500. Theories explaining fashion dynamics and techniques for forecasting change, with case applications in textiles, apparel and retailing. Fall.

CAHS 3850 MERCHANDISE PLANNING AND CONTROL (3). LEC. 3. Pr., ACCT 2910 or departmental approval. Application of principles of merchandise management and retail buying to the retailing of consumer goods and services. Spring.

CAHS 3900 INDEPENDENT STUDY (1-3). Ind. Pr., departmental approval. Directed readings and/or individualized research project. Course may be repeated for a maximum of 3 credit hours.

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


CAHS 4300 STUDIO IX: DIRECTED RESEARCH IN INTERIOR DESIGN (2). LEC. 1. STU. 3. Pr., CAHS 3400, CAHS 3500, senior standing, departmental approval. Selection and development of design thesis project with faculty supervision. Fall.

CAHS 4400 STUDIO X: DESIGN THESIS PROJECT (6). STU. 18. Pr., CAHS 4300, senior standing, departmental approval. Design development and project management process of design thesis project. Seven week block, first half of semester. Spring.

CAHS 4450 HISTORY OF COSTUME (3). LEC. 3. Pr., junior standing, core History or departmental approval. Historical roles of dress in western civilization. Cultural, social, and physical evolution. Credit will not be given for both CAHS 4450 and CAHS 7450.


CAHS 4600 WORLD PRODUCTION AND TRADE IN TEXTILES AND APPAREL (3). LEC. 3. Pr., junior standing, Core Social Science or departmental approval. The role of fiber, textile and apparel industries in the international economy. Credit will not be given for both CAHS 4600 and CAHS 7600.

CAHS 4650 TEXTILE AND APPAREL EVALUATION (4). LEC. 2. LAB. 6. Pr., junior standing, CAHS 3600 or departmental approval. Testing procedures for characterization and evaluation of fabrics and sewn products for apparel and interiors. Credit will not be given for both CAHS 4650 and CAHS 7650.

CAHS 4700 ENTREPRENEURSHIP IN APPAREL AND INTERIORS (3). LEC. 3. Pr., junior standing. Analyzing business opportunities in textile, apparel and interiors; developing marketing concepts and entrance strategies. Credit will not be given for both CAHS 4700 and CAHS 7700.

CAHS 4730 HISTORY OF TEXTILES (3). LEC. 3. Pr., junior standing, core History or departmental approval. Cultural, economic, material, technological and aesthetic perspectives on the evolution of textiles. Credit will not be given for both CAHS 4730 and CAHS 7730.

CAHS 4750 APPAREL LINE DEVELOPMENT (6). LEC. 4. STU. 24. Pr., CAHS 3750, CAHS 4800, departmental approval. Team-driven design, production and market research. Development of apparel lines. Seven week block. Credit will not be given for both CAHS 4750 and CAHS 7750.

CAHS 4800 APPAREL ENGINEERING (4). LEC. 3. LAB. 3. Pr., CAHS 2800. Planning and problem solving throughout the apparel production process, including methods engineering, time study, costing, CAD. Fall.

CAHS 4850 APPAREL MERCHANDISING AND RETAIL MANAGEMENT (6). LEC. 10. LAB. 4. Pr., CAHS 3850 or departmental approval. Problem-solving and decision making strategies for retailing apparel and textiles. Seven week block preceding internship. Credit will not be given for both CAHS 4850 and CAHS 7850.

CAHS 4920 INTERNSHIP IN INTERIOR DESIGN (6). INT. Pr., senior standing and departmental approval. Supervised professional internship experience in the field of interior design. Eight week block, second half of semester.


CAHS 4967 HONORS READINGS (1-3). Ind. Pr., membership in the Honors College, departmental approval. Readings in specialized topics. Course may be repeated for a maximum of 3 credit hours.

CAHS 4970 PROBLEMS IN DESIGN (1-3). Ind. Pr., departmental approval. A) Apparel, B) Interior Design, C) Visual Merchandising, D) Textile Design. Creative solution of design problems. Course may be repeated for a maximum of 3 credit hours.

CAHS 4997 HONORS THESIS (3). Ind. Pr., departmental approval. Research in specialized topics.


CAHS 7100 ENVIRONMENTAL DESIGN THEORIES AND APPLICATIONS (3). LEC. 3. Pr., CAHS 4400 or departmental approval. Theories, methodologies, and current issues relevant to interior design; sociological, psychological, ecological, and post-modern perspectives. Fall.

CAHS 7450 HISTORY OF COSTUME (3). LEC. 3. Pr., core History or departmental approval. Historical roles of dress in western civilization. Cultural, social, and physical evolution. Credit will not be given both CAHS 7450 and CAHS 4450. Spring.

CAHS 7530 ECONOMICS OF APPAREL AND TEXTILES (3). LEC. 3. Pr., ECON 2020, departmental approval. Economic issues involving the manufacture, distribution and consumption of textiles and apparel. Fall.
CHEM 1021 SURVEY OF CHEMISTRY II LAB (1). LAB. 1. Pr., CHEM 1011. Coreq., CHEM 1020. Science Core. Laboratory experiments emphasizing course material in CHEM 1020.


CHEM 1031 FUNDAMENTALS CHEMISTRY II LAB (1). LAB. 1. Pr., CHEM 1030. Science Core. Laboratory experiments emphasizing course material in CHEM 1030.

CHEM 1040 FUNDAMENTALS CHEMISTRY II (3). LEC. 3. Pr., CHEM 1030. Science Core. Solids, liquids, properties of solutions; chemical kinetics; chemical equilibrium; acids and bases; calculations of pH, equilibrium constants and theoretical and experimental properties; electrochemistry.

CHEM 1041 FUNDAMENTALS CHEMISTRY III LAB (1). LAB. 1. Pr., CHEM 1031. Coreq., CHEM 1040. Science Core. Laboratory experiments emphasizing course material in CHEM 1040.


CHEM 1111 GENERAL CHEMISTRY I LAB (1). LAB. 1. Pr., or corequisite CHEM 1110. Science Core. Laboratory experiments emphasizing course material in CHEM 1110.

CHEM 1117 HONORS GENERAL CHEMISTRY I (3). LEC. 3. Pr., membership in the Honors College, High School Chemistry and MATH 1610. Science Core. General chemistry for students in the honors program. Topics similar to CHEM 1110, but covered in more depth.

CHEM 1118 HONORS GENERAL CHEMISTRY I LAB (1). LAB. 1. Pr., membership in the Honors College and CHEM 1117. Science Core. Laboratory experiments emphasizing course material in CHEM 1117.


CHEM 1121 GENERAL CHEMISTRY II LAB (1). LAB. 1. Pr., or corequisite CHEM 1120. Science Core. Laboratory experiments emphasizing course material in CHEM 1120.

CHEM 1127 HONORS GENERAL CHEMISTRY II (3). LEC. 3. Pr., membership in the Honors College and CHEM 1117. Science Core. General chemistry for students in the honors program. Topics similar to CHEM 1120, but covered in more depth.

CHEM 1128 HONORS GENERAL CHEMISTRY II LAB (1). LAB. 1. Pr., membership in the Honors College and CHEM 1118, CHEM 1127. Science Core. Laboratory experiments emphasizing course material in CHEM 1120.

CHEM 1200 CHEMICAL APPLICATIONS OF COMPUTERS I (1). LEC. 1. Coreq., CHEM 1110 or CHEM 1117. Introduction to computer applications in chemistry required for solving chemical problems and preparing laboratory reports.

CHEM 2030 SURVEY OF ORGANIC CHEMISTRY (3). LEC. 3. Pr., CHEM 1040, CHEM 1120, or CHEM 1127. Structure, nomenclature and reactions of the functional group classes of organic compounds polymers, and molecules of biological interest.

CHEM 2071 ORGANIC CHEMISTRY I LABORATORY (1). LAB. 3. Pr., or corequisite CHEM 2070. Laboratory for CHEM 2071.


CHEM 2200 CHEMICAL APPLICATIONS OF COMPUTERS II (1). LEC. 1. Pr., CHEM 1200. Coreq., CHEM 2070. Utilization of chemically-oriented programs to include chemical drawing, graphic analysis and spreadsheet chemistry. Introduction to generating technical documents.

CHEM 3000 CHEMISTRY LITERATURE (1). LEC. 1. Pr., CHEM 2080. Chemical literature with emphasis on primary and secondary sources and the various computer data bases available.

CHEM 3050 ANALYTICAL CHEMISTRY (3). LEC. 3. Pr., CHEM 1040, CHEM 1120, or CHEM 1127. Theory and application of volumetric, potentiometric and spectrophotometric chemical analysis.

CHEM 3051 ANALYTICAL CHEMISTRY LABORATORY (1). LAB. 3. Pr., or corequisite CHEM 3050. Analytical techniques applied to chemical analysis.

CHEM 3160 SURVEY OF PHYSICAL CHEMISTRY (3). LEC. 3. Pr., CHEM 1040, CHEM 1120, or CHEM 1127. The principles of physical chemistry.
multicomponent material and energy balances to chemical processes involving phase changes and chemical reactions.

CHEN 4850 CHEMICAL ENGINEERING LABORATORY II (3). LEC. 1, LAB. 3. Pr., CHEN 3620, CHEN 3620, CHEN 3620, CHEN 3700. Coreq., CHEN 3620, 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 of data.


CHEN 4900 INDEPENDENT STUDY (1-10). IND. Pr. Junior standing and departmental approval. 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). Pr. Departmental approval. Topical courses in special areas. Topic must be arranged with instructor during preregistration. Research Report. Course may be repeated for a maximum of 3 credit hours.

CHEN 4997 HONORS THESIS (2-4). IND. Pr. Membership in the Honors College, junior standing, departmental approval. Member of the Honors College. Course may be repeated for a maximum of 4 credit hours.


CHEN 6112 SURFACE AND COLLOID SCIENCE OF PAPERMAKING (2). LEC. 2, Pr. CHEN 6070, CHEN 3650, CHEN 4100. 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 deposit.


CHEN 6410 MACROMOLECULAR SCIENCE (2). LEC. 2, Pr. CHEN 2080, CHEN 6070, CHEN 2370. Coreq., CHEN 3700. Synthesis and characterization of novel polymers. Physical/chemical properties, molecular modeling, relaxation phenomena, reaction engineering, and macromolecular design applied to chemical engineering polymer systems.

CHEN 6420 POLYMER CHEMICAL ENGINEERING (3). LEC. 2. Pr., CHEN 2610, CHEN 6410 or departmental approval. Polymer rheology, transport phenomena, thermodynamics, membranes, conducting polymers, surfaces, interfaces and processing.

CHEN 6430 BUSINESS ASPECTS OF CHEMICAL ENGINEERING (3). LEC. 3. Pr., Senior standing in Chemical Engineering or departmental approval. The procession of activities required to successfully commercialize and market new chemical-engineering-based technologies to the consumer and process industries.

CHEN 6440 ELECTROCHEMICAL ENGINEERING (2). LEC. 2. Pr., CHEN 6070, CHEN 3700, CHEN 3620, CHEN 3650, CHEN 3700. Thermodynamics, electrode kinetics and transport phenomena of electrochemical systems, current and potential distributions, double layer theory, electrochemical processes, power sources, synthesis, corrosion.

CHEN 6460/6466 PROCESS SIMULATION SYNTHESIS AND OPTIMIZATION (3). LEC. 2, LAB. 3. Pr., CHEN 3370, CHEN 3630, CHEN 3650, CHEN 3670, with grades of C or better. CHEN 3820. Coreq., CHEN 3820. Fundamentals of computer-aided simulation and synthesis. Process integration and optimization principles including their applications in design, retrofitting and operation of chemical processes.

CHEN 6470 PROCESS DESIGN PRACTICE (3). LEC. 1, LAB. 3. Pr., CHEN 6460. Flow sheet synthesis, simulation and techno-economic analysis applied to complex, open-ended chemical processes. Screening of alternatives and economic optimizations.

CHEN 6630 INTRODUCTORY TRANSPORT PHENOMENA (2). LEC. 2. Pr., CHEN 3620, CHEN 3650, CHEN 4160. Application of chemical engineering analysis to momentum, heat and mass transport problems.

CHEN 6650/6656 HAZARDOUS MATERIALS MANAGEMENT AND ENGINEERING (2). LEC. 2. Pr., CHEN 2030 or CHEN 2080, CHEN 3820 or CIVIL 6210. Fundamentals 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.
CIVIL ENGINEERING (CIVL)


CHEN 6660 MULTIMEDIA WASTE REDUCTION (2). LEC. 2. Pr., CHEN 6460. Coreq., CHEN 6650. Integrated air, waste water and solid waste reduction through modifications and source reduction, recycle reuse and benign chemistry.


CHEN 6680 ENERGY CONVERSION AND CONSERVATION IN CHEMICAL PROCESSES (2). LEC. 2. Pr., CHEN 6460. Sources of energy. Energy Utilization. Integration of fuel, electric power and heating/cooling in chemical processes, integration.


CHEN 6820 ADVANCED TOPICS IN ENVIRONMENTAL BIOTECHNOLOGY (3). LEC. 3. Pr., departmental approval. Application of biotechnology to environmental process simulation, bioremediation and bioreactor development.

CHEN 6900 ADVANCED INDEPENDENT STUDY (1-6). LEC. Pr., departmental approval. Supervised study in specialized areas of chemical engineering. Topic must be arranged with instructor during preregistration. Course may be repeated for a maximum of 6 credit hours.

CHEN 6970 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6). LEC. Pr., departmental approval. Topical courses in advanced undergraduate and graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 6 credit hours.


CHEN 7120 ADVANCED TOPICS IN PAPER PROCESSING OPERATIONS (3). LEC. 3. Pr., CHEN 6120. Surface and colloidal interactions in the wet end of papermaking, paper properties, solid/liquid and solid/gas interfacial tension, flocculation and retention of particles. Wet-end chemistry process control.

CHEN 7130 ADVANCED PULP AND PAPER ENGINEERING (3). LEC. 3. Topics in pulping, chemical recovery and papermaking.


CHEN 7250/7255 CHEMICAL REACTION ENGINEERING (3). LEC. 3. Coreq., CHEN 7100. Analysis and design of homogeneous and heterogeneous chemical reactors. Physicochemical factors and analysis of non-ideal chemical reactor behavior.


CHEN 7710 INTRODUCTION TO RESEARCH SEMINAR (1). LEC. 1. Coreq., CHEN 7100. Introductory graduate research seminars for entering graduate students.


CHEN 7790/7906 INDEPENDENT STUDY (1-10). IND. Pr., departmental approval. 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 10 credit hours.

CHEN 7970/7976 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6). IND. Pr., departmental approval. Topical courses for graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 2 credit hours.

CHEN 7990 RESEARCH AND THESIS (01 - 20). MIST. Credit hours to be arranged. Course may be repeated for a maximum of 20 credit hours.

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 8100 ADVANCED TOPICS IN CHEMICAL ENGINEERING PROCESSES (3). LEC. 3. Pr., CHEN 7110. Advanced concepts in fluid dynamics with special emphasis on applications to chemical engineering, creeping flow, multiphase instabilities, computational fluid mechanics and turbulence.


CHEN 8210 ADVANCED CHEMICAL ENGINEERING THERMODYNAMICS (3). LEC. 3. Pr., CHEN 7200. 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. Fundamentals and applications of macromolecular thermodynamics to industrial polymer processing problems.


CHEN 8280 SURFACE CHARACTERIZATION/SOLIDS (3). LEC. 3. Pr., CHEN 7200 or departmental approval. Advanced concepts and techniques in the physico-chemical characterization of solid surfaces by microscopic, spectroscopic and chemical methods including various photon and/or electron spectroscopies, thermal desorption.


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 6170, CHEN 7100. Analysis and design of advanced digital control systems for chemical processes. Impediment 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. Pr., CHEN 6460. 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.

CHEN 8990 RESEARCH AND DISSERTATION (01 - 20). DSR. Credit hours to be arranged. Course may be repeated for a maximum of 20 credit hours.

Civil Engineering (CIVL)

Dr. Joseph F. Juddins - 844-4320

CIVIL 2010 SURVEYING (2). LEC. 1, LAB. 3. Pr., MATH 1610, COMP 1200. Civil engineering surveying theory and practice including data collection and analysis, analysis of error, theodolite and angle measurements, leveling, traversing, simple and spiral curves, topographic mapping, construction control, interfacing with computer-aided drafting and design software.

CIVIL 3010 CIVIL ENGINEERING ANALYSIS (4). LEC. 3. LAB. 3. Pr., MATH 2650, COMP 1200. Applications of calculus and ordinary differential equations,
CIVL 6090 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 fonnwork; timber trusses and laminated arches.

CIVL 6090 DESIGN FOR LATERAL LOADS (3). LEC. 3. Pr., CIVL 3610. General concepts, traffic factors, material characterization, layer thickness selection, earthwork, base and subbase construction, surface course construction, quality control/assurance.


CIVL 7170 NUMERICAL METHODS IN HYDRAULICS AND HYDROLOGY (3). LEC. 3. Pr., CIVL 4210. 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. 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 4210 or departmental approval. Coreq., CIVL 6210 or departmental approval. Physical and chemical principles applied to water and wastewater treatment. Advanced mathematical and modeling concepts.

CIVL 7230/7236 WATER AND WASTEWATER OPERATIONS AND PROCESSES II (3). LEC. 3. Pr., CIVL 7220 or departmental approval. Rigorous analysis of unit operations and processes used in modern water and wastewater treatment systems. Mixing, coagulation, sedimentation, filtration, and chemical precipitation.

CIVL 7240/7246 WATER AND WASTEWATER OPERATIONS AND PROCESSES III (3). LEC. 3. Pr., CIVL 7220 or departmental approval. 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.


CIVL 7280 SURFACE WATER QUALITY MODELING (3). LEC. 3. Pr., CIVL 4210 or departmental approval. Physical, chemical, biological and hydrological considerations 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.

CIVL 7310/7316 FOUNDATION ENGINEERING (3). LEC. 3. Pr., CIVL 3310, CIVL 4600. Analysis, design and construction of shallow and deep foundation systems.

CIVL 7370/7336 SOIL PROPERTIES (3). LEC. 3. Pr., CIVL 3310.


CIVL 7390 IN SITU TESTING OF SOILS (3). LEC. 3. Pr., CIVL 4310. In situ tests used in geotechnical engineering: test procedures, interpretation of results, and designing from in situ geotechnical data.

CIVL 7500 TRAFFIC FLOW THEORY (3). LEC. 3. Pr., CIVL 6500 or departmental approval. Basic phenomena underlying traffic stream movement and individual vehicle behavior. Topics include flow parameters and relationships; microscopic and macroscopic flow models; equations of motion and state; single and multi-regime flow models.

CIVL 7520 PUBLIC TRANSPORTATION (3). LEC. 3. Pr., CIVL 3510 or departmental approval. Technology and characteristics of public transportation; transportation demand analysis and innovative technologies.

CIVL 7540 TRANSPORTATION SAFETY (3). LEC. 3. Pr., CIVL 6500 or departmental approval. Transportation safety problems 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.

CIVL 7550 ROADSIDE DESIGN (3). LEC. 3. Pr., CIVL 6500 or departmental approval. 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, end terminals, sign posts, and other roadside features.


CIVL 7630 ADVANCED STRESS ANALYSIS (3). LEC. 3. Pr., CIVL 6670. Hooke’s 1-D, 2-D, 3-D stress-strain relations and applications, stress and strain transformations and Mohr’s circle, material properties and failure theories, biaxial bending, unsymmetrical bending, composite material members, shear center, torsional stress, stress concentrations, beams on elastic foundations.


CIVL 7660 FINITE ELEMENT METHODS IN STRUCTURAL MECHANICS (3). LEC. 3. Pr., CIVL 6670 or departmental approval. Introduction to finite element analysis; variational principles. 1D, 2D and 3D element formulation; nonlinear (geometric and constitutive) formulations and solutions; eigen value problems.


CIVL 7680 FATIGUE AND FRACTURE MECHANICS (3). LEC. 3. Pr., CIVL 4650 or departmental approval. Linear-elastic and elastic-plastic fracture mechanics, fatigue, yield criteria, applications to highway structures.

CIVL 7690 ANALYSIS OF PLATE AND SHELL SYSTEMS (3). LEC. 3. Pr., CIVL 6670 or departmental approval. Analysis of isotropic and anisotropic plates and shells; boundary conditions due to lateral and in-plane loads; large deflection considerations; numerical techniques; bending and membrane behavior of isotropic shells.

CIVL 7710/7716 APPLIED ELASTICITY (3). LEC. 3. Pr., CIVL 6670 or departmental approval. Analysis of stress strain; generalized stress-strain relationship; solution of potential problem by potentials; thick circular, disks and spheres; energy principles and introduction of variational methods.

CIVL 7770 VARIATIONAL METHODS IN STRUCTURAL MECHANICS (3). LEC. 3. Pr., CIVL 6670 or departmental approval. Calculus of variations; derivation of Euler’s equations and boundary conditions; applications of energy principles to structures; variational approaches to finite element methods.

CIVL 7810 CIVIL ENGINEERING MATERIALS (4). LEC. 3. LAB. 3. Pr., CIVL 6810 or departmental approval. Laboratory and field test methods for determining the engineering properties of pavement materials, including hot-mix asphalt, Portland cement concrete, granular materials and subgrade soils; interpretation of test data for selecting property values; and use of engineering properties in the design and analysis of pavement response to environmental and vehicular loads.

CIVL 7820 ADVANCED PAVEMENT DESIGN AND REHABILITATION (3). LEC. 3. Pr., CIVL 7810. Pavement management concepts, life cycle costs analysis, design and rehabilitation alternatives, serviceability concepts, empirical distress selection models, reliability.

CIVL 7970 SPECIAL TOPICS IN CIVIL ENGINEERING (1-3). LEC. Pr., departmental approval. 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 3 credit hours.

CIVL 7980/7986 ENGINEERING PROJECT (1-10). LEC. Pr., departmental approval. Credit is awarded. Course may be repeated for a maximum of 10 credit hours.

CIVL 7990 RESEARCH AND THESIS (1-10). MST. Pr., departmental approval. Credit is awarded. Course may be repeated for a maximum of 10 credit hours.
ENVIRONMENTAL SCIENCE (ENVI)

Dr. Joe Morgan - 844-4326

ENVI 1010 INTRODUCTION TO ENVIRONMENTAL SCIENCE (0). LEC. 1. 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 INTRODUCTION TO ENVIRONMENTAL SCIENCE (1). LEC. 1. Pr., departmental approval. Discussion of current issues in environmental science.

Cell and Molecular Biology (CMBL)

Dr. Alfred E. Brown - 844-1644

CMBL/BIOL 6190 CELL, AND MOLECULAR SIGNAL TRANSDUCTION (3). LEC. 3. Pr., BIOL 3000, BIOL 4100, BIOL 4050, CHEM 2090. Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic and biochemical approaches. Credit will not be given for both CMBL 6190 and BIOL 6190.


CMBL/BIOL 6500 IMMUNOLOGY (3). LEC. 3. Pr., BIOL 3200 and BIOL 3000. The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms, and medical immunology.


CMBL/BIOL 6521 GENE EXPRESSION AND RECOMBINANT DNA LAB (2). LEC. 2. LAB. 4. Pr., or corequisites BIOL 4220 and BIOL 7220. Coreq., BIOL 4220, BIOL 7220. Laboratory experiences demonstrating concepts and techniques in recombinant DNA.

CMBL/HORT 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.

CMBL/VMS 7080 MOLECULAR ENDOCRINOLOGY (2). LEC. 2. Pr., VBMS 7070 or departmental approval. Examination of the literature of hormonal synthesis, secretion and mechanism of action with emphasis on receptors, second messenger systems and gene regulation.

CMBL/BIOL 7220 INTRODUCTORY MOLECULAR GENETICS (4). LEC. 4. Pr., BIOL 3000, BIOL 4510. 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 CMBL 7220 and BIOL 7220.

CMBL/PLPA 7240 VIROLOGY (4). LEC. 4. Pr., BIOL 3200, BIOL 3000, and BIOL 4520. Molecular mechanisms of virus biology including virus-cell interactions, replication, assembly and release and pathogens. Credit will not be given for both CMBL 7230 and BIOL 7230.

CMBL/BIOL 7270 ULTRASTRUCTURE OF PLANT CELLS AND MICROBES (3). LEC. 3. LAB. 4. Pr., graduate standing and departmental approval. Theory and practice of transmission and scanning electron microscopy and their applications to the biological sciences. Credit will not be given for both CMBL 7270 and BIOL 7270.

CMBL/BIOL 7290 EVOLUTIONARY GENETICS (3). LEC. 3. Pr., BIOL 3000, BIOL 6170, or departmental approval. Examines two major topics: the role of population processes as mechanisms for evolution; and evolution at the molecular level. Credit will not be given for both CMBL 7290 and BIOL 7290.

CMBL/BIOL 7320 PLANT GENE EXPRESSION (4). LEC. 4. Pr., BIOL 4320, departmental approval. Genetic expression of genetic elements in plants from the recent literature. Credit will not be given for both CMBL 7320 and BIOL 7320.

CMBL/BIOL 7330 MOLECULAR BIOLOGY OF PLANT DEVELOPMENT (2). LEC. 2. Pr., BIOL 6130, BIOL 7280 or departmental approval. Physiological, biochemical and molecular aspects of plant growth and development. Credit will not be given for both CMBL 7320 and BIOL 7320.

CMBL/PLPA 7400 PLANT VIROLOGY (4). LEC. 3. LAB. 2. Pr., PLPA 3000 or PLPA 6000, CHEM 6180, or departmental approval. Introduction to plant viruses and the diseases they cause; virus particle structure and replication strategies; disease identification by symptoms and detection of pathogens; transgenic and antiviral biology and control. Credit will not be given for both CMBL 7440 and BIOL 7440.

CMBL/VMS 7460 BACTERIAL PATHOGENESIS (3). LEC. 3. Pr., VBMS 7510 or BIOL 4520, and departmental approval. Molecular and cellular basis of virulence of bacterial pathogens of animals.

CMBL/VBMS 7480 METHODS IN IMMUNOLOGY (5). LEC. 1. LAB. 8. Pr., departmental approval. Theoretical concepts underlying immunological methods combined with practical hands-on immunological experimentation focused on application to research in the biological sciences.


CMBL/VBMS 7510 MOLECULAR GENETICS I (5). LEC. 5. Pr., CHEM 7200. Bacterial, bacteriophage, and eukaryotic genetics, with a focus on gene structure, and molecular mechanisms regulation expression. Critical review of current literature will be emphasized.

CMBL/VBMS 7520 MOLECULAR GENETICS II (5). LEC. 5. Pr., VBMS 7510. Genetic mechanisms by which eukaryotic cells replicate, communicate and differentiate. Current literature will be used extensively.

CMBL/VBMS 7540 CURRENT TOPICS IN MOLECULAR VIROLOGY (3). LEC. 3. Pr., VBMS 7510, VBMS 7520, departmental approval. Viral gene expression and evasion of host defense mechanisms.

CMBL/FISH 7660 MOLECULAR GENETICS AND BIOTECHNOLOGY (4). LEC. 3. LAB. 3. Pr., BIOL 3000 or departmental approval. Principles and application of DNA fingerprinting technologies, gene mapping, genetic information and analysis using internet tools, transgenic technologies. Credit will not be given for both CMBL 7660 and FISH 7660.

CMBL/BIOL 7690 READINGS IN MOLECULAR BIOLOGY (1). RCT. 1. Pr., BIOL 7220. Oral presentation and discussion of recent scientific publications from a selected area of molecular biology. Credit will not be given for both CMBL 7960 and BIOL 7960. Course may be repeated for a maximum of 2 credit hours.

CMBL/POUL 8160 LABORATORY TECHNIQUES IN MOLECULAR VIROLOGY (4). LEC. 1. LAB. 9. Pr., BIOL 4520, BIOL 4530, or equivalent. Isolation, purification, and identification of viral nucleic acids and proteins. Credit will not be given for both CMBL 8160 and POUL 8160.

CMBL/PLPA 8680 PHYSIOLOGICAL AND MOLECULAR PLANT PATHOLOGY (3). LEC. 2. LAB. 2. Pr., PLPA 6000, CHEM 6180, BIOL 4230, or departmental approval. Comprehensive coverage of physiology and molecular biology of plant-pathogen interactions.

Communication Disorders (CMDS)

Dr. William Haynes - 844-9600

CMDS 2500 COMMUNICATION DISORDERS IN SOCIETY (2). LEC. 2. Information on stuttering, speech, language, voice disorders and hearing impairment and how to interact with individuals with communication disorders.

CMDS 3000 INTRODUCTION TO SPEECH PATHOLOGY-AUDIOLOGY (3). LEC. 3. Survey of the field of speech pathology-audiology. Includes history of the profession, the inter-relatedness of the various pathological general principles of evaluation and therapy and the profession itself.

CMDS 3340 THE SPEECH AND HEARING MECHANISM (3). LEC. 3. Anatomy and physiology of the speech and hearing mechanism.


CMDS 3550 SPEECH AND HEARING SCIENCE (3). LEC. 3. Pr., CMDS 3400, CMDS 3410, 2.2 GPA. The acoustic properties of speech, their relationship to perceptual and physiological phonetics, and instrumentation used in speech science.

CMDS 4510 ARTICULATION DISORDERS (3). LEC. 3. Pr., CMDS 3400, CMDS 3410 or departmental approval; 2.2 GPA. Principles of normal and deviant articulation acquisition.

CMDS 4520 LANGUAGE ACQUISITION (3). LEC. 3. Pr., CMDS 3400, CMDS 3410 or departmental approval; 2.2 GPA. First language acquisition in childhood and its change throughout the life span.

CMDS 4530 FLUENCY DISORDERS (3). LEC. 3. Pr., CMDS 3400, CMDS 3410 or departmental approval; 2.2 GPA. Principles of fluent and disfluent vocal behavior.

CMDS 4540 VOCAL DISORDERS (3). LEC. 3. Pr., CMDS 3400, CMDS 3410 or departmental approval; 2.2 GPA. Principles of normal and deviant vocal behavior.

CMDS 4560 CHILD AND ADOLESCENT LANGUAGE DISORDER (3). LEC. 3. Pr., CMDS 4520 or departmental approval; 2.2 GPA. Overview of research dealing with the nature, assessment and treatment of language disorders in child and adolescent populations.

CMDS 4580 INTRODUCTION TO CLINICAL PROCEDURES IN SPEECH-LANGUAGE PATHOLOGY (3). LEC. 3. LCN. 30. Pr., CMDS 4510 or CMDS 4520 and one of the following: CMDS 4510, CMDS 4520, CMDS Pr., CMDS 4540. Orientation to clinical activities, management methods and preparation of professional reports.

CMDS 4620 HEARING REHABILITATION (3). LEC. 3. Pr., CMDS 4600 or departmental approval; 2.2 GPA. Rehabilitation problems of children and adults in the area of auditory training, speech reading and speech conservation; includes clinical practice.

CMDS 4650 INTRODUCTION TO CLINICAL PROCEDURES IN AUDIOLOGY (3). LEC. 3. Pr., CMDS 4600 or departmental approval; requires 2.5 GPA to enter. Audiological instrumentation and test procedures.

CMDS 4910 CLINICAL PRACTICUM IN SPEECH-LANGUAGE PATHOLOGY (1). PRA. 1. Pr., CMDS 4580 or departmental approval; 2.5 GPA. Course may be repeated for a maximum of 2 credit hours.

CMDS 4967 HONORS READINGS (1-3). IND. Pr., membership in the Honors College; departmental approval. Junior or senior Pr., standing. Course may be repeated for a maximum of 3 credit hours.

CMDS 4970 CLINICAL PROBLEMS IN SPEECH (2). LEC. 2. Pr., CMDS 4580-4910 series or departmental approval. Methods, techniques and clinical management of the disorders of speech. Clinical practice required. Course may be repeated for a maximum of 2 credit hours.

CMDS 7510 ADVANCED ARTICULATION DISORDERS (3). LEC. 3. Pr., CMDS 4510 or departmental approval. Empirical and theoretical bases for articularty disorders.

CMDS 7520 CLINICAL STRATEGIES IN CHILD AND ADOLESCENT LANGUAGE DISORDERS (3). LEC. 3. Pr., CMDS 4520 or departmental approval. Empirical and theoretical bases for evaluation and treatment of child/adolescent language disorders.

CMDS 7530 ADVANCED FLUENCY DISORDERS (3). LEC. 3. Pr., CMDS 4530 or departmental approval. Empirical and theoretical bases for dysfluency disorders, diagnoses and therapies.

CMDS 7540 ADVANCED VOICE DISORDERS (3). LEC. 3. Pr., CMDS 4540 or departmental approval. Empirical and theoretical bases for voice pathologies, diagnoses and therapies.

CMDS 7550 LANGUAGE AND SPEECH DISORDERS (3). LEC. 3. Pr., CMDS 4520 or departmental approval. Empirical and theoretical bases for speech-language disorders associated with CNS pathologies, diagnoses and therapies.

CMDS 7560 CLEFT PALATE (3). LEC. 3. Pr., CMDS 4510 or departmental approval. Empirical and theoretical bases for speech-language disorders associated with cleft palate, diagnoses and therapies.

CMDS 7570 EVALUATION OF RESEARCH IN SPEECH PATHOLOGY AND AUDIOLOGY (3). LEC. 3. Pr., departmental approval. Survey of experimental designs and statistical procedures used in speech-language pathology/audiology literature for consumers of research.

CMDS 7600 CLINICAL PROBLEMS IN HEARING (2). LEC. 2. Pr., CMDS 4650, CMDS 4600 and CMDS 4620 or departmental approval. Course may be repeated for a maximum of 2 credit hours.


CMDS 7620 ADVANCED HEARING SCIENCE (3). LEC. 3. Pr., CMDS 4600, CMDS 4620 or departmental approval. Introduction to instrumentation and calibration of audiological equipment. Auditory perception in normal-hearing and hearing-impaired listeners.

CMDS 7630 HEARING DISORDERS (3). LEC. 3. Pr., CMDS 4600, CMDS 4620 or departmental approval. Study of the disorders of hearing and their evaluation and treatment.

CMDS 7640 AMPLIFICATION ASSESSMENT AND FITTING (3). LEC. 3. Pr., CMDS 4600, CMDS 4620 or departmental approval. Background and development of hearing aids and other amplification systems; performance standards and measurement techniques; selection, fitting and dispensing procedures.

CMDS 7650 AUDIOLOGY IN PRIVATE PRACTICE (3). LEC. 3. Pr., CMDS 4600, CMDS 4620 or departmental approval. Concepts and strategies for private practice in the areas of clinical and industrial audiology.

CMDS 7660 AURAL HABILITATION (3). LEC. 3. Pr., CMDS 4600, CMDS 4620 or departmental approval. The parameters involved in the management of hearing-impaired school-aged children.

CMDS 7690 CENTRAL AUDITORY PROCESSING (3). LEC. 3. Pr., CMDS 4600, CMDS 4620 or departmental approval. Selectioned clinical procedures in audiology, including acoustic reflex measures and behavioral test of central auditory function.

CMDS 7700 AURAL REHABILITATION (3). LEC. 3. Pr., CMDS 4600, CMDS 4620 or departmental approval. Psychosocial aspects on hearing loss; clinical and therapeutic management of older persons with hearing disorders including counseling of the hearing-impaired and their families.

CMDS 7720 ELECTROPHYSIOLOGICAL PROCEDURES IN AUDIOLOGY (3). LEC. 3. Pr., CMDS 4600, CMDS 4620, or departmental approval. Selected neurophysiological clinical procedures in audiology, including electroneustomography and auditory evoked potentials.

CMDS 7800 THE NEUROLOGICAL BASES OF COMMUNICATION DISORDERS (3). LEC. 3. Pr., departmental approval. Anatomy and physiology of the central nervous system as it relates to speech, language and hearing function and disorders.

CMDS 7810 MOTOR SPEECH DISORDERS (3). LEC. 3. Pr., CMDS 7800 or departmental approval. Empirical and theoretical bases for motor speech disorders, diagnoses and therapies.

CMDS 7820 MEDICAL ASPECTS OF SPEECH-LANGUAGE PATHOLOGY (3). LEC. 3. Pr., CMDS 7800 or departmental approval. Overview of the role of speech language pathology in medical settings with specific emphasis on the terminology and procedures used to assess and treat dysphagia, dementia, traumatic brain injury and right hemisphere damage in adult population.

CMDS 7840 AUGMENTATIVE AND ALTERNATIVE COMMUNICATION (3). LEC. 3. Pr. 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 or departmental approval. Orientation to acoustic and physiologic instrumentation used in the study of normal and disordered speech.

CMDS 7900 INDEPENDENT STUDY (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.

CMDS 7940 FIELD EXPERIENCE (5). LEC. 5. 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 5 credit hours.

CMDS 7990 RESEARCH AND THESIS (01 - 05). MST. Course may be repeated for a maximum of 5 credit hours.

Communication (COMM)

Dr. Mary Helen Brown - 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 1010 COMMUNICATION SKILLS IN LEADERSHIP SETTINGS (3). LEC. 3. Communication skills associated with activities such as interviewing, making presentations, listening, conflict management, and team work in a leadership setting.

COMM 2010 MESSAGE PREPARATION AND ANALYSIS (3). LEC. 3. Pr., COMM 1000 or COMM 1010. 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. Pr., sophomore standing. Communication in modern organizations emphasizing practice in areas such as interviewing, meeting management, and professional presentations.

COMM 2410 SMALL GROUP COMMUNICATION (3). LEC. 3. Pr., sophomore standing. 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 3100 SPEAKING BEFORE AUDIENCES (3). LEC. 3. Pr., departmental approval, sophomore standing. Refining the knowledge and skills necessary for communicating clearly and effectively in oral presentations. Recommended for COMM majors only.

COMM 3110 PERSUASIVE DISCOURSE (3). LEC. 3. Pr., sophomore standing. Understanding and analyzing persuasive messages. Survey of theoretical approaches to attitude formation and change. Developing skills as a critical evaluation of persuasive messages.

COMM 3450 INTERCULTURAL COMMUNICATION (3). LEC. 3. Pr., sophomore standing. Different types of problems encountered when communicating with different cultures.

COMM 3500 FOUNDATIONS OF HUMAN COMMUNICATION (3). LEC. 3. Pr., sophomore standing. Theories examining the nature of human communication.

COMM 3600 FOUNDATIONS OF RHETORIC AND SOCIAL INFLUENCE (3). LEC. 3. Pr., sophomore standing. Rhetorical theory from its classical roots to contemporary thinkers. Relates rhetorical theory and analysis to understanding persuasive discourse in our society.

COMM 3700 ARGUMENTATIVE DISCOURSE (3). LEC. 3. Pr., sophomore standing. Examination of the critical tools necessary to evaluate arguments in current public discourse.

COMM 4100 COMMUNICATION STRATEGIES OF SOCIAL MOVEMENTS (3). LEC. 3. Pr., RTVF 3300, COMM 3500, COMM 3600. Examines persuasive strategies used in social movements to attract members, solidify support, and effect social change.

COMM 4410 THEORIES OF LEADERSHIP (3). LEC. 3. Pr., RTVF 3300, COMM 3500, COMM 3600. Examination of theory and research in leadership as a communication variable and behavioral practice in small group and organizational settings.
COMM 4470 HEALTH COMMUNICATION (3). LEC. 3. Pr., RTVF 3300, COMM 3500, COMM 3600. The history, functions, and concepts central to the practice of health communication.

COMM 4500 MESSAGE STRUCTURES AND INFORMATION PROCESSING (3). LEC. 3. Pr., RTVF 3300, COMM 3500, COMM 3600. Relationship between message structures and information processing in both cognitive and affective domains during speaking and listening.

COMM 4500 RESEARCH METHODS (3). LEC. 3. Pr., RTVF 3300, COMM 3500, COMM 3600. Focuses on basic research principles and survey research as it is used by mass media and public relations.


COMM 4700 LEGAL COMMUNICATION (3). LEC. 3. Pr., COMM 1000, RTVF 3300, COMM 3500, COMM 3600. Examination of the trial process including jury selection, opening statement, direct examination, cross-examination, and closing arguments.

COMM 4800 INTERPERSONAL COMMUNICATION (3). LEC. 3. Pr., RTVF 3300, COMM 3500, COMM 3600. The relationship between communication and the formation of self identity and maintenance of relationships.

COMM 4810 NONVERBAL COMMUNICATION (3). LEC. 3. Pr., RTVF 3300, COMM 3500, COMM 3600. The theory of non-language based communication and the impact of these messages on the overall communication process.

COMM 4920 INTERNSHIP (3-6). INT. 3. Pr., Senior standing, admission to internship program, opportunity to apply classroom experience in a job setting.

COMM 4967 HONORS READINGS (1-3). IND. Pr., membership in the Honors College, COMM 3500, COMM 3600, RTVF 3300, junior or Pr., senior standing. Course may be repeated for a maximum of 3 credit hours.

COMM 4970 SPECIAL TOPICS IN COMMUNICATION (3). LEC. 3. Pr., RTVF 3300, COMM 3500, COMM 3600. Topics in communication. Course may be repeated for a maximum of 3 credit hours.

COMM 4997 HONORS THESIS (1-3). IND. Pr., membership in the Honors College, COMM 3500, COMM 3600, RTVF 3300, senior Pr., standing. Course may be repeated for a maximum of 3 credit hours.

COMM 7000 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 7220 EXPERIMENTAL METHODS IN COMMUNICATION (3). LEC. 3. Consideration of the scope and nature of experimental research to our understanding of human communication.

COMM 7230 RHETORICAL CRITICISM (3). LEC. 3. Advanced methods in rhetorical criticism including tools for the analysis of persuasive messages.

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-WW II America.

COMM 7440 SEMINAR IN ARGUMENTATION AND DEBATE (3). SEM. 3. The fundamental theories of argumentation will be analyzed.

COMM 7450 SEMINAR IN INTRAPERSONAL PROCESSES IN 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 advanced 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 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 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 situations.

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 7900 INDEPENDENT STUDY (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. Course may be repeated for a maximum of 3 credit hours.

COMM 7980 NON-THESIS PROJECT IN COMMUNICATIONS (3). LEC. 3. Pr., Minimum 30 graduate hours including COMM 7000, COMM 7010, COMM 7020. Professional experience in communication area of interest. Must include managerial experience.

COMM 7990 RESEARCH AND THESIS (1-6). MST. Course may be repeated for a maximum of 6 credit hours.

PUBLIC RELATIONS (PRCM)

PRCM 3040 FOUNDATIONS OF PUBLIC RELATIONS (3). LEC. 3. Pr., JRNL 1010. Communication skills and technologies necessary for successful public relations.

PRCM 4020 STYLE AND DESIGN IN PUBLIC RELATIONS MESSAGES (3). LEC. 3. Pr., JRNL 1010, PRCM 3040, COMM 3500, COMM 3600, RTVF 3300, sophomore standing. Introduction to the use of style and design in public relations messages.

PRCM 4040 CASE STUDIES AND ETHICS IN PUBLIC RELATIONS (3). LEC. 3. Pr., JRNL 1010, PRCM 3040, COMM 3500, COMM 3600, RTVF 3300, sophomore standing. Investigation and analysis of public relations problems through case studies.

PRCM 4080 WRITING FOR PUBLIC RELATIONS (3). LEC. 3. Pr., JRNL 1010, PRCM 3040, COMM 3500, COMM 3600, RTVF 3300, sophomore standing. Writing skills necessary for the practice of public relations.

PRCM 4090 PUBLIC RELATIONS CAMPAIGNS (3). LEC. 3. Pr., JRNL 1010, RTVF3300, COMM3500, COMM3600, PRCM4040, PRCM4080, COMM 4510. Pr., Sophomore standing. Capstone course designed to apply Public Relations and Communication principles to a campaign situation.

PRCM 4920 INTERNSHIP (3-6). INT. 3. Pr., Senior standing, admission to internship program. Opportunity to apply classroom experience to real job settings.

PRCM 6800 POLITICS OF CONTEMPORARY PUBLIC RELATIONS (3). LEC. 3. Pr., RTVF 3300 and COMM 3500 and COMM 3600 or graduate standing. Examination of research on the political impact of public relations on U.S. and organizational culture.

RADIO/TELEVISION/FILM (RTVF)

RTVF 2340 RADIO PRODUCTION (3). LEC. 2. LAB. 2. Pr., departmental approval. Analysis of the creative efforts and responsibilities in the primary stages of radio production. Practice in writing, producing, and voicing live and recorded productions.

RTVF 2350 INTRODUCTION TO FILM STUDIES (3). LEC. 2. LAB. 2. Pr., Sophomore standing. 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., Sophomore standing. 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 3300 FOUNDATION OF MASS COMMUNICATION (3). LEC. 3. Pr., sophomore standing. Historical and theoretical bases of mass communication in the U.S., emphasizing the social, cultural, religious, and political aspects.

RTVF 3350 WRITING FOR RADIO, TELEVISION AND FILM (3). LEC. 3. Pr., departmental approval and sophomore standing. The study, 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., departmental approval and sophomore standing. Writing and editing news stories for broadcast.

RTVF 3800 MULTIMEDIA PRODUCTION (3). LEC. 3. Pr., RTVF 3360 or RTVF 3370. Introduction to elementary multimedia production; mastery of basic authoring techniques in Authorware.


RTVF 4210 POPULAR CULTURE AND MASS COMMUNICATION (3). LEC. 3. Pr., RTVF 3300, COMM 3500, COMM 3600, sophomore standing. Examines myths, icons, rituals, heroes, celebrities, genres, narratives, stereotypes as experienced and presented within communication processes.

RTVF 4300 BROADCAST PROGRAMMING AND CRITICISM (3). LEC. 3. Pr., RTVF 3300, COMM 3500, COMM 3600, sophomore standing. 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., RTVF 3300, COMM 3500, COMM 3600, sophomore standing. Examination of the relationship between the mass communication industry and a mass society.

RTVF 4320 BROADCAST MANAGEMENT (3). LEC. 3. Pr., RTVF 3300, COMM 3500, COMM 3600, sophomore standing. Investigates principles and practices of managing broadcast stations and cable operations.

RTVF 4330 MEDIA LAW AND REGULATION (3). LEC. 3. Pr., RTVF 3300, COMM 3500, COMM 3600, sophomore standing. Legal, professional and ethical constraints on the mass media.


RTVF 4920 INTERNSHIP (3-6). INT. 3. Pr., Senior standing, admission to internship program. Opportunity to apply classroom experience to real job setting.

Computer Science and Engineering (COMP)

Dr. James Cross - 844-4330

COMP 1000 PERSONAL COMPUTER APPLICATIONS (2). LEC. 2. Introduction to personal computers and software applications including word processing, spreadsheet, database, 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 CSI and SWEN majors.

COMP 1200 INTRODUCTION TO COMPUTING FOR ENGINEERS AND SCIENTISTS (2). LEC. 2. Computer programming in a high-level language, with emphasis on the computer as a tool for engineering/scientific problem solving. May be repeated for a maximum of 4 credit hours.

COMP 2000 NETWORK PROGRAMMING WITH HTML AND JAVA (3). LEC. 3. Introduction to network programming using HTML and Java to build web pages and web-based applications; presentation graphics; retrieval of information from the Internet; integration of data among applications. Credit for the major will not be given to CSI and SWEN majors.


COMP 2210 FUNDAMENTALS OF COMPUTER SCIENCE II (4). LEC. 3. LAB. 3. Pr., COMP 2200. Continuation of COMP 2200 with emphasis on data structures such as lists, trees, graphs and hash tables.

COMP 3000 OBJECT-ORIENTED PROGRAMMING FOR ENGINEERS AND SCIENTISTS (3). LEC. 3. Pr., departmental approval. 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 CSI and SWEN majors.

COMP 3220 PRINCIPLES OF PROGRAMMING LANGUAGES (3). LEC. 3. Pr., COMP 2210. Study of programming language principles supporting procedural abstraction, data abstraction, storage allocation, and parallel execution; language types and data examples.

COMP 3240 DISCRETE STRUCTURES (3). LEC. 3. Pr., COMP 2210. 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 or departmental approval. 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 Computer architecture, assembly language hardware and software systems, instruction sets, addressing modes; assembly language programming; loaders, linkers, and operating systems.

COMP 3500 INTRODUCTION TO OPERATING SYSTEMS (3). LEC. 3. Pr., COMP 3550 and COMP 2210. 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 4000 WINDOWS NT NETWORK AND SYSTEMS ADMINISTRATION (3). LEC. 3. Pr., COMP 2000 or departmental approval. Principles and techniques of systems administration for Windows NT systems, including configuration of mail, file servers, print servers, and networks. Credit for the major will not be given to majors in CSCI and SWEN.


COMP 4270 ADVANCED WEB DESIGN (3). LEC. 3. Pr., RTVF 3300 or RTVF 3370 or departmental approval. 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., RTVF 3300. Comparison of computer architectures, emphasizing the relationships between system software and hardware. Includes processor control and datapath 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., RTVF 3300 or departmental approval. Fundamentals of computer networks, including OSI model, LAN, WAN, packet transmission, interworking, Internet Protocol, WWW and Java technology.

COMP 4450 INTELLIGENT AND INTERACTIVE SYSTEMS (3). LEC. 3. Pr., RTVF 3300 or departmental approval. Theory and design of intelligent and interactive software; basic treatments of intelligent agents and human-computer interaction.

COMP 4710 SENIOR DESIGN PROJECT (3). LEC. 3. Pr., RTVF 3370 and senior standing. 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. Course may be repeated for a maximum of 6 credit hours.

COMP 4730 COMPUTER ETHICS (1). LEC. 1. Pr., PHIL 1040. Application of ethical principles to computing-related topics, including privacy, property rights, autonomy, access, and diversity.

COMP 4970 SPECIAL TOPICS (3-4). LEC. 1. Pr., departmental approval. Investigation of current topics in computer science and software engineering. Course may be repeated for a maximum of 4 credit hours.

COMP 4997 HONORS THESIS (3-6). IND. Pr., membership in the Honors College, departmental approval, CSCI or SWEN major. Individual student endeavor consisting of directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

COMP 6000 WEB DESIGN WITH HTML AND JAVA (3). LEC. 3. Pr., senior or graduate standing or departmental approval. Design and implementation of web sites with HTML and Java applets. Emphasis on user interface design and information organization and presentation.

COMP 6100 INTERACTIVE APPLICATIONS IN VISUAL BASIC (3). LEC. 3. Pr., COMP 6000 or departmental approval. Design and implementation of applications like simulations, front-ends to Excel for modeling, interfaces to databases and multimedia applications.

COMP 6200 ADVANCED WEB DESIGN (3). LEC. 3. Pr., COMP 6100 or departmental approval. 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.

COMP 6300 OBJECT-ORIENTED TECHNOLOGIES (3). LEC. 3. Pr., COMP 6000 or departmental approval. Object-oriented design and implementation of a variety of applications using C++ and intelligent agents with one or more object-oriented programming language.

COMP 6120/6125 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 6200/6206 THEORETICAL COMPUTER SCIENCE (3). LEC. 3. Pr., COMP 4200 or departmental approval. The nature of the recursive sets and recursive enumeration sets. Decidability. Context-sensitive grammars and linear-bounded automata, including closure properties; oracles; reduction; the arithmetic hierarchy; the analytic hierarchy.

COMP 6210 COMPILER CONSTRUCTION (3). LEC. 3. Pr., COMP 4200. Compiler organization; lexical analysis; parsing; syntax-direction translation; symbol tables; basic dependence analysis; intermediate forms; interpreters vs. compilers; run-time management; code generation; error detection and recovery.

COMP 6220 ADVANCED TOPICS IN PROGRAMMING LANGUAGES (3). LEC. 3. Pr., COMP 3220. Advanced topics in programming language concepts, design, and implementation.

COMP 6230 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 6280 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 6320/6325 DESIGN AND ANALYSIS OF COMPUTER NETWORKS (3). LEC. 3. Pr., COMP 4320 or departmental approval. Computer networks design, including multiplexing, switching, routing, internetworking, transport protocols, congestion control, and performance evaluation.


COMP 6400/6406 FUNDAMENTALS OF COMPUTER GRAPHICS (3). LEC. 3. Pr., COMP 2210, 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 hidden-surface removal, and software projects using a graphics software package.

COMP 6500 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 6510 NETWORKED MULTIMEDIA SYSTEMS (3). LEC. 3. Pr., COMP 4320 or departmental approval. Basic concepts, architecture and design of networked multimedia systems.


COMP 6560/6566 ARTIFICIAL INTELLIGENCE (3). LEC. 3. Pr., COMP 3270 and COMP 4640 or departmental approval. Introduction to intelligent agents, search knowledge representation and reasoning, machine learning.

COMP 6610/6616 ARTIFICIAL INTELLIGENCE PROGRAMMING (3). LEC. 3. Pr., COMP 6600 or departmental approval. Design and implementation of advanced artificial intelligence techniques including expert systems, planning, logic and constraint programming, knowledge representation and heuristic search methods.

COMP 6620 USER INTERFACE DESIGN AND EVALUATION (3). LEC. 3. Pr., COMP 4640 or departmental approval. Theory and practice of designing interfaces for interactive systems, usability engineering techniques; implementing and evaluating interfaces.

COMP 6700/6706 SOFTWARE PROCESS (3). LEC. 3. Pr., COMP 3700 or departmental approval. Process models of the software life cycle as well as methods and tools for software development.

COMP 6710/6716 SOFTWARE QUALITY ASSURANCE (3). LEC. 3. Pr., COMP 3700 or departmental approval. Processes, methods, and tools associated with the production of robust, high-quality software.

COMP 6720 REAL TIME AND EMBEDDED SYSTEMS (3). LEC. 3. Pr., COMP 4320. 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 channels.

COMP 7120/7126 DATABASE SYSTEMS II (3). LEC. 3. Pr., COMP 6120. Theoretical and applied issues related to the analysis, design, and implementation of object-oriented database systems.

COMP 7210 ADVANCED COMPILER DESIGN (3). LEC. 3. Pr., COMP 6210 or departmental approval. Optimizing compilers, dependence analysis, parallelizing compilers, Optimization compilation for non-imperative languages. Compiling object-oriented languages.


COMP 7270 ADVANCED TOPICS IN ALGORITHMS (3). LEC. 3. Pr., COMP 4270 or departmental approval. In-depth study of advanced topics in algorithms.


COMP 7300 ADVANCED COMPUTER ARCHITECTURE (3). LEC. 3. Pr., COMP 4300 or departmental approval. Modern instruction level parallel computer design, including superscalar and very-long instruction word processor design.

COMP 7310 VLSI CAD TOOL DESIGN (3). LEC. 3. Pr., COMP 6210 or departmental approval. Design of CAD tools for VLSI design, including high-level synthesis and hardware-software co-design, logic synthesis, floorplanning, optimization, placement and routing. Software development of a CAD tool as a comprehensive project.

COMP 7320/7326 ADVANCED COMPUTER NETWORKS (3). LEC. 3. Pr., COMP 6320 or departmental approval. Advanced network topics, including ISDN, ATM, active networks, security, Internet, wireless and mobile networks, and network management.

COMP 7330 TOPICS IN PARALLEL AND DISTRIBUTED COMPUTING (3). LEC. 3. Pr., COMP 6330 or departmental approval. Parallel programming languages, environments and tools, parallel algorithms performance issues, distributed memory systems, group communication, fault tolerance.

COMP 7340/7346 HIGH-SPEED NETWORKS (3). LEC. 3. Pr., COMP 6230 or departmental approval. High-speed networks design, including ATM and gigabit Ethernets, quality of service, ATM traffic, congestion control, ATM switching, and signaling.

COMP 7350 MULTIMEDIA NETWORKING (3). LEC. 3. Pr., COMP 6230 or departmental approval. Multimedia network requirements, coding, compression, multicast, traffic shaping and analysis, quality of service, scheduling, buffer design and congestion control.

COMP 7360 WIRELESS AND MOBILE NETWORKS (3). LEC. 3. Pr., COMP 6320 or departmental approval. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP, personal communication systems, and GSM.

COMP 7400/7406 ADVANCED COMPUTER GRAPHICS (3). LEC. 3. Pr., COMP 6400 or departmental approval. Advanced 3-D topics including visual realism issues, visible surface determination algorithms, illumination and shading models, surface and solid modeling, advanced modeling techniques, special purpose graphics architectures, and animation. Software projects will be assigned.

COMP 7500/7506 ADVANCED TOPICS IN OPERATING SYSTEMS (3). LEC. 3. Pr., COMP 6500 or departmental approval. Advanced topics in operating system concepts, design and implementation.

COMP 7560/7566 COMPUTATIONAL INTELLIGENCE (3). LEC. 3. Pr., COMP 6600 or departmental approval. A study of computational intelligence with emphasis on the design and implementation of neural, genetic and fuzzy computing techniques.

COMP 7610/7616 COMPUTATIONAL COGNITION (3). LEC. 3. Pr., COMP 6600 or departmental approval. Computational models of cognition, including knowledge representation and process mechanisms like means-ends analysis, semantic networks, frames.

COMP 7620 HUMAN-COMPUTER INTERACTION (3). LEC. 3. Coreq., COMP 6620 or departmental approval. Theoretical principles and practical aspects of interaction between humans and computers, design and evaluation of interactive systems.

COMP 7700/7706 SOFTWARE ARCHITECTURE (3). LEC. 3. Pr., COMP 6700 and COMP 6710. Methods and tools related to the analysis, specification and design of software architecture.

COMP 7710/7716 SOFTWARE ENVIRONMENTS (3). LEC. 3. Pr., COMP 6700 and COMP 6710. Issues associated with the design, implementation, and use of software engineering environments.


COMP 7730/7736 FORMAL METHODS FOR SOFTWARE (3). LEC. 3. Pr., COMP 6700 and COMP 6710. Precise, abstract models for characterizing and reasoning about properties of software systems.

COMP 7930 DIRECTED STUDY (1-3). IND. Pr., departmental approval. Course may be repeated with change in topic.

COMP 7950/7955 INTRODUCTION TO GRADUATE STUDY IN COMPUTER SCIENCE AND SOFTWARE ENGINEERING (1). LEC. 1. Introduction to graduate research and study topics in computer science and software engineering.

COMP 7970/7975 SPECIAL TOPICS (1-3). LEC. Course may be repeated with change in topic.
COMP 7980/7986 MASTER OF SOFTWARE ENGINEERING DESIGN PROJECT (1-15). IND. Planning, implementation, and completion of a design project for a software engineering project in both a written report and an oral presentation. Course may be repeated with change in topic.

COMP 7990 RESEARCH AND THESIS (1-15). MST. Course may be repeated with change in topic.

COMP 8120 CURRENT TOPICS IN DATABASE SYSTEMS (3). LEC. 3. Pr., COMP 6120. Theoretical and applied research issues related to database systems. Topics may change from semester to semester.

COMP 8220 RESEARCH TOPICS IN PROGRAMMING LANGUAGES (3). LEC. 3. Pr., COMP 7220. Topics of current research in the area of programming languages, their design and implementation.


COMP 8330 ADVANCED TOPICS IN PARALLEL AND DISTRIBUTED COMPUTING (3). LEC. 3. Pr., COMP 6330 or departmental approval. Parallel computing, distributed systems, advanced parallel algorithms, load balancing, migration, performance evaluation, distributed architectures.

COMP 8400 CURRENT TOPICS IN COMPUTER GRAPHICS (3). LEC. 3. Pr., COMP 7400 or departmental approval. In-depth study of current research topics in computer graphics. Topics may include theoretical, performance, implementation, and system integration issues. Extensive literature survey, issue identification, performance comparison, and future research trends will be discussed.

COMP 8500 RESEARCH TOPICS IN OPERATING SYSTEMS (3). LEC. 3. Pr., COMP 7500. Topics of current research in the area of operating systems, their design and implementation.

COMP 8600 ADVANCED TOPICS IN ARTIFICIAL INTELLIGENCE (3). LEC. 3. Pr., COMP 6610 or COMP 7600 or COMP 7610 or departmental approval. In-depth study of current research topics in Artificial Intelligence, e.g., reasoning mechanisms, heuristic search methods, cognitive modeling.

COMP 8620 ADVANCED TOPICS IN HUMAN-COMPUTER INTERACTION (3). LEC. 3. Pr., COMP 7620 or departmental approval. In-depth study of current research topics in Human-Computer Interaction, e.g., evaluation and assessment methods, multimodal interfaces, educational technology.

COMP 8700 CURRENT TOPICS IN SOFTWARE ENGINEERING (3). LEC. 3. Pr., COMP 6700, COMP 6710, or departmental approval. Current theoretical and applied research issues in software engineering.

COMP 8930 DIRECTED STUDY (1-3). IND. Course may be repeated for a maximum of 3 credit hours.

COMP 8970 SPECIAL TOPICS (1-3). IND. Course may be repeated with change in topic.

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

Counseling and Counseling Psychology (COUN)

Dr. Holly A. Stadler - 844-2878

COUN 1000 CAREER ORIENTATION AND EXPLORATION (2). LEC. 1, LAB. 2. The process of career decision-making through hands-on activities, in-class exercises and job shadowing.

COUN 2900 INDEPENDENT STUDY (1-3). IND. 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 3 credit hours.

COUN 2940 DIRECTED FIELD EXPERIENCE (1-3). FLD. Pr., departmental approval. Course may be repeated for a maximum of 3 credit hours.

COUN 2970 SPECIAL TOPICS IN COLLEGE STUDENT DEVELOPMENT (1-3). LEC. Pr., sophomore standing. Selected topics in college student development. Course may be repeated for a maximum of 3 credit hours.

COUN 3100 COUNSELING AND HUMAN SERVICES (3). LEC. 3. Pr., junior standing. 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 profession of school psychology; history of the profession, professional roles, ethical and legal standards, and current issues.


COUN 7270 DEVELOPMENT AND VOCATIONAL APPRAISAL (3). LEC. 3. Pr., COUN 7100 or COUN 7410, COUN 7420, COUN 7430. Introduction to the history and theory of measurement and assessment as it applies to counselors and psychologists.


COUN 7270 DEVELOPMENT AND VOCATIONAL APPRAISAL (3). LEC. 3. Pr., COUN 7100 or COUN 7410, COUN 7420, COUN 7430. Introduction to the history and theory of measurement and assessment as it applies to counselors and psychologists.
COUN 8630 ADVANCED THEORIES: PSYCHODYNAMIC THEORIES (3). LEC. 3. Pr., departmental approval. The origins, current status, and emerging applications of psychodynamic approaches to counseling.

COUN 8910 PRACTICUM (3). LEC. 3. Pr., departmental approval; entry level practica. Advanced supervised experiences appropriate to student’s program emphasis. Course may be repeated for a maximum of 3 credit hours.

COUN 8920 INTERNSHIP (1-9). INT. Pr., departmental approval and entry level clinical experiences. Advanced supervised on-the-job experiences appropriate to doctoral level study. Course may be repeated for a maximum of 9 credit hours.

COUN 8950 ALTERNATIVE RESIDENCY SEMINAR (2). SEM. 2. Pr., acceptance in Doctoral Program. Provides intensive study in leadership and trends in counselor education and supervision. Permits students to achieve full-time residency. Course may be repeated for a maximum of 2 credit hours.

COUN 8990 FIELD PROJECT (1-10). FLD. Pr., departmental approval. Required for completion of the Education Specialist degree. Course may be repeated for a maximum of 10 credit hours.

COUN 8990 RESEARCH AND DISSERTATION (1-10). DSR. Course may be repeated for a maximum of 10 credit hours.

Curriculum and Teaching (CTCH)

Dr. Andrew M. Weaver - 844-4434

CAREER AND TECHNICAL EDUCATION (CTCT)

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/typing instruction consult with CTBU faculty for placement.)

CTCT 2200 DOCUMENT PROCESSING (3). LEC. 1, LAB. 4, Pr., CTCT 1200 or departmental approval. Advanced formatting, processing, and evaluation of business correspondence, as well as administrative and employment documents. (Students with previous keyboarding/typing instruction consult with CTBU faculty for placement.)

CTCT 3000 LEADERSHIP SKILLS FOR PERSONAL AND ORGANIZATIONAL DEVELOPMENT (3). LEC. 3. Pr., junior standing or departmental approval. Organizational and leadership skills needed to become professionals in work or community activities; skills and strategies for conducting efficient meetings.

CTCT 3100 POWER EQUIPMENT TECHNOLOGY (3). LEC. 2, LAB. 3. Pr., MATH 1130. Repair and maintenance of small air-cooled engines and power equipment in agriculture.

CTCT 3200 RECORDS MANAGEMENT (2). LEC. 2. Pr., satisfactory score on AU Computer Competency Test or COMP 1000 or departmental Pr., approval. Integrated records management systems, records management functions, classification systems, micrographics, electronic records, and records management careers.

CTCT 3240 INFORMATION PROCESSING I (3). LEC. 2, LAB. 2. Pr., CTCT 2200 or departmental approval. Exploration of organizational needs for text-based information processing. Functions and capabilities of text-based information processing components.

CTCT 3250 INFORMATION PROCESSING II (3). LEC. 2, LAB. 2. Pr., CTCT 3240 or departmental approval. Decision-making and business problem solving using microcomputer software applications including spreadsheets, database management and operating systems.

CTCT 4000 CLASSROOM/LABORATORY MANAGEMENT, ORGANIZATION AND EVALUATION IN CAREER AND CTCT 4000 TECHNICAL EDUCATION (3). LEC. 3. (3). LEC. 3. Pr., admission to Teacher Education. Organization, objectives, principles, management, and evaluation of career and technical education education classrooms/laboratories, and programs.

CTCT 4030 CAREER AND TECHNICAL STUDENT ORGANIZATIONS (3). LEC. 3. Pr., admission to Teacher Education. 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 4050 METHODS OF TEACHING IN AREA OF SPECIALIZATION (3). LEC. 2. LAB. 2. Pr., Junior standing or admission to Teacher Education. Credit will not be allowed Pr., for both CTCT 4050 and CTCT 7050. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within career and technical education.

CTCT 4060 PROGRAM PLANNING IN AREA OF SPECIALIZATION (3). LEC. 3. Pr., admission to Teacher Education. Coreq., CTCT 4050. Introduction to principles and practices involved in designing education programs in the area of specialization. Credit will not be given for both CTCT 4050 and CTCT 7050.

CTCT 4100 SUPERVISED AGRICULTURAL EXPERIENCE PROGRAMS (2). LEC. 2. Pr., junior standing. Responsibility for SAEP planning, supervision, and evaluation of entrepreneurship, placement, exploratory, analytical, and experimental SAEPs and book collecting; completing award applications.

CTCT 4200 MANAGING OFFICE SYSTEMS (3). LEC. 2, LAB. 2. Pr., CTCT 3250 or departmental approval. Capstone course with emphasis on integration of information processing procedures, administrative support, and management functions.

CTCT 4900 DIRECTED INDEPENDENT STUDY (1-6). IND. Pr., departmental approval. 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.

CTCT 4910 PRACTICUM IN AREA OF SPECIALIZATION (1-6). FRA. Pr., departmental approval. Provides experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

CTCT 4920 PROFESSIONAL INTERNSHIP IN AREA OF SPECIALIZATION (9). INT. Pr., CTCT 4050 or departmental approval. Supervised internship experiences in a school or other appropriate setting. Evaluation and analysis of the internship experience.

CTCT 4940 DIRECTED FIELD EXPERIENCE IN AREA OF SPECIALIZATION (1-3). FLD. Pr., departmental approval. Supervised occupational work experience in an approved specialization-related occupation. Course may be repeated for a maximum of 3 credit hours.

CTCT 4970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6). LEC. Pr., senior standing or departmental approval. Current or special topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 6000 CAREER AND OCCUPATIONAL INFORMATION (3). LEC. 3. Pr., junior standing. 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.

CTCT 6010 LEARNING RESOURCES IN AREA OF SPECIALIZATION (3). LEC. 3. Pr., CTCT 4050 and junior standing or CTCT 7050 or departmental approval. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching.

CTCT 6080 COORDINATION AND SUPERVISION OF WORK-BASED LEARNING (3). LEC. 3. Pr., junior standing. Coordination, placement, and supervision of students in work-experience programs; development of employability skills and habits in students.

CTCT 6240 ADMINISTRATIVE MANAGEMENT (3). LEC. 3. Pr., CTCT 4200 or departmental approval and junior standing. Management of office systems, information and personnel. Managing and controlling administrative services.

CTCT 7000 FOUNDATIONS OF VOCATIONAL EDUCATION (3). LEC. 3. Philosophical, historical, economic, and sociological perspectives of vocational education in relation to the organization of vocational education programs.

CTCT 7010 YOUTH PROGRAM DEVELOPMENT (3). LEC. 3. Pr., CTCT 4030 or departmental approval. Planning, developing, and evaluating formal and informal youth education programs; training volunteers for youth development programs; securing and developing supporting resources.

CTCT 7050 METHODS OF TEACHING IN AREA OF SPECIALIZATION (3). LEC. 2. LAB. 2. Pr., admission to 5th-Year Program. 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 given for both CTCT 4050 and CTCT 7050.

CTCT 7060 PROGRAM PLANNING IN AREA OF SPECIALIZATION (3). LEC. 3. Pr., admission to 5th-Year Program. Introduction to principles and practices involved in designing education programs in the area of specialization. Credit will not be given for both CTCT 7060 and CTCT 4060.

CTCT 7100 TEACHING MECHANICAL TECHNOLOGY (3). LEC. 2, LAB. 2. Pr., CTCT 4050 or CTCT 7050 or departmental approval. Theory and practice of managing agricultural mechanics laboratories, theories of machine operation, and practice of maintaining and operating equipment.

CTCT 7120 COURSES OF STUDY IN AGRICISCIENCE EDUCATION (3). LEC. 3. Pr., CTCT 4060 or CTCT 7060 or departmental approval. Emerging technologies in agriscience education; principles and procedures of curriculum construction applied to courses of study in agriscience education.

CTCT 7710 ADVANCED TEACHING METHODS (3). LEC. 3. Pr., CTCT 4050 or CTCT 7050 or departmental approval. Analysis of research in theories of teaching and learning, effective teacher characteristics, learning styles, teaching methodologies, and diversity in teaching.

CTCT 7720 ADVANCED PROGRAM PLANNING IN AREA OF SPECIALIZATION (3). LEC. 3. Pr., CTCT 4060 or CTCT 7060 or departmental approval. Principles and procedures used in evaluating vocational, technical, extension and training programs. Alternative approaches to evaluation and the development of guidelines for effective programs.

CTCT 7750 ADMINISTRATION OF VOCATIONAL EDUCATION (3). LEC. 2. LAB. 2. Pr., departmental approval. Introduction to concepts, theories and practices related to administration, organizational behavior, and leadership in secondary and post-secondary vocational education programs.

CTCT 7770 COMPLETE PLANNING IN VOCATIONAL EDUCATION (3). LEC. 2, LAB. 2. Pr., CTCT 7750 or departmental approval. Processes of comprehensive planning for vocational education programs at high school and secondary school levels using local, state, and regional data.
CTCT 7770 CLINICAL SUPERVISION (3). LEC. 3. Pr., CTCT 7710 or departmental approval. Theories, concepts, and techniques of student teaching supervision by administrators, school district personnel, and university supervisors. Recommended for individuals who supervise or plan to supervise student teachers.

CTCT 7780 RESEARCH IN VOCATIONAL AND ADULT EDUCATION (3). LEC. 3. Pr., 3-6 hours of graduate-level statistics, departmental approval. Review, analysis, and interpretation of research procedures and data with emphasis on designing new research in vocational and adult education.

CTCT 7810 SUPERVISED COLLEGE TEACHING (1). LEC. 1. Pr., departmental approval. Practical experience in the classroom under the supervision of a faculty mentor. Course may be repeated for a maximum of 1 credit hour.

CTCT 7900 INDEPENDENT STUDY (1-3). IND. Pr., departmental approval. Independent learning effort directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 3 credit hours.

CTCT 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-3). PRA. Pr., departmental approval. 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.

CTCT 7920 INTERNSHIP (1-10). INT. Pr., CTCT 7050 or departmental approval. 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.

CTCT 7950 SEMINAR IN AREA OF SPECIALIZATION (1-3). SEM. Pr., departmental approval. Presentation by graduate or student of research projects and/or findings. Analysis of procedures and findings. Course may be repeated for a maximum of 3 credit hours.

CTCT 7960 REACTIONS IN AREA OF SPECIALIZATION (1-3). IND. Pr., departmental approval. Analysis of major articles and classical research and writings. Course may be repeated for a maximum of 3 credit hours.

CTCT 7970 TOPICS IN AREA OF SPECIALIZATION (1-6). LEC. Pr., departmental approval. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 7990 RESEARCH AND THESIS (1-10). MST. Pr., departmental approval. Course may be repeated for a maximum of 10 credit hours.

CTCT 8730 CURRICULUM DEVELOPMENT IN VOCATIONAL EDUCATION (3). LEC. 3. Pr., CTCT 7770 or departmental approval. Principles involved in vocational education curriculum planning, identification of educational needs of students, selecting technical content, designing curricula, and evaluating materials.

CTCT 8770 SUPERVISION OF INSTRUCTION (3). LEC. 3. Pr., CTCT 7770 or departmental approval. Theories and models to become effective supervisors of vocational and adult education programs; philosophies and styles of supervision used to improve schools, instruction, curriculum and personnel.

CTCT 8800 TEACHER EDUCATION (3). LEC. 3. Pr., departmental approval. Emphasis on beliefs, philosophy, issues, research, roles, student selection, curriculum, methodology, internships, organization, and administration of teacher education programs.

CTCT 8810 SUPERVISED COLLEGE TEACHING (1-10). LEC. 3. Pr., admission to Teacher Education. 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.

CTCT 8900 ADVANCED INDEPENDENT STUDY (1-6). IND. Pr., departmental approval. Independent learning efforts at desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTCT 8910 ADVANCED PRACTICUM IN AREA OF SPECIALIZATION (1-6). PRA. Pr., departmental approval. Experiences closely relating theory and practice. Course may be repeated for a maximum of 6 credit hours.

CTCT 8920 INTERNSHIP (1-10). INT. Pr., departmental approval. 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.

CTCT 8950 ADVANCED SEMINAR IN AREA OF SPECIALIZATION (1-6). SEM. Pr., departmental approval. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 6 credit hours.

CTCT 8960 REACTIONS IN AREA OF SPECIALIZATION (1-6). IND. Pr., departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 6 credit hours.

CTCT 8970 ADVANCED TOPICS IN AREA OF SPECIALIZATION (1-6). LEC. Pr., departmental approval. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 8980 FIELD PROJECT (1-10). FLD. 1. Pr., departmental approval. Field project. Course may be repeated for a maximum of 10 credit hours.

CTCT 8990 RESEARCH AND DISSERTATION (1-10). DSR. Pr., departmental approval. Course may be repeated for a maximum of 10 credit hours.

EARLY CHILDHOOD EDUCATION (CTEC)

CTEC 3020 PRIMARY MATH AND SCIENCE (3). LEC. 3. Pr., admission to Teacher Education. Exploration of learning and pedagogy for the development of math and science concepts appropriate for children in kindergarten through Grade 3.


CTEC 3150 LANGUAGE DEVELOPMENT: IMPLICATIONS FOR THE CHILDHOOD EDUCATOR (3). LEC. 3. Pr., admission to Teacher Education. Constructivist theory for pre-service teachers preparing to teach at the early childhood level.


CTEC 4900 INDEPENDENT STUDY (1-6). IND. Pr., departmental approval. Reading, research or other work undertaken independently by a student focused on a content area of special interest. Course may be repeated for a maximum of 6 credit hours.

CTEC 4910 PRACTICUM (1-6). PRA. Pr., departmental approval. Students and faculty cooperatively select and execute an appropriate field experience. Course may be repeated for a maximum of 6 credit hours.

CTEC 4911 PRACTICUM IN THE PRESCHOOL (3). PRA. Pr., CTEC 4200. Coreq., CTEC 3030. Laboratory experiences with children from birth to five years of age designed to help students relate theory to practice.

CTEC 4912 PRACTICUM IN PRIMARY GRADES (3). PRA. Pr., CTEC 3200. Coreq., CTEC 4200. Laboratory experiences with children 5 through 9 years of age help students relate theory to practice.

CTEC 4920 INTERNSHIP (10). INT. Pr., admission to Teacher Education. Minimum GPA of 2.5 in professional studies, Pr., early childhood teaching field, and overall, completion of early childhood Pr., professional sequence. Coreq., CTEC 4921. Experience in a setting serving pre-primary or primary-school children with varying abilities.

CTEC 4967 HONORS READINGS (1-3). IND. Pr., membership in the Honors College; departmental approval. Individual readings program. Course may be repeated for a maximum of 3 credit hours.

CTEC 4967 HONORS PRACTICUM (1-3). IND. Pr., senior standing, membership in the Honors College; departmental approval. Student thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.

CTEC 7200 EARLY CHILDHOOD EDUCATION PERSPECTIVE (3). LEC. 3. Historical overview of current issues, trends, and programs in early childhood education.


CTEC 7260 PLAY AND EARLY CHILDHOOD EDUCATION (3). LEC. 3. Examination of children's play from a constructivist theoretical perspective and transformation 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 3 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.

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 INDEPENDENT STUDY (1-6). IND. Pr., departmental approval. 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.

CTEC 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6). PRA. Pr., departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTEC 7920 INTERNSHIP (1-9). INT. Pr., departmental approval. 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.
CTEC 7970 SPECIAL TOPICS (3-9). LEC. Pr., Departmental Approval. Cooperative pursuit of selected concepts and theories, normally in small group. Course may be repeated for a maximum of 9 credit hours.

CTEC 7990 RESEARCH AND THESIS (1-10). MST. Course may be repeated for a maximum of 10 credit hours.

CTEC 8240 RESEARCH IN EARLY CHILDHOOD EDUCATION (3). LEC. 3. Pr., Master's Degree. Review, analysis and interpretation of available research with emphasis on development of new research to meet needs of young children.


CTEE 8950 ALTERNATIVE RESIDENCE SEMINAR (2-4). SEM. 2. Pr., enrollment in Alternative Residence Program. Must complete this two semester sequence during the fall and winter semesters. Credit does not count toward minimum requirements for the doctoral program.

CTEE 8970 SPECIAL TOPICS (3-9). LEC. Pr., Departmental Approval. Course selected to meet the needs of specific groups. Course may be repeated for a maximum of 9 credit hours.

CTEE 8980 FIELD PROJECT (1-3). FLD. Pr., departmental approval. Course may be repeated for a maximum of 3 credit hours.

CTEE 8990 RESEARCH AND DISSERTATION (1-10). DSR. Course may be repeated for a maximum of 10 credit hours.

ELEMENTARY EDUCATION (CTEE)


CTEE 4020 CURRICULUM: LANGUAGE ARTS (3). LEC. 2, LAB. 3. Pr., admission to Teacher Education. Coreq., CTEE 4010, CTEE 4920, CTEE 4950. Concepts and methodology of teaching language arts (reading, writing, listening, speaking, and viewing) in kindergarten through grade six in order to develop communicative competence.


CTEE 4900 INDEPENDENT STUDY (1-6). IND. Pr., departmental approval. 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 4910 PRACTICUM (1-6). PRA. Pr., departmental approval. Students and faculty cooperatively select an appropriate field experience. Course may be repeated for a maximum of 6 credit hours.

CTEE 4920 INTERNSHIP (5-10). INT. 5. Pr., CTRD 3710 and FOUN 3100. Coreq., CTEE 4950. Supervised teaching in a public elementary school accompanied by scheduled discussions to analyze and evaluate the intern's experience. Course may be repeated for a maximum of 10 credit hours.

CTEE 4950 PROFESSIONAL DEVELOPMENT SEMINAR (1-4). IND. 1. Pr., admission to Elementary Teacher Education Program. 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 4967 HONORS READINGS (1-3). IND. Pr., membership in the Honors College; departmental approval. Individual readings program. Course may be repeated for a maximum of 3 credit hours.

CTEE 4970 SPECIAL TOPICS (1-6). IND. Pr., senior standing; departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 6 credit hours.

CTEE 4997 HONORS THESIS (1-3). IND. Pr., senior standing, membership in the Honors College; departmental approval. The student thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.

CTEE 7010 APPROACHES TO TEACHING (3). LEC. 3. Organizational patterns, planning and approaches to instruction in the elementary school.

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). RES. 3. A review, analysis and interpretation of data with emphasis on designing research to meet the changing needs of the school.

CTEE 7520 CURRICULUM AND TEACHING IN AREAS OF SPECIALIZATION (3). LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement.

CTEE 7530 ORGANIZATION OF PROGRAMS IN ELEMENTARY EDUCATION (3). LEC. 3. Organization and development of basic and supplementary materials including 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 INDEPENDENT STUDY (1-6). IND. Pr., departmental approval. 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.

CTEE 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6). PRA. Pr., departmental approval. 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.

CTEE 7920 INTERNSHIP (1-9). INT. Pr., departmental approval. 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.

CTEE 7970 SPECIAL TOPICS (1-6). LEC. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

CTEE 7990 RESEARCH AND THESIS (1-10). MST. Course may be repeated for a maximum of 10 credit hours.

CTEE 8950 ALTERNATIVE RESIDENCE SEMINAR (2). LEC. 2, Pr., enrollment in Alternative Residence Program. Students must complete this two semester sequence during the fall and winter semesters. Credit does not count toward minimum requirements for the doctoral program.

CTEE 8970 SPECIAL TOPICS (1-6). LEC. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

CTEE 8980 FIELD PROJECT (1-10). FLD. Pr., departmental approval. Course may be repeated with change in topic.

CTEE 8990 RESEARCH AND DISSERTATION (1-10). DSR. Course may be repeated for a maximum of 10 credit hours.

MIDDLE SCHOOL EDUCATION (CTMD)

CTMD 4010 TEACHING MATHEMATICS: MIDDLE SCHOOL (4). LEC. 2, LAB. 4. Pr., CTSE 4040 or departmental approval. 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., FOUN 3000; admission to Teacher Education; junior standing; or departmental Pr., approval. To introduce and prepare undergraduate education students for the middle school student, middle school teaching, and middle level philosophy while incorporating reflective decision making.

CTMD 4900 INDEPENDENT STUDY (1-6). IND. Pr., departmental approval. 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.

CTMD 4910 PRACTICUM IN MIDDLE SCHOOL EDUCATION (1-6). PRA. Pr.,departmental approval. Provides experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

CTMD 4920 INTERNSHIP (9). INT. 9. Pr., CTSE 4150 and CTSE 4160. Coreq., CTSE 4200. Supervised teaching in a public middle or secondary school, accompanied by scheduled discussions to analyze and evaluate the intern's experience.

CTMD 4970 SPECIAL TOPICS (1-4). IND. Course may be repeated for a maximum of 4 credit hours.

CTMD 7900 INDEPENDENT STUDY (1-6). IND. Pr., departmental approval. 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.

CTMD 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6). PRA. Pr., departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

MUSIC EDUCATION (CTMU)

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 INDEPENDENT STUDY (1-6). IND. Pr., departmental approval. 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.
CTMU 4910 PRACTICUM IN AREA OF SPECIALIZATION (1-6). PRA. Pr., departmental approval. Cooperatively selected field experience. Course may be repeated for a maximum of 6 credit hours.

CTMU 4920 INTERNSHIP (9). INT. Pr., departmental approval. Coreq., CTSE 4200. Supervised on-the-job experience in a school, college or other appropriate setting, accompanied by regularly scheduled discussions with supervising faculty provide evaluation and analysis of the intern experience.

CTMU 4997 HONORS READINGS (1-3). IND. Pr., membership in the Honors College, departmental approval. Independent study directed toward desired objectives related to respective areas of specialization. Includes evaluation at regular intervals by professor and assignment of a grade. Course may be repeated for a maximum of 3 credit hours.

CTMU 5750 APPLICATIONS OF TECHNOLOGY IN MUSIC INSTRUCTION (3). LEC. 3. An overview of applications of current technology in music classrooms, studios, and offices.

CTMU 6940 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 6950 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 7510 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 CURRICULUM AND TEACHING IN MUSIC EDUCATION (3). LEC. 3. Teaching practices and evaluation of experiences and content for curriculum improvement. Students develop recommendations for music curriculum.

CTMU 7530 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.

CTMU 7540 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 APPLICATIONS OF TECHNOLOGY IN MUSIC EDUCATION (3). LEC. 3. An overview of applications of current technology in music classroom, studio and office settings.

CTMU 7560/7566 DIGITAL MEDIA PRODUCTION FOR MUSIC EDUCATION (3). LEC. 3. Pr., CTMU 7550 or departmental approval. 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 departmental approval. Current research in music instructional technology, design of interactive applications.

CTMU 7900 INDEPENDENT STUDY (1-6). IND. Pr., departmental approval. 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.

CTMU 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6). PRA. Pr., departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTMU 7920 INTERNSHIP (1-9). INT. Pr., departmental approval. 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.

CTMU 7990 RESEARCH AND THESIS (1-10). MSTR. Pr., departmental approval. Supervised on-the-job experiences in a school, college or other appropriate setting, accompanied by regularly scheduled discussions with supervising faculty. Course may be repeated for a maximum of 10 credit hours.

CTRD 3700 FUNDAMENTALS OF LANGUAGE AND LITERACY INSTRUCTION I (3). LEC. 2, LAB. 2. Pr., CTRD 3700 and permission 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. PRA. 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 high risk of reading difficulties. Includes laboratory teaching experience.

CTRD 4900 INDEPENDENT STUDY (1-6). IND. Pr., departmental approval. 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.

CTRD 6710 HONORS READINGS FOR ADOLESCENTS (3). LEC. 3. Pr., CTRD 6710 and admission to Teacher Education or departmental approval. Reading patterns of adolescents and uses of young adult literature in reading and English language arts programs, grades 6-12.

CTRD 6710 DEVELOPMENTAL READING K-12 (3). LEC. 3. Pr., admission to Teacher Education. Theoretical and research foundations for a balanced approach to teaching reading, K-12.

CTRD 6710 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.


CTRD 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.

CTRD 7520 CURRICULUM AND TEACHING IN READING EDUCATION (3). LEC. 3. Teaching practices and reappraisal of selecting experiences and content for curriculum improvement.

CTRD 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 continuous improvement of curriculum and teaching practices.

CTRD 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.

CTRD 7900 INDEPENDENT STUDY (1-6). IND. Pr., departmental approval. 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.

CTRD 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6). PRA. Pr., departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTRD 7920 INTERNSHIP (1-9). INT. Pr., departmental approval. 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.

CTRD 7990 RESEARCH AND THESIS (1-10). MSTR. Course may be repeated for a maximum of 10 credit hours.

CTRD 8950 ALTERNATIVE RESIDENCE SEMINAR (2). SEM. 2. Pr., Enrolled in Alternative Residence Program. Required of students in an alternative residence plan. These students must complete this two semester sequence during the fall and winter semesters. Credit does not count toward minimum requirements for the doctoral program.

CTRD 8980 FIELD PROJECT (0-10). FLD. Course may be repeated for a maximum of 10 credit hours.

CTRD 8990 RESEARCH AND DISSERTATION (1-10). DSR. Course may be repeated for a maximum of 10 credit hours.

CTSE 1010 DEVELOPMENTAL STUDIES: ENGLISH LANGUAGE ARTS (2). LEC. 1, LAB. 2. Pr., departmental approval. Develops reading/study and composition skills conducive to successful college study. Credit not counted toward graduation. Course may be repeated for a maximum of 2 credit hours.

CTSE 1020 DEVELOPMENTAL STUDIES: MATHEMATICS (2). LEC. 1, LAB. 2. Pr., departmental approval. Develops mathematics skills conducive to successful college study. Credit not counted toward graduation. Course may be repeated for a maximum of 2 credit hours.


CTSE 4070 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.
Pr., CTSE 4070. Teaching strategies based on language acquisi-
tion theories that are appropriate for teaching foreign language students.
Pr., admission to Teacher Education and senior standing. Planning, teaching
strategies, evaluation techniques and classroom management procedures
needed for teaching science teachers.
CTSE 4100 CURRICULUM AND TEACHING II: SCIENCE (4). LEC. 2. LAB. 4.
Pr., CTSE 4090 and pending internship. 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., junior standing; CTSE 6010, CTSE 6020, FOUN 3000;
admission to Teacher Pr., Education or departmental approval. 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., junior standing; CTSE 4150, CTRD 6030, CTRD 6710
and admission to Teacher Pr., Education or departmental approval. Teaching
the receptive English language arts; reading, listening, and viewing; in middle
and high school classrooms.
CTSE 4200 MANAGING MIDDLE AND HIGH SCHOOL CLASSROOMS (3).
LEC. 3. Pr., senior or graduate student. Coreq., CTSE 4250 or CTSE 7920.
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., 15 hours in social sciences (2500 level or above) and pending internship.
For those in social service careers. Organizing social science disciplinary
knowledge into an integrated framework that is meaningful, useful, and relevant to high
school students.
CTSE 4900 INDEPENDENT STUDY (1-6). IND. Pr., departmental approval.
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.
CTSE 4910 PRACTICUM (1-6). PRA. Pr., departmental approval. Cooperatively
selected field experience. Course may be repeated for a maximum of 6
credit hours.
CTSE 4920 INTERNSHIP (9). INT. 9. Pr., CTSE 4100 and departmental
approval. Coreq., CTSE 4200. Supervised teaching in a public secondary
school, accompanied by scheduled discussions to analyze and evaluate the
Intern’s experience.
CTSE 4967 HONORS READINGS (1-3). IND. Pr., membership in the Honors
College; departmental approval. Individual readings program. Course may be
repeated for a maximum of 3 credit hours.
CTSE 4970 SPECIAL TOPICS (1-4). IND. Pr., departmental approval. Cooperatively
selected concepts and theories pursued, normally in small
groups. Course may be repeated for a maximum of 4 credit hours.
CTSE 4977 HONORS THESIS (1-3). IND. Pr., membership in the Honors
College. Prerequisite: The student thesis is finalized in this course. Course may be
repeated for a maximum of 3 credit hours.
CTSE 6010 LANGUAGE STUDY FOR TEACHERS (3). LEC. 3. Pr., junior
standing or departmental approval. Theories of language development and
language study applicable to middle and high school classrooms; implications
for teaching specialization, language, dialects, and second language
learning.
CTSE 6020 RHETORIC AND COMPOSITION FOR TEACHERS (3). LEC.
3. Pr., junior standing. Theories of rhetoric and composition applicable to
middle and high school classrooms; implications for planning writing curricula,
instruction, and assessment/evaluation.
CTSE 6490 THE SECONDARY SCHOOL PROGRAM (3). LEC. 3. Pr.,
departmental approval. Implications of research and theory for the total
secondary school program.
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 CURRICULUM AND TEACHING IN AREA OF SPECIALIZATION
(3). LEC. 3. Nature of learners and of knowledge and implications for building
curricula and planning instruction in the area of specialization.
CTSE 7530 ORGANIZATION OF PROGRAM IN AREA OF SPECIALIZATION
(3). LEC. 3. Program models, components, and standards in the area of
specialization.
CTSE 7540 EVALUATION OF PROGRAM IN AREA OF SPECIALIZATION
(3). LEC. 3. Theoretical perspectives of evaluation and methods of evaluating
learners, teachers, and curricula.
CTSE 7900 INDEPENDENT STUDY (1-6). IND. Pr., departmental approval.
Independent study directed toward desired objectives related to their respective
areas of specialization. Registration to be a supervised activity at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.
CTSE 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6). PRA. Pr.,
Departmental approval. Experience relating theory and practice, usually in a
school setting. Course may be repeated for a maximum of 6 credit hours.
CTSE 7920 INTERNSHIP (1-9). INT. Pr., departmental approval. 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 9 credit hours.
CTSE 7990 RESEARCH AND THESIS (1-10). MST. Course may be repeated for
a maximum of 10 credit hours.
CTSE 8950 ALTERNATIVE RESIDENCE SEMINAR (2). SEM. Pr., Enrolled in
Alternative Residence Program. Required of students in alternative residence
plan. These students must complete this two semester sequence during the fall and winter semesters. Credit does not count toward minimum requirements
for the doctoral program.
CTSE 8980 FIELD PROJECT (1-3). FLD.
CTSE 8990 RESEARCH AND DISSERTATION (1-10). DSR. Course may be repeated for a maximum of 10 credit hours.

Applied Discrete Mathematics (ADMH)
Dr. Kevin T. Phelps - 844-3749
ADMH 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.
ADMH 4900 INDEPENDENT STUDY (1-3). IND. Study of individual problems or
topics of interest to students. Course may be repeated for a maximum of 3 credit hours.
ADMH 4970 SPECIAL TOPICS (1-3). LEC. Pr., departmental approval. Special
topics designed to meet the needs and interest of the students. Course may be
repeated for a maximum of 3 credit hours.
ADMH 6000 MATHEMATICAL MODELING (3). LEC. 3. Pr., MATH 1620.
Introduction to mathematical models and related techniques. Includes general
principles involving discrete deterministic problems and simulations.
ADMH 6120 INFORMATION THEORY (3). LEC. 3. Pr., MATH 2630.
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.
ADMH 6140 DATA COMPRESSION (3). LEC. 3. Pr., MATH 1620. Lossless
compression methods, including static, dynamic, and higher order Huffman
and arithmetic encoding, interval and range tree, and dictionary methods; lossy transform methods (JPEG).
ADMH 6150 ALGEBRAIC CODING THEORY I (3). LEC. 3. Pr., MATH 2660.
Linear codes, Hamming and Golay codes, BCH codes, cyclic codes.
Random error detection and correction. Burst-error correction. Decoding algorithms.
ADMH 6160 ALGEBRAIC CODING THEORY II (3). LEC. 3. Pr., MATH 1620.
Course may be repeated for a maximum of 4 credit hours.
ADMH 6170 COMPUTATIONAL FINITE FIELDS (3). LEC. 3. Pr., MATH 2660.
Course may be repeated for a maximum of 4 credit hours.
ADMH 6180 CRYPTOGRAPHY (3). LEC. 3. Pr., MATH 2660 or MATH 3370.
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.
ADMH 6200 COMPUTER ALGEBRA (3). LEC. 3. Pr., MATH 2660.
Applications to ideals, quotient rings, systems of polynomial equations, kinematic problems and
gometry.
ADMH 6300 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.
ADMH 6710 LINEAR OPTIMIZATION (3). LEC. 3. Pr., MATH 2660. Theory
and algorithms for standard linear optimization problems. Simplex algorithm
duality, shortest paths, network flows, min-cost flows and circulations,
out-of-kilter method, assignments and matchings.
ADMH 6730 ENUMERATION (3). LEC. 3. Pr., MATH 2640. Using generating
functions and Poincare theory to do sophisticated counting. Permutations and combina-
tions, inclusion-exclusion, partitions, recurrence relations, group actions,
Poincare theory with applications.
ADMH 6750 GRAPH THEORY (3). LEC. 3. Pr., MATH 2660. Algorithmic
ADMH 6770 COMBINATORIAL DESIGNS (3). LEC. 3. Pr., MATH 1620.
Latin squares, mutually orthogonal Latin squares, orthogonal and perpendicular
arrays, Steiner triple systems, block designs, difference sets and finite
gerometries.
ADMH 6970 SPECIAL TOPICS (1-3). IND. Special topics designed to meet the needs and interest of students. Course may be repeated for a maximum of 3 credit hours.


ADMH 7730 ADVANCED ALGEBRAIC CODING THEORY (3). LEC. 3. Pr., ADMH 6160 or departmental approval. Structure and theoretical properties of codes and related algorithms. Relations to other combinatorial and algebraic objects stressed.

ADMH 7750 ADVANCED TOPICS IN GRAPHTHEORY (3). LEC. 3. Pr., ADMH 6750. Topics of current interest and recent research in graph theory. May include edge colorings, algebraic graph theory, network flows, factor theory.

ADMH 7770 ADVANCED COMBINATORIAL DESIGNS (3). LEC. 3. Pr., ADMH 6770. 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. ADMH 7950 SEMINAR IN COMBINATORICS (1-3). SEM. Pr., departmental approval. Course may be repeated for a maximum of 3 credit hours.

ADMH 7960 DIRECTED READING (1-3). IND. Pr., departmental approval. Course may be repeated with change in topic.

ADMH 7970 SPECIAL TOPICS (1-3). LEC. Special topics to meet the needs and interest of students. Course may be repeated for a maximum of 3 credit hours.

ADMH 7980 SPECIAL PROJECT (1-3). RES. Pr., departmental approval. Non-thesis project in Applied Discrete Mathematics. Course may be repeated for a maximum of 3 credit hours.

ADMH 7990 RESEARCH AND THESIS (1-10). MST. ADMH 8960 DIRECTED READING (1-3). IND. Pr., departmental approval. Course may be repeated with change in topic.

ADMH 8990 RESEARCH AND DISSERTATION (1-10). DSR. Course may be repeated for a maximum of 10 credit hours.

Economics (ECON)

Dr. James E. Long - 844-4910

A 2.0 GPA is required for enrollment in any Business course at the 3000-level or above. This rule applies to Business and non-Business students.


ECON 2030 PRIN 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.

ECON 2037 HONORS PRINCIPLES OF MACROECONOMICS (3). LEC. 3. Pr., ECON 2020 or ECON 2027, membership in the Honors College. Economic principles emphasizing economic aggregates, including: measuring economic performance, macroeconomic theory, inflation and unemployment, money and banking and fiscal and monetary policy.

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.

ECON 3100 LAW AND ECONOMICS (3). LEC. 3. Pr., ECON 2020 or ECON 2027. Description of the many substantive areas in which law has an economic foundation and an analysis of how law affects economic relations.

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.

ECON 3300 ECONOMICS OF SPORTS (3). LEC. 3. Pr., ECON 2020 or ECON 2027. Economic analysis of professional and collegiate sports, including the structure of competition and performance in individual and team sports.

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.

ECON 3500 COMPARATIVE ECONOMIC SYSTEMS (3). LEC. 3. Pr., ECON 2030 or ECON 2037. Analysis of alternative government approaches to solving basic economic problems.

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.


ECON 4000 ECONOMICS OF WORK AND PAY (3). LEC. 3. Pr., ECON 3020 or ECON 2020 and departmental approval. Theoretical and institutional examination of the labor market, including wage theories, unionism, occupational choice and public policy.


ECON 4300 INTERNATIONAL ECONOMICS (3). LEC. 3. Pr., ECON 2030 or ECON 2037 or departmental approval. Survey of the economic development of Europe and the resulting impact on the U.S. and the world economies.

ECON 4600 ECONOMIC HISTORY OF THE UNITED STATES (3). LEC. 3. Pr., ECON 2030 or ECON 2037, or departmental approval. Survey of the economic advancement of the United States from European origins to the present.

ECON 4700 BUSINESS HISTORY OF THE UNITED STATES (3). LEC. 3. Pr., ECON 2030 or ECON 2037, or departmental approval. The study of business as a driving force in American history.

ECON 4920 INTERNSHIP (1-3). INT. Pr., ECON 2030 or ECON 2037 and departmental approval. Course may be repeated for a maximum of 3 credit hours. Course may be repeated for a maximum of 3 credit hours.

ECON 4967 HONORS READINGS (1-3). IND. Pr., ECON 3020; membership in the Honors College; departmental approval. Directed readings on a topic of special interest. Course may be repeated for a maximum of 3 credit hours.

ECON 4970 SPECIAL PROBLEMS (1-3). IND. Pr., ECON 3020 and departmental approval. Investigation and research into economic problems of special interest to the student and instructor. Course may be repeated for a maximum of 3 credit hours.

ECON 4997 HONORS THESIS (1-3). IND. Pr., ECON 3020; membership in the Honors College; departmental approval. Directed honors thesis research. Course may be repeated for a maximum of 3 credit hours.

ECON 6020 ADVANCED MICROECONOMICS (3). LEC. 3. Pr., ECON 3020, MATH 1610 or higher. Mathematical analysis of market-based pricing and production. Includes the economics of information and uncertainty, and strategic behavior.

ECON 6030 MACROECONOMIC THEORY AND POLICY (3). LEC. 3. Pr., ECON 2030 or 2037, or departmental approval. Analysis of the national economy and impact of government policies on aggregate economic variables.

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.

ECON 6200 URBAN AND REGIONAL ECONOMIC DEVELOPMENT (3). LEC. 3. Pr., ECON 2030 or ECON 2037, ECON 3020. Nature/causes of state/local economic development, including plant location, residential location, interregional trade and factor flows, public policy.

ECON 6600 BUSINESS AND ECONOMIC FORECASTING (3). LEC. 3. Pr., ECON 2030 or ECON 2037 and MGMT 2710, or departmental approval. Interpretation of macroeconomic forecasting methods and development of competency in forecasting at the firm level.

ECON 6700 HEALTH ECONOMICS (3). LEC. 3. Pr., ECON 3020 or departmental approval. Analysis of the economics of health care, including demand for and supply of health care, and health care policy.

ECON 6800 GOVERNMENT SPENDING AND TAXATION (3). LEC. 3. Pr., ECON 3020 or departmental approval. The economic rationale for government expenditures, economic consequences of public spending, and methods of taxation and funding of government programs.
ECON 7000 MANAGERIAL ECONOMICS (3). LEC. 3. Pr., Consent of MBA program director. Microeconomic theories of the firm and of markets, with emphasis on their implications to current business issues. 

ECON 7110 MICROECONOMICS I (3). LEC. 3. Pr., ECON 3020 or departmental approval. Consumer behavior and market models of competition and monopoly. Traditional and contemporary theories of consumer/household behavior under constraint; models of competitive behavior. 

ECON 7120 MICROECONOMICS II (3). LEC. 3. Pr., ECON 7110 or departmental approval. Advanced analysis of production, production function theory, cost theory, profit maximization, theories of various market structures and derived demand for inputs. 


ECON 7210 MACROECONOMICS I (3). LEC. 3. Pr., ECON 6030 or departmental approval. Evaluation of fundamental theoretical and policy-oriented issues in macroeconomics, emphasizing post-Keynesian developments. 

ECON 7220 MACROECONOMICS II (3). LEC. 3. Pr., ECON 6030 or departmental approval. Advanced monetary theory and macrodynamics. 

ECON 7310 ECONOMETRICS I (3). LEC. 3. Pr., departmental approval. Advanced treatment of the standard linear model of least square theory, including assumptions and properties of the SLM, and the statistical testing of behavioral hypothesis. 

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-linear testing, time-series analysis. 

ECON 7410 HISTORY OF ECONOMIC THOUGHT I (3). LEC. 3. Pr., ECON 3700 or departmental approval. Analysis and study of classical contributions to economics, from early times to Karl Marx. 


ECON 7500 ECONOMIC HISTORY OF THE UNITED STATES (3). LEC. 3. Pr., ECON 2030 or ECON 2037, or departmental approval. Survey of the economic advancement of the United States from European origins to the present. 

ECON 7980 RESEARCH AND THESIS (1-6). MFT. Pr., departmental approval. Course allows for a maximum of 6 credit hours. 

ECON 8110 ADVANCED MICROECONOMICS I (3). LEC. 3. Pr., ECON 7120. Advanced analysis, integrating the economics of time and uncertainty into mainline price theory. 

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. 

ECON 8210 TOPICS IN MACROECONOMICS (3). LEC. 3. Pr., ECON 7220 or departmental approval. Goals, procedures and achievements in attaining monetary objectives domestically and abroad. Emphasis on macro-money models and effects of monetary policy on economic activity. 

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. 


ECON 8420 ECONOMIC INSTITUTIONS AND CONTEMPORARY ECONOMICS THEORY (3). LEC. 3. Pr., departmental approval. How contemporary economic theory helps explain the emergence, hey-day and decline of economic institutions, including "Social" and regulatory institutions. 

ECON 8510 ECONOMICS OF TAXATION (3). LEC. 3. Pr., ECON 7120 or departmental approval. Examines tax structures in the U. S. evaluates tax reform proposals and the effects of taxation on resource allocation and economic welfare. 

ECON 8520 PUBLIC CHOICE (3). LEC. 3. Pr., departmental approval. Advanced analysis of governmental expenditures and other not-for-profit sectors of the economy. 

ECON 8530 ECONOMIC ANALYSIS OF THE LAW (3). LEC. 3. Pr., ECON 3020 and departmental approval. Advanced analysis of the substantive area in which law has an economic foundation and ways law affects economic relations. 

ECON 8540 SEMINAR IN ENVIRONMENTAL ECONOMICS (3). LEC. 3. Pr., ECON 3020 and departmental approval. Advanced analysis of pricing and allocation of renewable and non-renewable resources. 

ECON 8550 EXTERNALITIES AND PUBLIC GOODS (3). LEC. 3. Pr., ECON 7120 or departmental approval. Advanced analysis of pricing and allocation of economic goods when property rights are not well defined. 

ECON 8610 INSTITUTIONAL ORGANIZATION I (3). LEC. 3. Pr., ECON 7120 or departmental approval. Determinants of market structure, effects of market structure on industry performance, theory of the firm, research and development, advertising and vertical integration. 

ECON 8620 INDUSTRIAL ORGANIZATION II (3). LEC. 3. Pr., ECON 7120 or departmental approval. Primary focus is on case studies in the history and current practice of regulation in the United States at all levels. 

ECON 8710 INTERNATIONAL TRADE (3). LEC. 3. Pr., departmental approval. The theory of international trade, including classical, neoclassical factor proportions, and industrial organization approaches. Empirical applications and tests of the theory. 


ECON 8810 LABOR MARKET ANALYSIS (3). LEC. 3. Pr., ECON 7110 or departmental approval. Analysis of labor markets, and determination of wages and other terms of employment. Emphasis on academic studies of labor market issues. 

ECON 8820 TOPICS IN LABOR ECONOMICS (3). LEC. 3. Pr., ECON 7110 or departmental approval. Selected topics, including education and on-the-job training. Labor mobility/migration, employment discrimination, and the impact of labor unions. 

ECON 8970 SPECIAL PROBLEMS (1-3). LEC. Pr., departmental approval. Variable content in the economics area. Course may be repeated for a maximum of 3 credit hours. 

ECON 8980 ECONOMICS WORKSHOP (1). LEC. Pr., departmental approval. Individual research project, presentations, and discussion of the economics profession. 

ECON 8990 RESEARCH AND DISSERTATION (1-10). DSR. Pr., departmental approval. Course may be repeated for a maximum of 10 credit hours. 

Education, Interdepartmental (EDUC) 

EDUC 3000 DIVERSITY OF LEARNERS AND SETTINGS (6). LEC. Exploration of socio-cultural factors, individual differences, and exceptionalities of learners; understanding diversity and communicating with students with differing cultural backgrounds, abilities, and values. 

Educational Foundations, Leadership and Technology (EFLT) 

Dr. James S. Kaminsky - 844-4660 

ADULT EDUCATION (ADED) 

ADED 4050 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 4600 NATURE OF ADULT EDUCATION (3). LEC. 3. Pr., junior standing. History and principles of adult education applied to the development and implementation of programs in remedial, occupational, continuing, and life-long learning. Credit will not be allowed for both ADED 4600 and ADED 7600. 

ADED 4620 COMMUNITY CONCEPTS, PROGRAMS, AND RESOURCES IN ADULT EDUCATION (3). LEC. 3. Pr., ADED 4600 or departmental approval. Processes by which adult education is merged with community organizations to maximize the effective use of physical and human resources. Credit will not be allowed for both ADED 4620 and ADED 7620. 

ADED 4660 TEACHING IN THE NON-SCHOOL SETTING (3). LEC. 3. Pr., junior standing or departmental approval. Planning, conducting, and supervising instruction for adults in varied non-school settings. 

ADED 4900 DIRECTED INDEPENDENT STUDY (1-6). IND. Pr., departmental approval. Directed study oriented toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours. 

ADED 4910 PRACTICUM IN ADULT EDUCATION (1-6). PRA. Pr., departmental approval. Experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours. 

ADED 4920 PROFESSIONAL INTERNSHIP IN ADULT EDUCATION (9). INT. 9. Pr., Adult Education majors, ADED 4660. Supervised internship experiences in a school or other appropriate setting. Evaluation and analysis of the internship experience. 

ADED 4970 SPECIAL TOPICS IN ADULT EDUCATION (1-6). LEC. Pr., senior standing or departmental approval. Current or special topics within adult education. Course may be repeated for a maximum of 6 credit hours. 

ADED 6010 LEARNING RESOURCES IN AREA OF SPECIALIZATION (3). LEC. 3. Pr., ADED 4050 and junior standing, or ADED 7050, or departmental approval. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching. 

ADED 6640 TEACHING THE DISADVANTAGED ADULT (3). LEC. 3. Pr., ADED 4600 and junior standing, ADED 7600, or departmental approval. 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 7050 METHODS OF TEACHING IN ADULT EDUCATION (3). LEC. 2. LAB. 2. Pr., admission to Fifth-Year Program. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of
EDLD 7230 STUDENT SERVICES ADMINISTRATION IN POST-SECONDARY EDUCATION (3). LEC. 3. Organization, administration and evaluation of student personnel services in post-secondary education.


EDLD 7330 INTRODUCTION TO CURRICULUM AND INSTRUCTIONAL LEADERSHIP (3). LEC. 3. Principles of curriculum development and the leadership skills required to enact it with emphasis on school settings. Required for Class "A" Certification.

EDLD 7340 OVERVIEW OF CURRICULUM PROCESSES (3). LEC. 3. Curriculum as a field of study; the first course required for the ASC concentration in curriculum; an overview of curriculum history, processes, models, and designs.

EDLD 7900 INDEPENDENT STUDY (1-9). IND. Pr. Individualized support and direction for students writing their dissertations. May be repeated for a maximum of 9 credit hours.

EDLD 7910 PRACTICUM IN ATHLETIC ADMINISTRATION (1-6). PRA. Pr. Experience in the management of specific administrative offices. Course may be repeated for a maximum of 6 credit hours.

EDLD 7920 ADMINISTRATIVE INTERNSHIP (1-6). INT. Pr., departmental approval. Opportunities for interns to internalize and employ administrative skills learned during graduate coursework. Required for Class "A" Certification. Course may be repeated for a maximum of 6 credit hours.

EDLD 7970 SPECIAL PROBLEMS (1-9). LEC. Pr. Variable content for advanced studies in the area of educational leadership. Required for Class "AA" Certification. Course may be repeated for a maximum of 9 credit hours.

EDLD 8200 ASSESSMENT AND EVALUATION IN LEARNING ORGANIZATIONS (3). 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 (3). LEC. 3. Includes theoretical frameworks and applications for successful and systematic mentoring of professionals in organizations. Required class "AA" certification.

EDLD 8230 SYSTEMIC PLANNING AND BUDGETING (3). LEC. 3. Covers the components and implementation of a comprehensive, ongoing planning and budgeting program for learning organizations. Required for class "AA" certification.

EDLD 8240 TRENDS AND ISSUES IN EDUCATIONAL ADMINISTRATION (3). LEC. 3. Trends and issues affecting educational institutions with particular attention to development of administrative procedures to cope with educational changes. Required for class "AA" certification.

EDLD 8250 ORGANIZATIONAL POWER, POLITICS AND POLICY FORMATION (3). LEC. 3. Analysis of social forces, antecedent movements, and political actions affecting organizations. The study of policy development and practice. Required for Class "AA" Certification.

EDLD 8270 LEADERSHIP IN FINANCE AND MANAGEMENT (3). LEC. 3. Educational finance including revenues, expenditures, cost, budgeting and accounting, and the local, state, and federal role in supporting education. Required for Class "AA" Certification.

EDLD 8300 CURRICULUM THEORY AND PRACTICE (3). LEC. 3. Pr., EDDL 7340 or other General Curriculum course. Coreq., departmental approval. Advanced course dealing with application of curriculum theories with an emphasis on the impact of philosophical and theoretical beliefs on practice. Required for Class "AA" Certification.

EDLD 8310 LEADERSHIP IN THE DEVELOPMENT AND APPLICATION OF CURRICULUM THEORY AND DESIGN (3). LEC. 3. Pr., EDDL 7340 and EDDL 8300, or departmental approval Application of transformative leadership in the design, delivery, and evaluation of curriculum in a wide variety of organizational settings.

EDLD 8320 CURRICULUM LEADERSHIP FOR ORGANIZATIONS (3). LEC. 3. Pr., EDDL 7340, EDDL 8300, or EDDL 8310 or equivalent or departmental approval. For those considering a career in upper level management. Focuses on context, societal, and political influences related to curriculum processes and organizational change.

EDLD 8340 TRANSFORMATIONAL PROCESSES AND ORGANIZATIONAL CHANGE (3). LEC. 3. Transformational and organizational 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 moral 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 needed for the institution.

EDLD 8510 DOCTORAL SEMINAR IN EDUCATIONAL LEADERSHIP I (2). LEC. 2. Professional and social integration into the doctoral program: structured inquiry, professional dialogue, and reflective thinking.
EDLD 8820 DOCTORAL SEMINAR IN EDUCATIONAL LEADERSHIP II (2). SEM. 2. Pr., acceptance into the Educational Leadership Doctoral Program. EDM 8810, Professional and social integration into the doctoral program; structured inquiry, professional dialogue, and reflective thinking.

EDLD 8830 DOCTORAL SEMINAR IN EDUCATIONAL LEADERSHIP III (2). SEM. 2. Pr., acceptance into Educational Leadership Doctoral Program and EDLD 8810 and EDLD Pr.. 8820. Professional and social integration into the doctoral program; structured inquiry, professional dialogue, and reflective thinking.


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 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 credit hours.

EDMD 3000 INTRODUCTION TO INSTRUCTIONAL TECHNOLOGY (1). LEC. 1. Basics of current and emerging instructional and communication technologies with primary emphasis on computer use.

EDMD 3100 SELECTION AND UTILIZATION OF INSTRUCTIONAL TECHNOLOGY (1). LEC. 1. Location, selection, and application of technology for curricular needs with emphasis on developmental stages, learning styles and learning taxonomies.

EDMD 3200 TEACHING WITH TECHNOLOGY (1). LEC. 1. Use of production and administrative technology in the classroom. Emphasis is on integrating technology into the curriculum.

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 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 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 I (3). LEC. 3. Principles and procedures of describing, classifying and organizing resources with applications using new technologies.

EDMD 7120 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, hypertext and optical technologies.

EDMD 7210 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 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 the selection, 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.

EDMD 7900 INDEPENDENT STUDY (1-6). IND. 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 (1-6). PRA. 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. 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 internship experience. Course may be repeated for a maximum of 6 credit hours.

EDMD 7940 DIRECTED FIELD EXPERIENCE (3-6). FLD. 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). IND. 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 6100 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.

EDMD 6400 CLASSROOM MANAGEMENT: SKILLS AND REFLECTION (3). LEC. 3. Advanced study and analysis of existing classroom management/discipline models including observation, analysis, and application.

EDMD 6410 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.

EDMD 6420 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.

EDMD 7000 CULTURAL FOUNDATIONS OF EDUCATION (3). LEC. 3. Advanced study of culture's 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.

EDMD 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.

EDMD 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.

EDMD 7030 MODERNITY, PHILOSOPHY, AND THE CURRICULUM (3). LEC. 3. Advanced study of the philosophical assumptions of curriculum development within the context of modernity.

EDMD 7040 PHILOSOPHY AND EDUCATIONAL RESEARCH (3). LEC. 3. Advanced philosophical study of educational research within the context of education's professional culture.
as a base for understanding individual differences and their sources.

PROFESSIONAL FOUN 7400 EDUCATIONAL PSYCHOLOGY AND THE PRACTICING
analysis, analysis of covariance, logistic regression, and path analysis as they
including t-tests, between and within subjects ANOVA, mixed ANOVAs and
FOUN 7200 or departmental approval. Basic methods of inferential analysis
for analyzing coded data, and writing up of one's findings.

FOUN 7300/7306 DESIGN AND ANALYSIS IN EDUCATION I (3). LEC. 3. Pr., FOUN 7200 or departmental approval. Basic methods of inferential analysis including t-tests, between and within subjects ANOVA, mixed ANOVAs and hierarchical designs as they are utilized in educational research.

FOUN 7310 DESIGN AND ANALYSIS IN EDUCATION II (3). LEC. 3. Pr., FOUN 7300. Bivariate and multiple correlation and regression analysis, trend analysis, analysis of covariance, logistic regression, and path analysis as they are utilized in educational research.

FOUN 7400 EDUCATIONAL PSYCHOLOGY AND THE PRACTICING PROFESSIONAL (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.

FOUN 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.

FOUN 7420 LEARNING THEORY AND EDUCATIONAL PRACTICE (3). LEC. 3. Pr., FOUN 7400 or departmental approval. 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.

FOUN 7930 DIRECTED STUDY (1-6). IND. 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.

FOUN 7970 SPECIAL TOPICS IN FOUNDATIONS OF EDUCATION (3-6). LEC. Consideration of historical, philosophical, social, psychological, measure-
ment, 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 8320 DESIGN AND ANALYSIS IN EDUCATION III (3). LEC. 3. Pr., FOUN 7310 or departmental approval. Discriminant analysis, MANOVA, canoni-
cal correlation, exploratory and confirmatory factor analysis, and hierarchi-
ical linear modelling as they are utilized in educational research.

FOUN 8350 ADVANCED MEASUREMENT THEORY (3). LEC. 3. Pr., FOUN 7300 and FOUN 7310. Introduction to classical and modern (RTT) test theory, measurement properties, differential item functioning, standard and adaptive testing.
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., ELEC 2120. Analog 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 3810 FUNDAMENTALS OF ELECTRICAL ENGINEERING (3). LEC. 3. Pr., MATH 2650. Electrical circuit analysis; electronic devices, digital systems, amplifier concepts, power devices and systems. (Not open to Electrical Engineering majors).

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. (Not open to Electrical Engineering majors).

ELEC 4000 SENIOR DESIGN PROJECTS (3). LEC. 3. Pr., All required ELEC 3000 level courses and departmental approval. A capstone design project which draws on the accumulated curricular experience. Particular project sections may have additional requisites.

ELEC 4200 DIGITAL SYSTEM DESIGN (2). LEC. 2. Pr., ELEC 2220. Hierarchical, modular design of digital systems, synchronous and asynchronous sequential circuit analysis and design, 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., Completion of all ELEC 3000 level courses. Study and application of sensors, instrumentation and computer technology to research and industrial process control.

ELEC 4970 SPECIAL TOPICS IN ELECTRICAL ENGINEERING (1-5). IND Pr., departmental approval. Course may be repeated with change in topic.

ELEC 4980 SPECIAL PROJECTS IN ELECTRICAL ENGINEERING (1-3). IND Pr., departmental approval. Course may be repeated with change in topic.

ELEC 4997 HONORS THESIS (1-5). IND Pr., ELEC major; membership in the Honors College; departmental approval. Directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

ELEC 6200 COMPUTER ARCHITECTURE AND DESIGN (3). LEC. 3. Pr., ELEC 2220. 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 PERSONAL COMPUTER SYSTEM DESIGN (3). LEC. 3. Pr., ELEC 2220. Personal computer hardware components, microprocessors, motherboard design, cache and main memory technologies and subsystems, standard expansion buses and interfacing.

ELEC 6220 INFORMATION COMMUNICATION (3). LEC. 3. Pr., ELEC 2220. 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 PARALLEL PROCESSING (3). LEC. 3. Pr., ELEC 2220. Hardware components of multiprocessor systems including processor, inter-connection, memory and control architectures; software elements of parallel processing.


ELEC 6250 COMPUTER-AIDED DESIGN OF DIGITAL CIRCUITS (3). LEC. 3. Pr., ELEC 2220. Computer-aided 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 6410 WIRELESS COMMUNICATIONS SYSTEMS (3). LEC. 3. Pr., ELEC 3800. Design and analysis of wireless communication systems, cellular concept, mobile radio propagation, modulation techniques, multiple access techniques, wireless systems and standards.

ELEC 6420 ANALOG ELECTRONICS (3). LEC. 3. Pr., ELEC 3800. Digital image processing principles and applications such as enhancement, restoration and compression.

ELEC 6510 ELECTRICAL ENGINEERING THESIS (3. Pr., ELEC 3500 or departmental approval. 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.

ELEC 6520 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 6540 MODERN CONTROL TECHNOLOGIES (3). LEC. 2. LAB. 3. Pr., ELEC 3100, ELEC 3800 or departmental approval. Controller technologies used in industrial and research practice. PID, auto-tuning PID, programmable logic controllers, personal-computer based controllers, microcontrollers, digital signal processors.


ELEC 6620/6626 POWER SYSTEM ANALYSIS (3). LEC. 3. Pr., ELEC 3600 or departmental approval. Power system modeling, power flow analysis, analysis of faulted power systems.


ELEC 6650 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 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 SEMICONDUCTOR DEVICES (3). LEC. 3. Pr., ELEC 6700. Introduction to semiconductor devices: pn junctions, junction diode based devices, bipolar transistors, field effect transistors, optoelectronic devices, basic circuit design.

ELEC 6720/6726 MICROELECTRONIC FABRICATION (3). LEC. 2. LAB. 3. Pr., ELEC 2210 or departmental approval. Basic processes used in fabrication of bipolar and MOS integrated circuits and practices actual fabrication in the microelectronics laboratory.

ELEC 6740 ELECTRONICS MANUFACTURING (3). LEC. 2. LAB. 3. Pr., ELEC 3700 or departmental approval. Materials and processes used to manufacture electronic products. Particular attention is given to substrate technology and electronics assembly.

ELEC 6750 INTRODUCTION TO PLASMA ENGINEERING (3). LEC. 3. Pr., ELEC 3700 or departmental approval. Electrical breakdown and discharges in gases, basic plasma theories, applications of plasmas, plasma processing for microelectronic fabrication.

ELEC 6760 SOLID STATE SENSORS (3). LEC. 3. Pr., ELEC 3700 or departmental approval. Theory, technology and design of micro-mechanical sensors, electrochemical microsensors, photodetectors, and integrated smart sensors.

ELEC 6770/6776 VLSI DESIGN (3). LEC. 3. Pr., ELEC 2210, 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 methodology; computer aided design (CAD) tools.

ELEC 6780 ANALOG CIRCUIT DESIGN (3). LEC. 3. Pr., ELEC 3700 or departmental approval. Circuit design techniques used for implementing analog integrated circuits in both CMOS and bipolar technologies.

ELEC 6800 ADVANCED COMPUTATIONAL TECHNIQUES FOR ELECTRICAL ENGINEERING (3). LEC. 3. Pr., ELEC 2120, 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 6810 COMPUTED IMAGING SYSTEMS (3). LEC. 3. Pr., ELEC 2120 or departmental approval. Introduction to computed imaging systems such as...
magnetic resonance imaging (MRI), computed tomography (CT), and synthetic aperture radar (SAR).

ELEC 7200 ADVANCED TOPICS IN ELECTRICAL ENGINEERING (1-5). LEC. Pr., departmental approval. Course may be repeated with change in topic.


ELEC 7220 ADVANCED INFORMATION COMMUNICATION (3). LEC. 3. Pr., ELEC 6220. Emerging architectures, protocols, standards and technologies of information networks; design of data, video and audio information networks; emerging multimedia applications of information networks.

ELEC 7230 HIGH PERFORMANCE COMPUTING (3). LEC. 3. Pr., ELEC 6300. High performance computing systems; design and implementation issues of cluster architectures; reconfigurable architectures; parallelization of hard problems, performance modeling and analysis.

ELEC 7250 VLSI TESTING (3). LEC. 3. Pr., ELEC 6760. Exponential 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 design approaches.


ELEC 7330 ELECTROMAGNETIC MEASUREMENTS (3). LEC. 1, LAB. 6. Pr., ELEC 6310, ELEC 6340, ELEC 6350. 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 COMPUTATIONAL ELECTROMAGNETICS I (3). LEC. 3. Pr., ELEC 7310. Solution of electromagnetic scattering, radiation, and coupling problems using techniques of finite differences, finite-difference time-domain, finite-element, transmission-line matrix and other advanced computational methods.

ELEC 7350 COMPUTATIONAL ELECTROMAGNETICS II (3). LEC. 3. Pr., ELEC 7310. Solutions of electromagnetic scattering, radiation, and coupling problems using a variety of common asymptotic techniques.

ELEC 7410 STOCHASTIC SIGNAL AND SYSTEM ANALYSIS (3). LEC. 3. Pr., departmental approval. Applications of probability, random variables and stochastic processes in electrical engineering.

ELEC 7420 ADAPTIVE SIGNAL PROCESSING (3). LEC. 3. Coreq., ELEC 7410. Least mean square and recursive least square algorithms; adaptive FIR and IIR filters, lattice filters, Kaiman filters; adaptive system identification and its applications in communications and control.

ELEC 7430 ADVANCED COMMUNICATION THEORY (3). LEC. 3. Pr., ELEC 7400. 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 STATE-VARIABLE ANALYSIS OF SYSTEMS (3). LEC. 3. Pr., departmental approval. Matrices and linear spaces; state variable for linear continuous and discrete systems; applications in analysis and design of control systems.


ELEC 7550 FUZZY LOGIC CONTROL SYSTEMS (3). LEC. 3. Pr., ELEC 7500. Fuzzy logic as information representation and decision making paradigm; stability analysis, system identification and estimation, adaptive fuzzy control, supervisory control, gain scheduling.

ELEC 7610/7616 NONLINEAR SYSTEMS AND CONTROL (3). LEC. 3. Pr., ELEC 6500 or departmental approval. Principles of nonlinear system modeling analysis; nonlinear control systems design; nonlinear system state estimation.


ELEC 7640/7646 POWER SYSTEM TRANSIENTS (3). LEC. 3. Pr., ELEC 6360. Transients in electric power systems, including lightning and switching phenomena. Traveling waves on power transmission lines, BIL, BSL, line insulation. System modeling.

ELEC 7710 THE FIELD-EFFECT TRANSISTOR (3). LEC. 3. Pr., ELEC 7610. 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 THE BIPOLAR TRANSISTOR (3). LEC. 3. Pr., ELEC 7610. 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 ADVANCED PLASMA PROCESSING FOR MICROELECTRONIC FABRICATION (3). LEC. 3. Pr., ELEC 6760 or departmental approval. 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.

ELEC 7740 ELECTRONIC PACKAGING (3). LEC. 3. Pr., ELEC 7640 or departmental approval. Design issues in the packaging of electronics. Emphasis is placed on physical design, electrical performance, thermal characteristics and mechanical stress- induced failures.


ELEC 7770 ADVANCED VLSI DESIGN (3). LEC. 3. Pr., ELEC 6770 or departmental approval. 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; ASIC design flow: logic synthesis, placement and routing; design verification; low power design.

ELEC 7780 RF MICROELECTRONICS (3). LEC. 3. Pr., ELEC 6780 or departmental approval. Techniques used in the design of monolithic integrated circuits for RF applications.

ELEC 7900 INDEPENDENT STUDY IN ELECTRICAL ENGINEERING (1-3). IND. Pr., departmental approval. Course may be repeated for a maximum of 3 credit hours.

ELEC 7950 ELECTRICAL ENGINEERING SEMINAR (1-10). SEM. Pr., departmental approval. Course may be repeated for a maximum of 10 credit hours.

ELEC 7970 SPECIAL TOPICS IN ELECTRICAL ENGINEERING (1-5). LEC. Pr., departmental approval. Course may be repeated for a maximum of 5 credit hours.

ELEC 7990 RESEARCH AND THESIS (1-10). MST. Course may be repeated for a maximum of 10 credit hours.

ELEC 8310 ADVANCED TOPICS IN ELECTROMAGNETICS (3). LEC. 3. Pr., ELEC 7320. Continued development of analytical and numerical applications of Maxwell's equations in arbitrary media in both the frequency and time domains. Includes boundary individual and group element algorithm.

ELEC 8410 SPECTRAL ESTIMATION AND SYSTEM IDENTIFICATION (3). LEC. 3. Pr., ELEC 7410. Elements of parameter estimation theory; Nonparametric spectral estimation; periodogram and spectral windows; Parametric approaches; applications; higher-order spectral analysis; input-output system identification.


ELEC 8710 ADVANCED TOPICS IN SEMICONDUCTOR DEVICES (3). LEC. 3. Pr., ELEC 6710. Advanced treatment of selected topics in semiconductor devices. Course may be repeated for a maximum of 3 credit hours.

ELEC 8780 CONTEMPORARY TOPICS IN ELECTRONIC CIRCUIT DESIGN (3). LEC. 3. Pr., ELEC 6780 or departmental approval. Contemporary topics in electronic circuit design such as Delta-Sigma A/D and D/A conversion, switched capacitor circuitry, continuous time and discrete time filter design,
ENGL 3700 INDEPENDENT STUDY IN ELECTRICAL ENGINEERING (1-3). IND. 1. Pr., departmental approval. Course may be repeated for a maximum of 3 credit hours.

ENGL 8970 SPECIAL TOPICS IN ELECTRICAL ENGINEERING (1-5). LEC Pr., departmental approval. Course may be repeated for a maximum of 5 credit hours.

ENGL 8980 RESEARCH AND DISSERTATION (1-10). DSR. Course may be repeated for a maximum of 10 credit hours.

English (ENGL)

Dr. Dennis Rygie - 844-4620


ENGL 1107 HONORS WRITING SEMINAR I (3). LEC. 3. Pr., membership in the Honors College. English Composition Core. Topics in writing for students in Honors.

ENGL 1120 ENGLISH COMPOSITION II (3). LEC. 3. Pr., Grade of C or better in ENGL 1100. English Composition Core. Emphasis on research.

ENGL 1127 HONORS WRITING SEMINAR II (3). LEC. 3. Pr., membership in the Honors College; ENGL 1107 with grade of C or better. English Composition Core. Emphasis on research.

ENGL 1800 ORAL PROFICIENCY IN ENGLISH FOR INTERNATIONAL STUDENTS (3). LEC. 3. Skills that international students need to communicate orally in English.

ENGL 1820 CLASSROOM COMMUNICATION SKILLS FOR INTERNATIONAL STUDENTS (3). LEC. 3. Pr., ENGL 1120 or ENGL 1120 or ENGL 1127. Concentrated investigation of varying topics in linguistics or rhetoric. Course may be repeated for a maximum of 3 credit hours.

ENGL 1820 CLASSROOM COMMUNICATION SKILLS FOR INTERNATIONAL STUDENTS (3). LEC. 3. Pr., ENGL 1120 or ENGL 1120 or ENGL 1127. Course may be repeated for a maximum of 3 credit hours.

ENGL 1830 SOUTHERN LITERATURE (3). LEC. 3. Pr., ENGL 1120 or ENGL 1127. American literature, 1945-present.

ENGL 1840 CONTEMPORARY AMERICAN LITERATURE (3). LEC. 3. Pr., ENGL 1120 or ENGL 1127. American literature of the later 19th and early 20th centuries.

ENGL 1850 THE PEOPLE'S LITERATURE (3). LEC. 3. Pr., ENGL 1120 or ENGL 1127. Non-British and non-American literature written in English.

ENGL 1860 MODERN AMERICAN LITERATURE (3). LEC. 3. Pr., ENGL 1120 or ENGL 1127. British literature from the end of the 18th century to the present.

ENGL 1870 LITERATURE AND CULTURE (3). LEC. 3. Pr., ENGL 1120 or ENGL 1127. The relation of literary works to their cultural contexts.

ENGL 1880 WORLD ENGLISH LITERATURES (3). LEC. 3. Pr., ENGL 1120 or ENGL 1127. Non-British and non-American literature written in English.


ENGL 4010 THE PERSONAL ESSAY (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. History, reading, analysis, and writing of the personal essay.

ENGL 4030 INTERPRETING TEXTS (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. Theory and practice of interpreting literary and non-literary texts.

ENGL 4140 LANGUAGE VARIATION (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. Social and regional, and contextual forces that contribute to dialect diversity.

ENGL 4150 TOPICS IN LANGUAGE STUDY (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. Concentrated investigation of varying topics in linguistics or rhetoric. Course may be repeated for a maximum of 3 credit hours.

ENGL 4180 RHETORICAL THEORY AND PRACTICE (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. Classical and contemporary rhetorical theory, rhetorical analysis, and modern stylistics applied to a variety of literary and non-literary texts.

ENGL 4200 FICTION WRITING I (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. Introduction to the craft of fiction writing; reading, studying, and writing short stories.


ENGL 4220 POETRY WRITING I (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. Introduction to the craft of poetry writing; reading, studying, and writing poems.

ENGL 4230 POETRY WRITING II (3). LEC. 3. Pr., ENGL 4220. Advanced poetry writing.

ENGL 4240 SPECIAL PROJECT IN CREATIVE WRITING (3). LEC. 3. Pr., ENGL 4200 or ENGL 4220. Course may be repeated for a maximum of 3 credit hours.

ENGL 4300 CHAUCER (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. The major works of Chaucer in Middle English.

ENGL 4310 BRITISH DRAMA, BEGINNINGS TO 1642 (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217.

ENGL 4320 16TH-CENTURY BRITISH LITERATURE (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. British literature, 1485-163.

ENGL 4330 EARLY SHAKESPEARE (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. comedies, histories, and early tragedies.

ENGL 4340 LATER SHAKESPEARE (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. Tragedies, dark comedies, and romances.

ENGL 4350 EARLY 17TH-CENTURY BRITISH LITERATURE (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. British literature, 1603-1660.

ENGL 4360 MILTON (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. Milton's principal poems, especially "Paradise Lost"; with some attention to his prose.


ENGL 4380 LATER 18TH-CENTURY BRITISH LITERATURE (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. British literature, 1745-1798.

ENGL 4390 17TH-CENTURY BRITISH NOVEL (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217.

ENGL 4400 ROMANTIC LITERATURE (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. British literature, 1798-1830.

ENGL 4410 VICTORIAN LITERATURE (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. British literature, 1830-1910.

ENGL 4420 19TH-CENTURY BRITISH NOVEL (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217.


ENGL 4440 CONTEMPORARY BRITISH LITERATURE (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. British literature, 1945-present.

ENGL 4500 EARLY AMERICAN LITERATURE (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. American literature from its beginnings to 1800.

ENGL 4510 AMERICAN ROMANTICISM (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. 19th-Century American literature, to approximately 1865.

ENGL 4520 AMERICAN REALISM AND NATURALISM (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. American literature of the later 19th and early 20th centuries.


ENGL 4540 CONTEMPORARY AMERICAN LITERATURE (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. American literature, 1945-present.

ENGL 4550 THE AMERICAN NOVEL (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. Major poets from the colonial period to the present.

ENGL 4570 SOUTHERN LITERATURE (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. Literature of the American South.

ENGL 4580 AFRICAN-AMERICAN LITERATURE (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217.
ENGL 4600 THE CLASSICAL BACKGROUND (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. Readings from the major Greek and Roman writers.

ENGL 4610 MODERN LITERATURE IN TRANSLATION (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. British and Continental medieval literature.

ENGL 4620 THE EUROPEAN NOVEL (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. Significant novels by major European writers.

ENGL 4630 MODERN DRAMA (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. American, British, and world drama from Ibsen through World War II.

ENGL 4640 CONTEMPORARY DRAMA (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. American, British, and world drama of the post-World War II era.

ENGL 4650 STUDIES IN COMPARATIVE LITERATURE (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. Non-British and non-American literature written in English or studied in translation. Course may be repeated for a maximum of 3 credit hours.

ENGL 4700 THE SHORT STORY (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. 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 2210 or ENGL 2217. Study of one or more of the genres represented in the literature of past and present popular culture.

ENGL 4720 TOPICS IN LITERATURE (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. Concentrated investigation of varying topics in literature. Course may be repeated for a maximum of 3 credit hours.

ENGL 4730 TOPICS IN CRITICAL THEORY (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. An introduction to new methods of literary analysis.

ENGL 4740 TOPICS IN GENDER AND LITERATURE (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217. Examination of varying topics related to the intersection between literature and gender.

ENGL 4920 INTERNSHIP IN ENGLISH STUDIES (3). IND Pr., ENGL 2210 or ENGL 2217, departmental approval. Supervised experience in applying writing, research, and communication skills to the workplace.

ENGL 4950 SENIOR SEMINAR (3). LEC. 3. Pr., senior standing, English major core courses, English major. Research seminar on a significant topic in literature and/or language.

ENGL 4960 DIRECTED READINGS (3). IND Pr., junior standing, 3.0 overall GPA, 3.5 GPA in at least five 4000-level English Pr., courses, departmental approval. Readings in a specific area of literature or language. Course may be repeated for a maximum of 3 credit hours.

ENGL 4967 READINGS FOR HONORS (3). IND Pr., ENGL 2210 or ENGL 2217, membership in the Honors College. 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 2210 or ENGL 2217, membership in the Honors College. Course may be repeated for a maximum of 3 credit hours.

ENGL 6000 TECHNICAL AND PROFESSIONAL EDITING (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217, junior standing, and a technical writing, business Pr., writing, or advanced composition course or departmental approval.

ENGL 6010 DOCUMENT DESIGN IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217, junior standing, and a technical writing, business Pr., writing, or advanced composition course or departmental approval.

ENGL 6070 TOPICS IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217, junior standing, and a technical writing, business Pr., writing, or advanced composition course or departmental approval. Course may be repeated for a maximum of 3 credit hours.

ENGL 6240 APPROACHES TO TEACHING ENGLISH AS A SECOND LANGUAGE (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217, junior standing. Theory and practice of English as a Second Language (ESL) instruction.

ENGL 6410 HISTORY OF THE ENGLISH LANGUAGE (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217, junior standing. The chronological development of the English language.

ENGL 6640 MODERN ENGLISH GRAMMARS (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217, junior standing. Examples of several grammatical theories, with emphasis on English syntax.

ENGL 6910 PRACTICUM IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3). LEC. 3. Pr., ENGL 2210 or ENGL 2217, junior standing, and departmental approval. Supervised experience in editing technical, business, and scientific documents.

ENGL 7010 TECHNICAL AND PROFESSIONAL COMMUNICATION: ISSUES AND APPROACHES (3). LEC. 3. Introduction to the history, practice and profession of technical, and professional communication.

ENGL 7020 THE PEDAGOGY OF TECHNICAL AND PROFESSIONAL COMMUNICATION (3). LEC. 3. Methods, practices, and theories of technical and professional communication courses 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 3 credit hours.


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 3 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 3 credit hours.

ENGL 7140 FICTION WRITING (3). LEC. 3. Workshop in the craft and writing of poetry. Course may be repeated for a maximum of 3 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: 1500-1600 (3). LEC. 3. Major literary movements, authors, and/or genres.

ENGL 7170 BRITISH LITERATURE: 1660-1800 (3). LEC. 3. Major literary movements, authors, and/or genres.

ENGL 7180 BRITISH LITERATURE: 1800-1900 (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 BRITISH AND AMERICAN LITERATURE SINCE 1900 (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 7250 ENGLISH LANGUAGE LEARNING AND DEVELOPMENT (3). LEC. 3. Theories underlying the learning of English, especially as a non-native language.


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 3 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 3 credit hours.

ENGL 7700 EUROPEAN LITERATURE FROM 1500 TO 1600 (3). LEC. 3. LITERARY MOVEMENTS, GENRES, AND AUTHORS. Course may be repeated for a maximum of 3 credit hours.

ENGL 7710 EUROPEAN LITERATURE FROM 1600 TO 1800 (3). LEC. 3. LITERARY MOVEMENTS, GENRES, AND AUTHORS. Course may be repeated for a maximum of 3 credit hours.

ENGL 7750 AMERICAN LITERATURE TO 1900 (3). LEC. 3. American, British, and world drama of the post-World War II era.

ENGL 7760 STUDIES IN DRAMA (3). LEC. 3. Pr., departmental approval. 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 3 credit hours.

ENGL 7765 STUDIES IN FICTION (3). LEC. 3. Pr., departmental approval. Fiction of one or more literary periods or a problem in the art of fiction. Course may be repeated for a maximum of 3 credit hours.

ENGL 7770 STUDIES IN CRITICAL THEORY (3). LEC. 3. Pr., departmental approval. Fiction of one or more literary periods or a problem in the art of fiction. Course may be repeated for a maximum of 3 credit hours.

ENGL 7770 MINORITY AMERICAN LITERATURE (3). LEC. 3. Study of minority American literature and literary theories of ethnicity and race. Course may be repeated for a maximum of 3 credit hours.

ENGL 7800 STUDIES IN CRITICAL THEORY (3). LEC. 3. A survey of literary theory or close study of varieties of contemporary critical theory. Course may be repeated for a maximum of 3 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 3 credit hours.

ENGL 7890 RESEARCH AND DISSERTATION (1-10). MST Course may be repeated for a maximum of 10 credit hours.

ENGR 1100 ENGINEERING ORIENTATION (0). LEC. 1. Pr., pre-engineering students. 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.
Insects and other arthropods which attack animals or otherwise cause problems

FEATURED COURSES

ENTM 6130 BIOLOGICAL AND MICROBIAL CONTROL OF INSECTS
- Methods, insecticide resistance and research methods. Spring.
- and environmental fate of insecticides, regulations, formulations, application
- 2.0 GPA is required for enrollment in any Business course at the 3000-level or above.
- ENTM 6200 INSECT PHYSIOLOGY (4). LEC. 3, LAB. 3, Pr., ENTM 3040 or departmental approval. Introduction to insect physiology stressing structure and function of each organ system. Methods used in physiological research will be emphasized. Spring.
- ENTM 6220 INSECT ECOLOGY (4). LEC. 3, LAB. 3, Pr., BIOL 3060 or departmental approval. Ecological interactions of insects and their environment, with emphasis on herbivory, predation, parasitism and mutualism, as well as population and community dynamics. Fall.
- ENTM 6330 INSECT PEST MANAGEMENT (4). LEC. 3, LAB. 2, Pr., ENTM 3040 or ENT 4020. Integrated management of insects by environmental, biological, genetic, chemical and legal means. Fall.
- ENTM 6340 URBAN FOREST INSECTS (3). LEC. 2, LAB. 3, Pr., ENTM 2150, ENT 3040 or ENT 4020. Identification, importance, biology and management of principal insects of the urban forest. Fall.
- ENTM 6350 INTEGRATED FOREST PEST MANAGEMENT (3). LEC. 2, LAB. 3, Pr., ENTM 2150, FORY 3100. Identification, principles of integrated management, and computer modeling of insects and fungi that attack forest and shade trees. Fall.
- ENTM 6360 LANDSCAPE ENTOMOLOGY (4). LEC. 3, LAB. 3, Pr., BIOL 1020 or BIOL 1030. Identification and management of arthropod pests in the landscape. Recognition of pests and damage to trees, turf and ornamental plants. Fall.
- ENTM 6370 URBAN INSECT ECOLOGY (4). LEC. 3, LAB. 3, Pr., ENTM 3040 or ENT 4020. Identification, biology and control of insect and other household arthropod pests. Fall.
- ENTM 7190 PLANT AND ANIMAL INTERACTIONS (3). LEC. 3, Pr., BIOL 3060 or departmental approval. Ecological and evolutionary interrelationships emphasizing pollination biology, seed dispersal and plant-herbivore interactions. Spring.
- ENTM 7220 INSECT MORPHOLOGY (5). LEC. 3, LAB. 6, Pr., ENTM 3040, or ENT 4020 or departmental approval. Comparative external anatomy and generalized internal structures of insects. Characteristics used in taxonomy will be emphasized. Credit will not be given for both ENTM 4220 and ENTM 7220. Spring.
- ENTM 7300 SYSTEMATIC ENTOMOLOGY (5). LEC. 3, LAB. 6, Pr., ENTM 3040, or ENT 4020 or departmental approval. 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. Fall.
- ENTM 7330 MEDICAL-VETERINARY ENTOMOLOGY (4). LEC. 3, LAB. 3, Pr., ENTM 3040 or BIOL 6110, or departmental approval. Insects, mites, and other arthropods of medical or veterinary importance, identification of species, their biology and role as vectors of disease agents. Fall.
- ENTM 7345 TROPICAL BIOLOGY: AN ECOLOGICAL APPROACH (8). LEC. 4, LAB. 12. Pr., 15 hours of biological courses at or above the 7000 level; departmental Pr., approval. 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 adviser. Course may be repeated for a maximum of 3 credit hours.
- ENTM 7950 SEMINAR (1). SEM. 1. Presentation and discussion of scientific literature of thesis research findings. Required of all M.S. candidates.
- ENTM 7970 SPECIAL PROBLEMS AND TOPICS (1-5). LEC Discussion groups on specific topics, assigned readings, or laboratory and field research. Course may be repeated for a maximum of 5 credit hours.
- ENTM 7990 RESEARCH AND THESIS (1-10). MST Pr., admission to the M.S. Program. Topics may focus on technical laboratory problems or field research related to arthropod biology. Course may be repeated for a maximum of 10 credit hours.
- ENTM 8950 SEMINAR (1). LEC. 1. Presentation and discussion of scientific literature or dissertation research findings. Required of all Ph.D. students.
- ENTM 8970 SPECIAL PROBLEMS OR TOPICS (1-5). LEC Pr., admission to the Ph.D. Program. 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.
- ENTM 8990 RESEARCH AND DISSERTATION (1-10). DSR Pr., admission to the Ph.D. program. May be repeated for a maximum of 10 credit hours.
FINC 3200 RISK AND INSURANCE (3). LEC. 3. Pr., 2.0 GPA and junior standing. Essentials of risk management, with emphasis on the use of insurance, including the characteristics of property, liability, life and health insurance.

FINC 3250 PRINCIPLES OF REAL ESTATE (3). LEC. 3. Pr., 2.0 GPA and junior standing. Fundamental principles and practices as applied to the purchase, sale and lease and management of real estate.

FINC 3610 PRINCIPLES OF BUSINESS FINANCE (3). LEC. 3. Pr., ACCT 2110, 2.0 GPA and junior standing. Corporate finance from the perspective of a financial manager. Topics include regulatory planning and forecasting, cash budgeting, capital budgeting, basic valuation, dividends.

FINC 3620 SMALL BUSINESS FINANCE (3). LEC. 3. Pr., FINC 3610 and 2.0 GPA. Financial control, financial forecasting, working capital and sources of financing in a small and closely-held business environment.

FINC 3630 ADVANCED BUSINESS FINANCE (3). LEC. 3. Pr., 2.0 GPA, FINC 3610 and MNGT 2710. In-depth analysis of financial concepts including valuation, capital budgeting, cost of capital, leasing, financial analysis, and working capital management.

FINC 3640 INVESTMENTS (3). LEC. 3. Pr., FINC 3610 and 2.0 GPA. Types of investment security markets, investment instruments, concepts and strategies for institutional and individual investors.

FINC 3700 FINANCIAL MARKETS AND INSTITUTIONS (3). LEC. 3. Pr., FINC 3610 and 2.0 GPA. Overview of the financial system, organization and regulation of financial markets and institutions, the behavior and structure of interest rates.

FINC 4210 PROPERTY AND LIABILITY INSURANCE (3). LEC. 3. Pr., FINC 3200, 2.0 GPA or departmental approval. Commercial risks and the insurance contracts used to address these risks.

FINC 4220 LIFE INSURANCE (3). LEC. 3. Pr., FINC 3200, 2.0 GPA or departmental approval. Individual life, health, annuity contracts and other investments, with a focus on financial planning, estate planning and business continuation arrangements.

FINC 4250 REAL ESTATE INVESTMENT (3). LEC. 3. Pr., FINC 3610, FINC 3250 and 2.0 GPA. Analysis and evaluation of real estate investments including cash flow measurement for both residential and commercial investment projects.

FINC 4510 MULTINATIONAL FINANCIAL MANAGEMENT (3). LEC. 3. Pr., FINC 3610 and 2.0 GPA. Advantages and problems associated with the modern multinational corporation, including analysis of currency risk, hedging and political risk.

FINC 4550 INTERNATIONAL FINANCIAL MARKETS (3). LEC. 3. Pr., 2.0 GPA and FINC 4510 or departmental approval. Analysis of multinational financial markets, their use by the multinational corporation in managing currency risk, as a source of funds, and for portfolio investment.

FINC 4630 FINANCIAL STRATEGY (3). LEC. 3. Pr., 2.0 GPA, ACCT 3110 and FINC 3630. The advanced application of corporate finance through case analysis, company analysis and current topics.


FINC 4660 SECURITY ANALYSIS (3). LEC. 3. Pr., 2.0 GPA, ACCT 3110, FINC 3630 and FINC 3640. Analysis, techniques and selection of securities to meet specific investment objectives. Focus on individual security analysis and portfolio management.

FINC 4680 FINANCIAL ENGINEERING (3). LEC. 3. Pr., 2.0 GPA, 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.

FINC 4700 MANAGEMENT OF FINANCIAL INSTITUTIONS (3). LEC. 3. Pr., 2.0 GPA and FINC 3700. Management strategies for firms including management of credit, liquidity, capital and interest rate risks in a regulated environment.

FINC 4900 INDEPENDENT STUDY (1-3). IND Pr., 2.0 GPA and departmental approval. Advanced individual research and study in finance under the direction of a faculty member. Course may be repeated for a maximum of 3 credit hours.

FINC 4920 INTERNSHIP (1-6). INT Pr., 2.0 GPA and departmental approval. The internship program offers the opportunity to gain relevant and meaningful work experience. Course may be repeated for a maximum of 6 credit hours.

FINC 4970 SPECIAL TOPICS (3). IND. 3. Pr., 2.0 GPA and departmental approval. Specialized topics and current developments and innovations in finance. Course may be repeated for a maximum of 3 credit hours.

FINC 4997 HONORS THESIS (1-6). IND Pr., membership in the Honors College and departmental approval. Course may be repeated for a maximum of 6 credit hours.


FINC 7510/7516 MULTINATIONAL FINANCIAL MANAGEMENT (3). LEC. 3. Pr., FINC 7600 or BUSI 7110 or departmental approval. Finance-related problems of the multinational firm, emphasizing currency markets and derivatives, accounting and operational issues, and management of exchange and political risk.

FINC 7600/7605 ADVANCED CORPORATE FINANCE (3). LEC. 3. Pr., FINC 3610 or departmental approval. Intensive study of theory and problems in corporate finance from an internal decision making point of view.

FINC 7620/7626 ADVANCED REAL ESTATE FINANCE (3). LEC. 3. Pr., FINC 7600 or BUSI 7110 or departmental approval. Study of real estate investments, including regulatory planning and forecasting, cash budgeting, capital budgeting, basic valuation, dividends.

FINC 7630/7635 HEALTH CARE FINANCE (3). LEC. 3. Pr., FINC 7600 or BUSI 7110 or departmental approval. 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.

FINC 7640/7646 ADVANCED INVESTMENTS (3). LEC. 3. Pr., FINC 7600 or BUSI 7110 or departmental approval. Types of investment securities, regulation and operation of securities markets and the theory and practice of investments.

FINC 7650/7656 APPLIED FINANCIAL MANAGEMENT (3). LEC. 3. Pr., FINC 7600 or BUSI 7110 or departmental approval. Integration of financial theory with practice through spreadsheets, case analysis, company analysis and current topics in finance.

FINC 7660/7666 SECURITY ANALYSIS AND MANAGEMENT (3). LEC. 3. Pr., FINC 7600 or BUSI 7110 or departmental approval. Advanced analytical methods for security valuation, investing management portfolios, and developing appropriate investment strategies.

FINC 7670/7676 Mergers, Acquisitions and Restructuring (3). LEC. 3. Pr., FINC 7600 or BUSI 7110 or departmental approval. Strategic analysis of corporate restructuring and governance including valuation, control issues, joint ventures, divestitures, takeover defense measures, diversification issues.

FINC 7680/7686 FINANCIAL ENGINEERING (3). LEC. 3. Pr., FINC 7600 or BUSI 7110 or departmental approval. Theory and pricing of derivative securities with emphasis on applying derivative securities in corporate financial risk management.

FINC 7690/7696 ADVANCED FINANCIAL SYSTEMS (3). LEC. 3. Pr., FINC 7600 or BUSI 7110 or departmental approval. Analysis and examination of financial institutions and markets in an evolving regulatory and global marketplace for financial services and products.

FISH 4997 HONORS THESIS (1-3). IND Pr., departmental approval. 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 3 credit hours.

FISH 7970/7976 SPECIAL TOPICS (1-3). IND Pr., departmental approval. Specialized topics in finance and finance-related areas not otherwise covered in existing courses. Course may be repeated for a maximum of 3 credit hours.

FISH 7990 RESEARCH AND THESIS (1-10). MST Pr., departmental approval. Course may be repeated for a maximum of 10 credit hours.

Fisheries and Allied Aquacultures (FISH)

Fisheries and Allied Aquacultures (FISH)

Dr. John W. Jensen - 844-4786


FISH 2130 RECREATIONAL FISHING (2). LEC. 2. A review of species, gear and features of various sport fisheries with emphasis on Southeastern practices. Spring.

FISH 3950 UNDERGRADUATE SEMINAR (1). LEC. 1. Pr., junior standing or departmental approval. Consideration of various aspects of fisheries work, career options as related to individual interests, and career planning. Fall.

FISH 4715 COMMERCIAL MARINE FISHERIES OF ALABAMA (2). LEC. 2. Exploitation and biology of marine organisms of Alabama and adjoining Gulf of Mexico with emphasis on distribution, harvest, processing and economic value. Taught at Dauphin Island Sea Lab. Summer.

FISH 4920 INTERNSHIP (1-10). INT Pr., junior standing and departmental approval. Discipline-related learning while employed with cooperating private industry or public agency. Course may be repeated for a maximum of 10 credit hours.

FISH 4967 HONORS READING (1-4). IND Pr., membership in the Honors College; FISH major; departmental approval. Course may be repeated for a maximum of 4 credit hours.

FISH 4970 UNDERGRADUATE SPECIAL PROBLEMS (1-4). IND Pr., junior standing and departmental approval. Course may be repeated for a maximum of 4 credit hours.

FISH 4997 HONORS THESIS (1-3). IND Pr., membership in the Honors College; FISH major; departmental approval. Course may be repeated for a maximum of 3 credit hours.

FISH 6120 PROFESSIONAL AND RESEARCH ORIENTATION (2). LEC. 2. Concepts of professionalism, professional ethics, technical writing, research design and operations. Fall.
FLFR 1960 READING PROFICIENCY IN FRENCH (3). LEC. 3. For graduate students, who should consult their advisors for specific departmental language requirements. May be used to fulfill University requirements.

FLFR 2000 INTERMEDIATE FRENCH ABROAD (1-10). FLD Pr., departmental approval. For course work at the intermediate level, taken on an approved study program abroad. The student should consult with the French undergraduate adviser for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLFR 2010 INTERMEDIATE FRENCH I (4). LEC. 3. LAB. 2. Pr., FLFR 1020 or 4 or more years of high school French or departmental approval. Language skills, grammar review, readings in French culture, literature and history.


FLFR 3030 FRENCH CONVERSATION (3). LEC. 3. Pr., FLFR 2020 or departmental approval. Practice in spoken, everyday French, based on texts and situations concerning contemporary life, especially in France.

FLFR 3040 FRENCH COMPOSITION (3). LEC. 3. Pr., FLFR 2020 or departmental approval. Review of grammar and practice in writing on topics ranging from conversations and personal opinions to current affairs and social problems.

FLFR 3100 INTRODUCTION TO FRENCH LITERATURE (3). LEC. 3. Pr., FLFR 3030 and FLFR 3040 or departmental approval. Provides grounding in basic analytical approaches, language and organizational skills needed to discuss French literature effectively and coherently, orally or in writing.

FLFR 3110 FRENCH CIVILIZATION (3). LEC. 3. Pr., FLFR 2020 or departmental approval. Consideration of topical aspects of the cultural heritage of France, as reflected in present day life patterns, traditions and institutions.

FLFR 3140 SURVEY OF FRENCH LITERATURE I (3). LEC. 3. Pr., FLFR 3100 or departmental approval. The Middle Ages to the 1800's. Coherent and effective writing in French.

FLFR 3150 SURVEY OF FRENCH LITERATURE II (3). LEC. 3. Pr., FLFR 3100 or departmental approval. Readings in French literature from the 19th Century to the present (prose, theatre, and poetry), centered on a theme or topic.


FLFR 3510 TOPICS IN FRENCH LITERATURE AND CULTURE (IN ENGLISH) (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 4000 INDEPENDENT STUDY IN FRENCH LANGUAGE AND LITERATURE (1-3). IND Pr., FLFR 2020 or departmental approval. Directed study in area of special interest at the 3000 level. Course may be repeated for a maximum of 3 credit hours.

FLFR 4000 SENIOR/ADVANCED FRENCH ABROAD (1-9). FLD Pr., departmental approval. Course work at the senior/advanced level, taken on an approved study program abroad. The student should consult with the undergraduate adviser for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 4020 ADVANCED GRAMMAR AND STYLISTICS (3). LEC. 3. Pr., FLFR 3040 and 9 hours of 3000-level FLFR credit. Practice in writing and analyzing French texts, with emphasis on advanced grammar topics and stylistics.

FLFR 4030 FRENCH CONTINUING CONVERSATION (1). LEC. 1. Pr., FLFR 3030 and FLFR 3040 or departmental approval. Directed study in area of special interest at the 3000 level. Course may be repeated for a maximum of 1 credit hour.

FLFR 4040 FRENCH CONTINUING COMPOSITION (3). LEC. 3. Pr., FLFR 3030 and FLFR 3040 or departmental approval. Continuing practice in written 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 1 credit hour.

FLFR 4310 FRENCH FOR INTERNATIONAL TRADE (3). LEC. 3. Pr., FLFR 3310 or departmental approval. Practice in international language requirements and translating trade correspondence and documents in French as well as assigned group work and case studies under simulated real life pressures.

FLFR 4410 ADVANCED TOPICS IN FRENCH LITERATURE, CULTURE OR LANGUAGE (3). LEC. 3. Pr., Four FLFR 3000-level courses or departmental approval. Advanced aspects of French literature or culture along with social, political and intellectual issues and cultural aspects or texts. Course may be repeated for a maximum of 3 credit hours.

FLFR 4740 TRANSLATION (3). LEC. 3. Pr., FLFR 3040 and 9 hours of 3000-level or higher FLFR credit. Basic techniques and problem areas in translation and writing from English into French.

FLFR 4900 ADVANCED INDEPENDENT STUDY IN FRENCH LANGUAGE AND LITERATURE (3). LEC. 3. Pr., Four 3000-level French courses or departmental approval. Directed study in area of special interest for the superior student in French. Course may be repeated for a maximum of 3 credit hours.

FLFR 6100 FRENCH FOR INTERNATIONAL TRADE (3). LEC. 3. Pr., Four 3000-level FLFR courses or departmental approval, or graduate standing. 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.

FLFR 6970 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS (3). LEC. 3. Pr., At least four FLFR 3000-level courses or departmental approval, or graduate Pr., standing. Review of principal grammatical structures, develop skills through appropriate exercises and class assignments, and improve structural sensitivity by exposure to a variety of language samples.

FLFR 6980 SEMINAR IN FRENCH LITERARY GENRES AND MOVEMENTS (3). SEM. 3. Pr., four FLFR 3000-level courses or departmental approval, or graduate standing. Seminar in advanced languages skills or topics from French literary genres and movements. Course may be repeated for a maximum of 3 credit hours.

FLFR 7000 GRADUATE FRENCH ABROAD (1-9). FLD Pr., departmental approval. 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.

FLFR 7010 ADVANCED FRENCH CIVILIZATION (3). LEC. 3. Pr., departmental approval. An in-depth study of French civilization with emphasis on the relationship of politics, economy, arts, and literature to the history, thought and art of that period.

FLFR 7050 RESEARCH METHODS (1). LEC. 1. Introduction to the methods of scholarly investigation with emphasis on practical training in the use of bibliographical resources and in the preparation of formal research papers.

FLFR 7090 INTRODUCTION TO COLLEGE-LEVEL FRENCH INSTRUCTION (1). LEC. 1. Pr., departmental approval. Orientation to French graduate studies. Introduction to college-level French instruction, critical observation of performance and guidance by designated instructors. This course must be taken every semester while student is holding a teaching assistantship.


FLFR 7120 16TH CENTURY FRENCH LITERATURE AND CIVILIZATION (3). LEC. 3. The development of French literature during the 16th century in the light of French history, thought and art of that period.

FLFR 7140 18TH CENTURY FRENCH LITERATURE AND CIVILIZATION (3). LEC. 3. The development of French literature during the 18th century in the light of French history, thought and art of that period.

FLFR 7150 19TH CENTURY FRENCH LITERATURE AND CIVILIZATION (3). LEC. 3. The development of French literature during the 19th century in the light of French history, thought and art of that period.

FLFR 7160 20TH CENTURY FRENCH LITERATURE AND CIVILIZATION (3). LEC. 3. The development of 20th-century French literature in the light of French history, thought and art from 1915 to the present.


FLFR 7310 COMMERCIAL AND FINANCIAL INSTITUTIONS IN FRANCE (3). LEC. 3. Study of the most important agencies, including companies, banks, distribution systems and stock exchanges.

FLFR 7430 FRENCH PRESS (3). LEC. 3. Pr., departmental approval. Political, intellectual and cultural events in France, Europe, and the world as reflected in major French daily and weekly publications.

FLFR 7920 FOREIGN LANGUAGE CAREER INTERNSHIP (1-6). INT Pr., departmental approval. 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.

FLFR 7930 SPECIAL TOPICS IN LANGUAGE SKILLS (3). LEC. 3. Course may be repeated for a maximum of 3 credit hours.

FLFR 7950 SEMINAR IN FRENCH LITERATURE, CULTURE OR LANGUAGE (3). SEM. 3. Fall. Course may be repeated for a maximum of 3 credit hours.

FLFR 7990 RESEARCH DISSERTATION (1-10). MST Course may be repeated for a maximum of 10 credit hours.
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 or departmental approval. Classical Greek. Introduction to the knowledge and skills necessary for reading ancient Greek. Fulfills College of Liberal Arts foreign language core requirement. Fall.


FLGK 3110 CLASSICAL GREEK LITERATURE (3). LEC. 3. LAB. 2. Pr., FLGK 2010 or departmental approval. Advanced readings in ancient Greek prose and poetry. Course may be repeated with change in topic.

FLGK 3510 CLASSICAL GREEK LITERATURE AND CULTURE IN TRANSLATION (3). LEC. 3. Pr., ENGL 1120 or ENGL 1127. Classical Greek cultural practices and ideology with a focus on literary evidence. Readings in English.

FLGK 3900 INDEPENDENT STUDY IN ANCIENT GREEK LITERATURE (1-3). IND Pr., FLGK 3010, departmental approval. Independent study of classical Greek text(s). Topic proposed by student in conjunction with faculty advisor. Course may be repeated with change in topic.

GERMAN (FLGR)
FLGR 1000 ELEMENTARY GERMAN ABROAD (1-10). IND Pr., departmental approval. 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.

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 or departmental approval. 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.

FLGR 1960 READING PROFICIENCY IN GERMAN (3). LEC. 3. Pr., graduate standing. Reading proficiency for graduate students, who should consult their advisors for specific departmental language requirements. May not be used to satisfy undergraduate language requirement. Fall.

FLGR 2000 INTERMEDIATE GERMAN ABROAD (1-10). FLD Pr., departmental approval. Course work at the intermediate level taken on an approved study program abroad. The student should consult with the German undergraduate adviser for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 2010 INTERMEDIATE GERMAN I (4). LEC. 3. LAB. 2. Pr., FLGR 1020 or 4 or more years of high school German, or departmental approval. Language skills stressed; structural review and composition; readings in German literature and German civilization.


FLGR 3000 JUNIOR/ADVANCED GERMAN ABROAD (1-10). FLD Pr., departmental approval. Course work at the advanced level taken on an approved study program abroad. The student should consult with the German undergraduate adviser for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 3010 BEGINNING GERMAN COMPOSITION AND CONVERSATION (3). LEC. 3. Pr., FLGR 2020 or equivalent. Concentration on developing skills in written and spoken German. Review of German grammar and syntax, vocabulary building. Work in German phonology. Fall.

FLGR 3020 INTERMEDIATE GERMAN COMPOSITION AND CONVERSATION (3). LEC. 3. Pr., FLGR 3010 or equivalent. Further development of skills in written and spoken German. Continued review of selected topics of grammar and syntax, and vocabulary acquisition. Spring.

FLGR 3030 ADVANCED GERMAN COMPOSITION AND CONVERSATION (3). LEC. 3. Pr., FLGR 3020 or equivalent. Intensive practice and refinement of skills in written and spoken German. Strategies of vocabulary acquisition and retention. Fall.

FLGR 3100 INTRODUCTION TO GERMAN LITERATURE (3). LEC. 3. Pr., FLGR 2020 or departmental approval. Basic literary genres and major figures in German literature from the 18th century to the present; literary methodologies and bibliographical tools. Required of all German majors. Fall.

FLGR 3110 GERMAN CULTURE AND CIVILIZATION I (3). LEC. 3. Pr., FLGR 2020 or departmental approval. Social, political and cultural history of Germany from the Germanic tribes to 1945 Fall.

FLGR 3120 GERMAN CULTURE AND CIVILIZATION II (3). LEC. 3. Pr., FLGR 2020 or departmental approval. Social, political and cultural history of Germany from 1945 to the present. Spring.

FLGR 3150 SELECTED TOPICS IN GERMAN LITERATURE, LANGUAGE AND CULTURE (3). LEC. 3. Pr., FLGR 2020 or departmental approval. Critical study of specific literary, linguistic and/or cultural topics in German studies. Course may be repeated with change in topic.

FLGR 4000 SENIOR/ADVANCED GERMAN ABROAD (1-10). FLD Pr., departmental approval. Course work at the senior/advanced level taken on an approved study program abroad. The student should consult with the German undergraduate adviser for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 4110 MASTERPIECES OF GERMAN LITERATURE I (3). LEC. 3. Pr., FLGR 3010 or departmental approval. Selected readings by representative authors from the periods of German Classicism, Romanticism, Naturalism and Realism. Fall.

FLGR 4120 MASTERPIECES OF GERMAN LITERATURE II (3). LEC. 3. Pr., FLGR 3010 or departmental approval. Selected readings by representative authors from the periods of the early 20th century, Weimar Republic, and Postwar Germany. Winter.

FLGR 4150 GERMAN DRAMA (3). LEC. 3. Pr., Three FLGR 3000-level German courses or departmental approval. Consideration, analysis and criticism of selected German theater works by representative authors. Fall.

FLGR 4160 CONTEMPORARY GERMAN LITERATURE (3). LEC. 3. Pr., 3 FLGR 3000-level German courses or departmental approval. Consideration, analysis and criticism of recent selected German literary works. Winter.

FLGR 4310 GERMAN FOR BUSINESS AND ECONOMICS I (3). LEC. 3. Pr., FLGR 2020 or departmental approval. Emphasis on speaking, listening, reading and writing skills in professional, commercial German. Familiarization with German and European business practices. Fall.


FLGR 4510 GERMAN LITERATURE TRANSLATION I (3). LEC. 3. Pr., departmental approval. From Goethe to Thomas Mann. Reading and analysis of significant literary works by major German writers from 1750 to 1945.

FLGR 4520 GERMAN LITERATURE TRANSLATION II (3). LEC. 3. Pr., departmental approval. Postwar German literature. Reading and analysis of significant literary works by major German writers from 1945 to the present.

FLGR 4900 INDEPENDENT WORK IN GERMAN (1-3). IND Pr., at least one FLGR 4000-level German course, departmental approval. Directed study in area of special interest for the superior student in German. Course may be repeated for a maximum of 3 credit hours.

FLGR 4910 PRACTICUM IN GERMAN (1-6). PRA Pr., departmental approval. Number of hours and applicability toward major to be determined in consultation with the adviser. Course may be repeated for a maximum of 6 credit hours.

FLGR 4950 SEMINAR IN GERMAN LITERATURE (3). SEM. 3. Pr., FLGR 3010 or departmental approval. Readings in German literature from selected periods or in selected genres.

ITALIAN (FLIT)
FLIT 1000 ELEMENTARY ITALIAN ABROAD (1-10). IND Pr., departmental approval. Course work at the elementary level taken on an approved study program abroad. The student should consult the Italian undergraduate adviser for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

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 or departmental approval. Continuation of basic language skills. Exposure to culture. Fulfills the College of Liberal Arts foreign language core requirement. Spring.

FLIT 2000 INTERMEDIATE ITALIAN ABROAD (1-10). FLD Pr., departmental approval. Course work at the intermediate level taken on an approved study program abroad. The student should consult with the Italian undergraduate adviser for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.


FLIT 3000 JUNIOR/ADVANCED ITALIAN ABROAD (1-9). FLD Pr., departmental approval. Course work at the junior/advanced level taken on an approved study program abroad. The student should consult with the Italian undergraduate adviser for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.
FLIT 3110 SPECIAL TOPICS IN ITALIAN (3). LEC. 3. Pr., FLIT 2010 or departmental approval. Supplementary instruction in Italian language, literature, culture.

FLIT 3510 INTRODUCTION TO ITALIAN CULTURE IN ENGLISH (3). LEC. 3. Pr., ENGL 1120 or ENGL 1127. Significant aspects of Italian culture, as reflected in arts, film, literature, history.

FLIT 3900 INDEPENDENT STUDY IN ITALIAN (1-3). IND Pr., departmental approval. Directed study in area of special interest for the superior student in Italian. Course may be repeated with change in topic.

JAPANESE (FLJP)


LATIN (FLLN)

FLLN 1010 ELEMENTARY LATIN I (4). LEC. 3, LAB. 2. For students with little or no knowledge of Latin. Knowledge and skills necessary for reading classical Latin. Fall.

FLLN 1020 ELEMENTARY LATIN II (4). LEC. 3, LAB. 2. Pr., FLLN 1010 or departmental approval. Introduction to the knowledge and skills necessary for reading classical Latin. Fulfills College of Liberal Arts foreign language requirement. Spring.


FLRN 3110 LATIN LITERATURE (3). LEC. 3. Pr., FLLN 2010 or departmental approval. Advanced readings in Latin prose and poetry. Course may be repeated with change in topic.

FLRN 3510 ROMAN LITERATURE AND CULTURE IN TRANSLATION (3). LEC. 3, PR, ENGL 1120. Roman cultural practices and ideology with a focus on literary evidence. Readings in English.

FLRN 3900 INDEPENDENT STUDY IN LATIN LITERATURE (1-3). IND Pr. Independent study of Latin Text(s). Topic proposed by student in conjunction with faculty adviser. Course may be repeated with change in topic.

FLRN 3960 READING PROFICIENCY IN LATIN (3). LEC. 3, Pr., graduate standing and FLLN 2000 or departmental approval. 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.

FOREIGN LANGUAGE (FLNG)

FLNG 1000 ELEMENTARY FOREIGN LANGUAGE ABROAD (1-10). FLD Pr., departmental approval. 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 departmental adviser. Course may be repeated for a maximum of 10 credit hours.

FLNG 2000 INTERMEDIATE FOREIGN LANGUAGE (1-10). LEC. Pr., departmental approval. 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 departmental adviser. Course may be repeated for a maximum of 10 credit hours.

FLNG 4997 HONORS THESIS (1-6). IND Pr., membership in the Honors College; departmental approval. Directed readings and research culminating in a thesis. Course may be repeated for a maximum of 6 credit hours.

RUSSIAN (FLRU)

FLRU 1010 ELEMENTARY RUSSIAN I (4). LEC. 3, LAB. Pr., departmental approval. Advanced readings in Latin prose and poetry. Course may be repeated for a maximum of 10 credit hours.


FLRU 2010 INTERMEDIATE RUSSIAN I (4). LEC. 3, LAB. 2. Pr., FLRU 1020 or departmental approval. Stress on language skills, structural review and composition. Continued exposure to Russian civilization.

FLRU 2020 INTERMEDIATE RUSSIAN II (4). LEC. 3, LAB. 2. Pr., FLRU 2010 or departmental approval. Stress on language skills, structural review and composition. Continued exposure to Russian civilization.

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 RUSSIA 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). FLD Pr., departmental approval. 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.

FLSP 1010 ELEMENTARY SPANISH I (4). LEC. 3, LAB. 2. Pr., departmental approval. 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 1960 READING PROFICIENCY IN SPANISH (3). LEC. 3. Pr., graduate standing or departmental approval. 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.

FLSP 2000 INTERMEDIATE SPANISH ABROAD (1-10). LECT. Pr., departmental approval. Course work at the intermediate level taken on an approved study program abroad. The student should consult with the Spanish undergraduate adviser for an estimate of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLSP 2010 INTERMEDIATE SPANISH I (4). LEC. 3, LAB. 2. Pr., FLSP 1020 or departmental approval. A review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures. Fall.

FLSP 2020 INTERMEDIATE SPANISH II (4). LEC. 3. LAB. 2. Pr., FLSP 2010 or departmental approval. Continued review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures. Spring.

FLSP 3000 JUNIOR ADVANCED SPANISH ABROAD (1-9). LECT. Pr., departmental approval. Course work at the junior/advanced level taken on an approved study program abroad. The student should consult with the Spanish undergraduate adviser for an estimate of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLSP 3010 SPANISH PHONETICS (3). LEC. 3. Pr., FLSP 2020 or departmental approval. Training in practical phonetics with an emphasis on pronunciation correctness. Fall, Spring.

FLSP 3020 SPANISH SYNTAX (3). LEC. 3. Pr.,FLSP 2020 or departmental approval. Sentence structure in Spanish emphasizing the interrelationship among the various parts of speech. Fall, Spring.

FLSP 3030 SPANISH CONVERSATION (3). LEC. 3. Pr., FLSP 2020 or departmental approval. Intensive practice in the Spanish language and review of vocabulary and structure. Fall, Spring. Course may be repeated for a maximum of 3 credit hours.


FLSP 3110 SPANISH CIVILIZATION I (3). LEC. 3. Pr., FLSP 3040. Culture of Spain up to 1700. Emphasis on geographic, historical, social, artistic, spiritual and political forces in Spanish civilization. Fall.

FLSP 3120 SPANISH CIVILIZATION II (3). LEC. 3. Pr., FLSP 3040. Culture of Spain from 1700 to the present. Emphasis on geographic, historical, social, artistic, spiritual and political forces in Spanish civilization. Spring.

FLSP 3210 SPANISH AMERICAN CIVILIZATION I (3). LEC. 3. Pr., FLSP 3040. 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. 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. Introduction to the techniques of English/Spanish and Spanish/English translation in a commercial environment, including correspondence, technical documents, advertising and oral translation. Fall.

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FLSP 4000 SENIOR ADVANCED SPANISH ABROAD (1-9). FLD Pr., departmental approval. Course work at the senior/advanced level taken on an approved study program abroad. The student should consult with the Spanish undergraduate adviser for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLSP 4020 CONTINUING SPANISH SYNTAX (1-3). IND Pr., departmental approval. Continuing practice in Spanish syntax. Course may be repeated for a maximum of 3 credit hours.

FLSP 4030 CONTINUING SPANISH CONVERSATION (1-3). IND Pr., departmental approval. Continuing practice in Spanish conversation. Course may be repeated for a maximum of 3 credit hours.

FLSP 4040 CONTINUING SPANISH COMPOSITION (1-3). IND Pr., departmental approval. Continuing practice in Spanish composition. Course may be repeated for a maximum of 3 credit hours.

FLSP 4110 MASTERPIECES OF SPANISH LITERATURE (3). LEC. 3. Pr., FLSP 3040. Major works of Spanish literature from medieval times to the present. Fall.


FLSP 4210 MASTERPIECES OF SPANISH AMERICAN LITERATURE (3). LEC. 3. Pr., FLSP 3040. Major works of Spanish American literature from Colonial times to the present. Fall.


FLSP 4380 COMMERCIAL SPANISH (3). LEC. 3. Pr., FLSP 3040. Study of an aspect of Spanish business terminology/documentation. Course may be repeated with change in topic.


FLSP 4510 SPANISH LITERATURE TRANSLATION (3). LEC. 3. Pr., ENGL 1120 or ENGL 1127 or departmental approval. Major works of Spanish literature in English translation.

FLSP 4520 SPANISH AMERICAN LITERATURE IN TRANSLATION (3). LEC. 3. Pr., ENGL 1120 or ENGL 1127 or departmental approval. Major works of Spanish American Literature in English translation.

FLSP 4910 PRACTICUM IN SPANISH (1-3). PRA Pr., departmental approval. Academic credit for practical work experience related to the major field. Course may be repeated for a maximum of 3 credit hours.


FLSP 7000 GRADUATE SPANISH ABROAD (1-9). FLD Pr., departmental approval. Course work at the graduate level taken on an approved study program abroad. The student should consult with the Spanish graduate adviser for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

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 lexicography, taking into consideration dialectal differences.

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. 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. Instruction for graduate teaching assistants including critical observation in performance and guidance by a designated supervisory profes sor. Required of all students who hold a graduate teaching assistantship. Credit may not be used to satisfy degree requirements.

FLSP 7110 MEDITERRANEAN SPANISH LITERATURE (3). LEC. 3. A critical and historical study of medieval Spanish literature through representative texts from the various genres of the period.

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 an emphasis on Baroque literature.


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 critical and historical study of representative literary genres and authors of Vice Regal America from Spanish transcription 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 19th Century with an emphasis on Mexican literature.

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 essays, short stories, 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 (3). LEC. 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 (3). LEC. 3. A critical and historical study of the development of Spanish American Theater in the 19th and 20th Century with emphasis on the contemporary period.

FLSP 7970 SEMINAR IN LINGUISTICS, LITERATURE, AND CULTURE (3). SEM. 3. An in-depth study of a movement of author(s) or an analysis of the cultural milieu which influences creativity. Course may be repeated with change in topic.

FLSP 7990 RESEARCH AND THESIS (1-10). MST Directed readings and research culminating in a thesis. Course may be repeated for a maximum of 10 credit hours.

Forestry and Wildlife Sciences (FOWS)

Dr. George S. Bengston - 844-1007

FOREST ENGINEERING (FOEN)

FOEN 3000 INTRODUCTION TO FORESTRY OPERATIONS (1). LAB. 3. Pr., FORY major. Introduction to basic field operations in Forestry including site preparation and planting, harvesting and primary manufacturing processes. Summer.

FOEN 3040 FOREST SURVEYING (3). LEC. 1.LAB. 8. Pr., FORY major. Basic land surveying concepts and procedures as applied to Forestry. Use of basic surveying instruments and calculations for land areas, boundaries, and topographic features.

FOEN 4220 LOW-VOLUME ROAD ROAD DESIGN (3). LEC. 2.LAB. 3. Pr., FOEN 3040, BSEN 2320. 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 6700. Business considerations including safety, regulations, contracts, deeds and cost accounting and analysis combined with equipment operation and maintenance. Fall.

FOEN 4900 SPECIAL PROBLEMS IN FOREST ENGINEERING (1-4). IND Pr., departmental approval. Faculty supervision of individual student investigations of specialized problems in forest engineering. Course may be repeated for a maximum of 4 credit hours.

FOEN 4967 HONORS READINGS (1-3). IND Pr., membership in the Honors College; departmental approval. Topics of an undergraduate nature pertinent to Forest Engineering. Course may be repeated for a maximum of 3 credit hours.

FOEN 4970 SPECIAL TOPICS IN FOREST ENGINEERING (1-4). LEC Pr., departmental approval. Individual or small group study of a specialized area in forest engineering. Course may be repeated for a maximum of 4 credit hours.

FOEN 4997 HONORS THESIS (1-6). IND Pr., membership in the Honors College; departmental approval. Directed research and Honors Thesis. Course may be repeated for a maximum of 6 credit hours.

FOEN 6230 ENGINEERED WOOD STRUCTURE DESIGN (3). LEC. 2.LAB. 3. Pr., ENGR 2070. Load, deflection criteria; engineering characteristics of wood; designing wood components and mechanical connections; shear walls and diaphragms; trusses; bridges; post-frame construction. Fall.
research, laboratory or field work and a report on the findings. Course may be repeated for a maximum of 6 credit hours.

FORY 7999 RESEARCH AND THESIS (1-15). MST Pr., departmental approval. Course may be repeated for a maximum of 15 credit hours.

FOPR 8930 DIRECTED STUDY (1-3). IND Pr., departmental approval. Study of timely topics in forest products on an as needed or as available basis. Course may be repeated for a maximum of 3 credit hours.

FOPR 8990 RESEARCH AND DISSERTATION (1-15). DSR Pr., departmental approval. Course may be repeated for a maximum of 15 credit hours.

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FORESTRY (FORY)

FORY 3020 FOREST BIOLOGY (2). LEC. 1,LAB. 3. Pr., FORY major. Introduction to biological and ecological principles as used in forest management; identification of major tree species. Summer.

FORY 3050 FIELD MENSURATION (3). LEC. 1,LAB. 8. Pr., FORY major. Basic concepts and procedures for measuring trees, stands and other forest resources; units of measure, log rules, volume tables, condition class mapping and volume estimation. Summer.

FORY 3060 INTRODUCTION TO FOREST MANAGEMENT STRATEGIES (1). LEC. 3. Pr., FORY major. 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., FOPR 3020. Taxonomy and identification of important forest trees of the U.S., including cover types of forest regions. Fall.

FORY 3150 FOREST HEALTH (3). LEC. 3. Pr., BIOL 1030. 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 3180 FOREST MEASUREMENTS I (3). LEC. 2,LAB. 3. Pr., FOPR 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., FOPR 3020. Relationship between cultural, environmental and genetic factors that affect growth and yield of forest and shade trees. Fall.

FORY 3440 ENVIRONMENTAL LAW (3). LEC. 3. Pr., junior standing. A review of environmental law including: competing interests; common law remedies; land use; and Federal statutes on water, air, toxics 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. Fall, Spring.

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. Pr., junior standing. Income taxation of natural resources, including passive loss rules, depletion and capital gains, and an introduction to taxation of businesses. Fall.


FORY 4220 FOREST ECOLOGY (3). LEC. 2,LAB. 3. Pr., AGRN 2040, FOPR 3010 and FOPR 3020. Forests as functional systems, the biotic and abiotic environment, temporal changes in ecosystem structure and function, application of ecological information. Summer.


FORY 4440 FOREST FIRE MANAGEMENT (3). LEC. 1,LAB. 6. Pr., FOPR 6230. 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 4450 FOREST INDUSTRY ECONOMICS (3). LEC. 3. Pr., FOPR 6260. Status, trend, employment and other fundamentals of forest industry. Timber supply and demand, forest products supply and demand, technological change, international trade. Spring.

FORY 4470 GIS APPLICATIONS IN FORESTRY (2). LEC. 1,LAB. 3. Pr., FOPR 6260. Basic understanding of GIS through discussion of the basic components of a GIS and how GIS are used in forestry applications. Fall.

FORY 4600 WILDLAND RECREATION PHILOSOPHY AND POLICY (2). LEC. 2. Pr., senior standing. Laws and traditions at federal, state and local levels of government as well as industrial and landowner outlooks and developments. Spring.


FORY 4930 DIRECTED STUDY (1-3). IND Pr., departmental approval. Course may be repeated for a maximum of 3 credit hours.

FORY 4967 HONORS READINGS (1-3). IND Pr., membership in the Honors College; departmental approval. Topics of an undergraduate nature pertinent to Forestry, chosen and prepared for by student. Course may be repeated for a maximum of 3 credit hours.

FORY 4970 SENIOR PROJECT (3). LAB. 6. Pr.; FORY 6230 and FORY 6410. 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 Pr., departmental approval. 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.

FORY 4997 HONORS THESIS (1-6). IND Pr., membership in the Honors College, senior standing; departmental approval. Directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

FORY 6230 SILVICULTURE (3).LEC. 2.LAB. 3. Pr., FORY 4230 or BIOL 6140 or BIOL 3060. Principles and methods of controlling establishment, growth, and quality of forest stands. Application of ecological principles to manipulation of forest ecosystems. Fall.


FORY 6400 FOREST ECONOMICS (3). LEC. 2.LAB. 3. Pr., FORY 3180. Marginal analysis, investment theory, resource supply, economics of conserva-
tion, 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 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 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. Pr., senior standing. Presentation of the world's forested ecosystems, their characteristics, silvicul-ture, utilization, international trade and policies affecting their sustainable use. Fall.

FORY 6480 GIS DATABASE DESIGN AND ANALYSIS (2). LEC. 2. Pr., departmental approval. Geographic information system database planning, design, creation, management and analysis using a project oriented approach. Spring.

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 ADVANCED FOREST SOILS (3). LEC. 2.LAB. 3. Pr., AGRN 2040, FORY 6230. Forest soil processes for the individual tree, forest community, and the forest ecosystem. Spring.


FORY 7170 ECOPHYSIOLOGY OF FOREST TREE (3). LEC. 3. Pr., BIOL 3100 or FORY 3200. Interactions among the environment, silvicultural practices, physiological mechanisms and tree growth. Integration of root, shoot and foliar functions and leaf, tree and stand level processes. Fall.

FORY 7220 LANDSCAPE ECOLOGY (3). LEC. 3. Pr., BIOL 3060, or FORY 4230 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. Fall.


FORY 7330 ECOSYSTEMS OF EASTERN HUMAN FORESTS (3). LEC. 2.LAB. 3. Pr., FORY 4230. Silvical characteristics of major hardwood species and community composition, dynamics, site relationships, and silviculture of Southern and Eastern deciduous forests, emphasizing oaks. Spring.

FORY 7440 FOREST FINANCE AND INVESTMENT (3). LEC. 3. Pr., departmental approval. Principles of corporate and real estate finance as applied to commercial timberland and the place of this asset class in individual and institutional portfolios. Fall.


FORY 7470 GIS APPLICATIONS IN NATURAL RESOURCES (2). LEC. 1.LAB. 3. Pr., departmental approval. Basic understanding of GIS through discussions of the components of a GIS and how GIS are used in natural resource applications. Fall.


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 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. Spring.

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. Techniques and practice of collegiate teaching at the level of Graduate Assistant. Students work under direct supervision and tutelage of the instructor. Spring.

FORY 7930 DIRECTED STUDY (1-3). IND Pr., departmental approval. Course may be repeated for a maximum of 3 credit hours.

FORY 7950 SEMINAR (1). IND. 3. Develop the ability and confidence in making oral presentations based upon research results and provide constructive criticism of peers' presentations. Fall, Spring.

FORY 7970 SPECIAL PROBLEMS (2-6). IND Pr., departmental approval. Analysis of a problem in Forestry or wood utilization involving library research, laboratory or field work and a report on the findings. Course may be repeated for a maximum of 6 credit hours.

FORY 7980 MASTER OF FORESTRY PAPER (2-4). IND Pr., departmental approval; student in the Master of Forestry Degree Program. In-depth study involving library review, data collection and/or data analysis. Course may be repeated for a maximum of 4 credit hours.

FORY 7990 RESEARCH AND THESIS (1-15). MST Pr., departmental approval. Course may be repeated for a maximum of 15 credit hours.

FORY 8930 DIRECTED STUDY (1-3). IND Pr., membership in the Honors College and departmental approval. Course may be repeated for a maximum of 15 credit hours.

WILDLIFE SCIENCES (WILD)

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., or corequisite BIOL 3060. Fundamentals of wildlife management theory, application and administration. Fall.

WILD 3281 WILDLIFE MANAGEMENT LABORATORY (1). LAB. 3. Coreq. BIOL 3280. Laboratory experiences in wildlife management. Fall.

WILD 4920 WILDLIFE MANAGEMENT INTERNSHIP (4). LEC. 4. Pr., departmen-tal approval. Practical job experience under joint supervision of the Internship adviser and appropriate state, federal or private agency. Training will prepare student for potential employment.

WILD 4967 HONORS READINGS (1-3). IND Pr., membership in the Honors College and departmental approval. Topics of an undergraduate nature pertinent to wildlife sciences. Course may be repeated for a maximum of 3 credit hours.

WILD 4970 SPECIAL PROBLEMS IN WILDLIFE SCIENCE (1-5). RES Pr., departmental approval. Course may be repeated for a maximum of 5 credit hours.
WILD 4997 HONORS THESIS (1-6). IND Pr., membership in the Honors College and departmental approval. Directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

WILD 6270 WILDLIFE RESOURCE PHILOSOPHY AND POLICY (3). LEC. 3. Pr., WILD 3280, WILD 6280, or WILD 6290 or departmental approval. 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 or departmental approval. 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 I LABORATORY (1). LAB. 4. Pr., or corequisite 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 or departmental approval. Intensive study of the ecology and management of selected artiodactyls, rodents, lagomorphs, bats, carnivores and herps. Spring.

WILD 6291 WILDLIFE ECOLOGY AND MANAGEMENT II LABORATORY (1). LAB. 4. Pr., or corequisite WILD 6290. Outdoor and audio-visual identification of selected mammal and herp species, habitats, and techniques used to manipulate those populations and habitats. Some weekend field trips required. Spring.

WILD 6310 WILDLIFE MANAGEMENT TECHNIQUES (3). LEC. 1.LAB. 6. Pr. WILD 6280 or WILD 6290. Intensive study of field and laboratory techniques used to manage wildlife populations, including censusing, habitat mapping, prescribed burning, GIS and computer simulation. Spring.

WILD 6770 UPLAND WILDLIFE ECOLOGY (4). LEC. 3.LAB. 6. Pr., WILD 6280 or departmental approval. 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 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 7970 SPECIAL PROBLEMS IN WILDLIFE SCIENCE (1-5). RES Pr., departmental approval. Provides graduate students seeking the master's degree opportunities to work with individual wildlife science professors to investigate timely research topics. Course may be repeated for a maximum of 5 credit hours. Fall.

WILD 7990 RESEARCH AND THESIS (1-10). MST Pr., departmental approval. Course may be repeated for a maximum of 10 credit hours.

WILD 8970 SPECIAL PROBLEMS IN WILDLIFE SCIENCE (1-5). RES Pr., departmental approval. Provides graduate students seeking the doctoral degree opportunities to work with individual wildlife science professors to investigate timely research topics. Course may be repeated for a maximum of 5 credit hours. Fall.

WILD 8990 RESEARCH AND DISSERTATION (1-10). DSR Pr., departmental approval. Course may be repeated for a maximum of 10 credit hours.

Geology and Geography
Dr. Robert B. Cook - 844-4282

GEOG 1010 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 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 2020 PHYSICAL GEOGRAPHY (3). LEC. 3. Selected elements of the earth's physical system to include such items as landforms, basic weather elements, soils and vegetation.

GEOG 2100 WORLD GEOGRAPHY (3). LEC. 3. Land and people of the major regions of the world in the context of change and development.

GEOG 2800 GEOGRAPHIC METHODS AND TECHNIQUES (4). LEC. 3.LAB. 2. Pr., COMP 1000 or departmental approval. Key geographical concepts and production of basic geographical tools for portraying spatial data through laboratory exercises.

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.
ment and environmental assessments will be explored, with emphasis on
seismic methods.

HDFS 6700 PETROLOGY (3). LEC. 2,LAB. 2. Pr., GEOL 2050, GEOL 4010 or
departmental approval. The description, classification, formative processes, and
petrologic interpretation of igneous, metamorphic and sedimentary rocks.

HDFS 7610 STRUCTURAL AND METAMORPHIC ANALYSIS (3). LEC. 2,LAB.
2. Pr., GEOL 2050, GEOL 3400 and GEOL 3650. Quantitative analysis of
dynamic, kinematic and chemical responses of rocks and minerals to crustal
movements and dynamic thermal metamorphism.

HDFS 7650 FACIES ANALYSIS AND SEQUENCE STRATIGRAPHY (3). LEC. 2,LAB.
2. Pr., GEOL 4010 and GEOL 4110 or departmental approval. Systematic
analysis of modern and ancient deposition facies, and their interpretation in
a sequence stratigraphic context. Laboratory and field trips required.

HDFS 7930 DIRECTED STUDIES OR READINGS (1-3). LEC. 3. Pr., depart-
mental approval. 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 5 credit hours.

HDFS 7980 CAPSTONE PROJECT (1-3). LEC. Pr., departmental approval.
Literature, field and/or laboratory research directed towards completion of
capstone project required for non-thesis option. Course may be repeated for a
maximum of 3 credit hours.

HDFS 7980 RESEARCH AND THESIS (1-10). MST Pr., departmental approval.
Credit to be arranged. Course may be repeated for a maximum of 10 credit
hours.

Graduate School (GRAD)

GRAD 7000 CLEARING REGISTRATION (0). LEC May be used to register
graduate students to graduate who have finished all graduation requirements
by the last day of the previous semester, to remove incomplete grades, or to
complete comprehensive examination for non-thesis students.

GRAD 7900 THESIS COMPLETION (0). IND Coreq., MIN. one (1) hour
7990. Restricted to thesis-option graduate students for a Coreq., maximum of
three semesters. Students may not enroll for any additional didactic work
but must be engaged full-time in the completion of thesis research or the
thesis. No grade.

GRAD 8000 AU/AUM JOINT PROGRAM IN PUBLIC ADMINISTRATION
(0). LEC Pr., Enrollment at AUJ. Joint Program in Public Administration.
Coreq., enrollment at AUJ. AUJ registration for PUB doctoral students who are
registered concurrently at AUJM.

GRAD 8900 DISSERTATION COMPLETION (0). IND Coreq., Minimum 1 hour
8990. Maximum 6 semesters. Restricted to doctoral students for a maximum of
six semesters. Students may not enroll in any additional didactic work but
must be engaged full time in the completion of dissertation research or the
dissertation. No grade.

GRAD 9990 GRADUATE RESEARCH FELLOWSHIP (0). LEC Pr., Graduate
School permission. Designates recipients of Presidential Graduate Fellowships.

Human Development and Family Studies (HDFS)

HDFS 1850 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 2020 FAMILY RESOURCE MANAGEMENT (3). LEC. 3. Management of
family resources with emphasis on decision-making and problem-solving
skills over the life cycle.

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 or departmental approval. Social, emotional, physical and intellectual
development in early and middle childhood with a special focus on family
relationships.

HDFS 3030 ADOLESCENT AND ADULT DEVELOPMENT IN THE FAMILY
(3). LEC. 3. Pr., HDFS 2010 or departmental approval. Social, emotional,
physical and intellectual development in the adult stage of life with special
emphasis on family relationships.

HDFS 3040 HUMAN SEXUALITY OVER THE FAMILY LIFE CYCLE (3).
LEC. 3. Pr., HDFS 2000 or SOCY 1000 or PSYC 2010. Human sexuality
from a life-cycle perspective, emphasizing developmental, familial and societal
factors.

HDFS 3060 PATTERNS OF FAMILY INTERACTION (3). LEC. 3. Pr., HDFS
2000. 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. Examination of the competencies necessary for development of
successful interpersonal relationships. Fall, Spring.

HDFS 3081 DEVELOPMENT OF INTERPERSONAL SKILLS LAB (1). LAB.
3. Coreq., HDFS 3080. Development of effective interpersonal skills used in
individual family and professional relationships. Fall, Spring.

HDFS 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. Fall, Spring.

HDFS 3470 LEARNING EXPERIENCES FOR YOUNG CHILDREN (4). LEC.
3. Pr., HDFS 3010. Child development knowledge applied to preschool
curriculum planning with supervised participation at Auburn University Early
Learning Center.

HDFS 3910 PRACTICUM (1-6). PRA Pr., Departmental approval. Directed
experience in a professional setting. (A) Human Development; (B) Family Studies;
(C) Marriage and Family Therapy. Course may be repeated for a maximum of
6 credit hours.

HDFS 4200 PROGRAM DEVELOPMENT AND EVALUATION (3). LEC. 3.
Pr., HDFS 2000, HDFS 2010, and HDFS 3010 or HDFS 3030 or HDFS
3060. Application of research to the development and evaluation of programming for
children and families. Spring.

HDFS 4300 FAMILY AND SOCIAL POLICY (3). LEC. 3. Pr., HDFS 2020 and
HDFS 3010 or HDFS 3030 or HDFS 3060. Examination and critique of social
policies from a family perspective. Fall.

HDFS 4380 STUDY AND TRAVEL IN HUMAN DEVELOPMENT AND FAMILY
STUDIES (2-6). FLD Pr., Human Sciences Core and departmental approval.
Study or work in the United States or internationally. Course may be repeated for
a maximum of 5 credit hours.

HDFS 4500 HOSPITALIZED CHILDREN AND THEIR FAMILIES (4). LEC.
3. Pr., junior standing in HDFS or related field and HDFS 3010. Theories,
research and practical applications in child-life hospital programs. Spring.

HDFS 4670 PARENT EDUCATION (3). LEC. 3. Pr., HDFS 2010. Principles of
working with parents on individual and group bases.

HDFS 4680 FAMILY IN CROSS-CULTURAL PERSPECTIVE (3). LEC. 3.
Pr., HDFS 2000. Examination of family function and diversity in cultures and family
systems around the world. Fall.

HDFS 4700 GENDER ROLES AND CLOSE RELATIONSHIPS (3), LEC. 3.
Pr., HDFS 2000 or SOCY 1000 or PSYC 2010. Analysis of changing roles and their
effects on romantic, marital, and parent-child relationships. Spring.

HDFS 4920 INTERNSHIP IN HUMAN DEVELOPMENT AND FAMILY
STUDIES (B) Pr., FLD Pr., HDFS major, 2.0 GPA in required HDFS courses, including
Human Sciences core, Pr., departmental approval. Application must be submit-
ted to the internship supervisor at least two semesters in advance. A computer and
internet access is required. Course may be repeated for a maximum of 12 credit
hours.

HDFS 4950 ADVANCED SEMINAR (3). LEC. 3. Pr., junior standing in HDFS;
departmental approval. Topical seminar in HDFS. (A) Advanced Research
(requires 3.0 GPA in HDFS); (B) Child Development; (C) Family Studies; (D)
Marriage and Family Therapy. Course may be repeated for a maximum of
3 credit hours.

HDFS 4960 DIRECTED READINGS IN HUMAN DEVELOPMENT AND
FAMILY STUDIES (1-3). IND Pr., departmental approval. Supervised readings
in one or more topical areas. Course may be repeated for a maximum of
3 credit hours.

HDFS 4990 UNDERGRADUATE RESEARCH AND STUDY (1-5). IND Pr.,
departmental approval. Directed research under faculty supervision. Course
may be repeated for a maximum of 5 credit hours.

HDFS 4997 HONORS THESIS (2-6). IND Pr., membership in the Honors
College; junior standing in HDFS. Research in specialized topics. Course may be
repeated for a maximum of 6 credit hours.

HDFS 7010 ADVANCED CHILD DEVELOPMENT (3). LEC. 3. Survey and criti-
cal examination of research on development from birth through adolescence.
Fall.

HDFS 7020 MARITAL AND FAMILY DYNAMICS (3). LEC. 3. Pr., departmental
approval. Theoretical and empirical contributions to the understanding of marital
and family processes and dynamics. Fall.

HDFS 7030 FAMILY RESOURCE MANAGEMENT AND 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. Spring.

HDFS 7040 CONCEPTUAL FRAMEWORKS IN HUMAN DEVELOPMENT
AND FAMILY STUDIES (3). LEC. 3. Pr., departmental approval. Introduction to
and critical examination of major conceptual frameworks used in human
development and family studies. Fall.

HDFS 7050 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND
FAMILY STUDIES (3). LEC. 3. Pr., HDFS 7040 or departmental approval.
Survey of principles and methods for studying individuals, dyadic relationships
and families. Fall.

HIST 1210 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.

HIST 1217 HONORS TECHNOLOGY AND CIVILIZATION II (3). LEC. 3. Pr., membership in the Honors College. History Core. Survey of the role of technology in history from prehistoric times to the beginning of the Industrial Revolution.

HIST 1220 TECHNOLOGY AND CIVILIZATION II (3). LEC. 3. History Core. Survey of the role of technology from the Industrial Revolution to the present day.

HIST 1227 HONORS TECHNOLOGY AND CIVILIZATION II (3). LEC. 3. Pr., membership in the Honors College. History Core. Survey of the role of technology from the Industrial Revolution to the present day.

HIST 2010 SURVEY OF UNITED STATES HISTORY TO 1877 (3). LEC. 3. American history from the first humans in North America through the end of Reconstruction. Social, political and economic developments traced over centuries.

HIST 2020 SURVEY OF UNITED STATES HISTORY SINCE 1877 (3). LEC. 3. History from the end of Reconstruction through the present. Social, political and economic developments are examined.

HIST 2070 SURVEY OF EUROPEAN HISTORY FROM THE RENAISSANCE TO 1789 (3). LEC. 3. Survey of European history from the first outbreak of the bubonic plague to the eve of the French Revolution.

HIST 2080 SURVEY OF EUROPEAN HISTORY FROM 1789 TO THE PRESENT (3). LEC. 3. European history from the French Revolution to the present.

HIST 2100 SURVEY OF LATIN AMERICAN HISTORY (3). LEC. 3. Latin American history from its Amerindian beginnings to the present. Both the Iberian and African backgrounds are explored.

HIST 2110 SURVEY OF ASIAN HISTORY (3). LEC. 3. Introduction to history, cultures and philosophies of peoples of Asia.

HIST 2120 SURVEY OF MODERN AFRICAN HISTORY (3). LEC. 3. Modern African history, from the end of the slave trade to the rise of nationalism and independence.


HIST 3000 HISTORY OF SOUTHEASTERN INDIANS (3). LEC. 3. History of the southeastern Indians from pre-contact to removal including native culture, culture change, trade, imperial rivalries and wars.


HIST 3020 HISTORY OF WOMEN IN THE UNITED STATES (3). LEC. 3. History of women in America from colonial period to the present; explores differences of region, race and class.

HIST 3030 AFRICAN AMERICAN HISTORY (3). LEC. 3. History of African Americans from African origins to the modern era, focusing on enslavement, emancipation and the struggle for equal rights.

HIST 3040 AMERICAN RELIGIOUS HISTORY (3). LEC. 3. Religious ideas and institutions from the colonial period to the present, including how religion has intersected with political and social history.

HIST 3050 HISTORY OF POLITICAL PARTIES IN THE UNITED STATES (3). LEC. 3. Examines political parties and party systems from the constitution to the present, including party organization, campaign techniques and presidential leadership.

HIST 3060 ISSUES IN AFRICAN AMERICAN HISTORY (3). LEC. 3. Issues and personalities in African American History. Course may be repeated for a maximum of 3 credit hours.

HIST 3070 HISTORY OF UNITED STATES AIR POWER (3). LEC. 3. Development of air and spacecraft as weapons of war including doctrines, technology, major leaders and great events of air power.

HIST 3300 GRECO-ROMAN CIVILIZATION (3). LEC. 3. Classical civilizations of the Greeks and Romans as well as the Egyptian and Persian civilizations that influenced them.

HIST 3310 EUROPE IN THE MIDDLE AGES (3). LEC. 3. Survey of the thousand years which has been called the birth of Europe.

HIST 3320 HISTORY OF IRELAND (3). LEC. 3. History of Ireland from its beginnings to the present, including discussion of the present, troubled state of Ireland.

HIST 3330 ISSUES IN THE HISTORY OF GERMANY AND CENTRAL EUROPE (3). LEC. 3. Variable topics in the history of Germans, Slavs and other Central Europeans from the Era of Enlightened Absolutism through the fall of the Berlin Wall. Course may be repeated for a maximum of 3 credit hours.

HIST 3340 HISTORY OF MODERN FRANCE (3). LEC. 3. Political, social and cultural history of France since the French Revolution.

HIST 3350 SURVEY OF RUSSIAN HISTORY (3). LEC. 3. Russian history from the earliest development of a state in the area of Kiev down to the present Russian Federation.
HIST 3350 CONTEMPORARY RUSSIA SINCE WORLD WAR II (3). LEC. 3. Developments in contemporary Russia beginning with World War II and continuing to the present day.

HIST 3370 EUROPEAN IMAGINATION (3). LEC. 3. Examination of European domination of the globe through an investigation of how and why Europeans have imagined their civilization to be superior.

HIST 3500 HISTORY OF AVIATION (3). LEC. 3. History of aviation from the beginning of human flight to the present.

HIST 3510 HISTORY OF SPACE TRAVEL (3). LEC. 3. Historical origins of the space age and U.S. space policy, including patterns that define the present and constrain the future of humans and machines.

HIST 3520 SCIENTIFIC REVOLUTIONS (3). LEC. 3. History of science, focusing on the concept of "scientific revolutions" in their social and intellectual contexts.

HIST 3530 SCIENCE FICTION AS INTELLECTUAL HISTORY (3). LEC. 3. The interaction between science, technology, and other aspects of modern culture as dramatized in classic and contemporary works of science fiction.

HIST 3540 ISSUES IN TECHNOLOGY AND CULTURE (3). LEC. 3. Issues such as the automobile, environment, industrialization and popular culture, relating to the role technology plays in society and culture. Course may be repeated for a maximum of 3 credit hours.

HIST 3600 ISSUES IN WOMEN'S AND GENDER HISTORY (3). LEC. 3. Topics in the history of women and gender. Focus will vary according to the instructor. Course may be repeated for a maximum of 3 credit hours.

HIST 3610 PRIVATE LIVES AND PUBLIC PLACES (3). LEC. 3. Examines shifting boundaries between public and private in history. Topics vary according to instructor, but may include work, family, sexuality and the state. Course may be repeated for a maximum of 3 credit hours.

HIST 3620 LANDSCAPE AND CULTURE (3). LEC. 3. Social and cultural history of architecture and built-space in Europe and/or the United States.

HIST 3630 HISTORY OF MEXICO (3). LEC. 3. History of Mexico in the 19th and 20th centuries.

HIST 3640 WORLD MILITARY HISTORY (3). LEC. 3. Economic, social, political and technological roots of the ways of war employed by different civilizations throughout the ages.

HIST 3650 20TH CENTURY WORLD WARS (3). LEC. 3. The causes, conduct and consequences of World Wars I and II.

HIST 3660 WORLD NAVAL HISTORY (3). LEC. 3. Naval history from its origins in ancient times to the present, including the evolution of strategy and tactics, foreign policy and technological change.

HIST 3670 CONTEMPORARY HISTORY (3). LEC. 3. Examination of issues and events that have affected the contemporary world to provide historical background on developments in selected areas/nations across the globe.

HIST 3800 HISTORIANS CRAFT (3). LEC. 3. Pr., History major and junior standing. Historical research methods and an introduction to historiography.

HIST 3900 INDEPENDENT STUDY (1-3). IND. Pr., 3.0 overall GPA and departmental approval. Individual reading or research projects in a specific area of history. Course may be repeated for a maximum of 3 credit hours.

HIST 3920 HISTORY INTERNSHIP (3). LEC. 3. Pr., junior standing and departmental approval. Supervised on-the-job experience at archives, historical museums, historic preservation authorities, and historical editing projects, and similar historical agencies.

HIST 3970 SPECIAL TOPICS (3). LEC. 3. Topics vary. Course may be repeated for a maximum of 3 credit hours.

HIST 4000 AMERICAN COLONIAL HISTORY (3). LEC. 3. Pr., junior standing or departmental approval. Traces the development of the North American colonies from European settlement to 1783.


HIST 4030 SOUTH TO 1877 (3). LEC. 3. Pr., junior standing or departmental approval. Development of the old South, from southeastern Indians and European contact through Reconstruction including slavery, white social classes, women, and politics.

HIST 4040 CIVIL WAR ERA: 1850-1877 (3). LEC. 3. Pr., junior standing or departmental approval. Sectional conflict, Civil War, and Reconstruction including sectional differences, political crises, secession, Civil War campaigns, emancipation, and presidential and congressional Reconstruction.

HIST 4050 THE SOUTH SINCE 1877 (3). LEC. 3. Pr., junior standing or departmental approval. Examination of the South since 1877, with emphasis on social, economic, cultural, political and ideological developments.


HIST 4070 MODERN UNITED STATES HISTORY: 1929 TO THE PRESENT (3). LEC. 3. Pr., junior standing or departmental approval. 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 4080 20TH CENTURY UNITED STATES DIPLOMACY (3). LEC. 3. Pr., junior standing or departmental approval. Examination of United States diplomatic history since the Spanish-American War.

HIST 4100 EARLY MODERN EUROPE: 1348-1715 (3). LEC. 3. Pr., junior standing or departmental approval. Major topics in European history for the period 1348-1715 including religious and cultural change and the relationship between state and society.

HIST 4110 ENLARGEMENT/REVOLUTIONARY EUROPE: 1715-1815 (3). LEC. 3. Pr., junior standing or departmental approval. Culture, society and politics of the 18th Century; origins and consequences of the French Revolution; the Napoleonic period.

HIST 4120 19TH CENTURY EUROPE: 1815-1918 (3). LEC. 3. Pr., junior standing or departmental approval. Cultural, economic and social developments as well as the politics and international relations of the major European states between 1815-1918.

HIST 4130 20TH CENTURY EUROPE (3). LEC. 3. Pr., junior standing or departmental approval. The history of Europe from the outbreak of World War I to the end of the Cold War.

HIST 4140 EUROPEAN CULTURAL AND INTELLECTUAL HISTORY (3). LEC. 3. Pr., junior standing or departmental approval. Development of European culture and the interfacings of culture, ideas and social institutions from the early Enlightenment to the present.

HIST 4150 REVOLUTIONARY RUSSIA: 1861-1939 (3). LEC. 3. Pr., junior standing or departmental approval. Analysis of the Revolutions of 1917, beginning with emancipation of serfs and ending with purges and the 1900s.

HIST 4160 ENGLISH HISTORY TO 1688 (3). LEC. 3. Pr., junior standing or departmental approval. Development of England from Roman times to the triumph of parliament in the Glorious Revolution of 1688.

HIST 4170 GREAT BRITAIN SINCE 1688 (3). LEC. 3. Pr., junior standing or departmental approval. Including industrial revolution, development of empire and international role and social changes of 20th Century.

HIST 4500 THE GREAT TRANSFORMATION: THE INDUSTRIAL REVOLUTION (3). LEC. 3. Pr., junior standing or departmental approval. 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.

HIST 4600 MODERN EAST ASIA (3). LEC. 3. Pr., junior standing or departmental approval. Histories, cultures and philosophies of China and Japan from 1800 to the present.

HIST 4610 COLONIAL LATIN AMERICA (3). LEC. 3. Pr., junior standing or departmental approval. European expansion into the western hemisphere from its Iberian background through the 19th century, fall of the Spanish and Portuguese empires.

HIST 4620 MODERN LATIN AMERICA (3). LEC. 3. Pr., junior standing or departmental approval. History of Latin America in the 19th and 20th centuries using a thematic approach arranged chronologically.

HIST 4710 FUNDAMENTALS OF ARCHIVAL THEORY AND PRACTICE (3). LEC. 3. Pr., junior standing or departmental approval. Examination of the fundamentals of archival theory and practice; the relationship between archives and records management; and the role of records and archives in society.

HIST 4930 SENIOR THESIS: HISTORICAL RESEARCH AND WRITING (3). LEC. 3. Pr., History major and HIST 3800. Writing of an original paper based on research in primary source materials.

HIST 4967 HONORS READINGS (3). LEC. 3. Pr., membership in the Honors College. The secondary literature on specialized topics in History.

HIST 4997 HONORS THESIS (3). LEC. 3. Pr., membership in the Honors College. Writing of an original paper based on research in primary materials.

HIST 7000 AMERICAN COLONIAL HISTORY (3). LEC. 3. The development of the North American colonies from European settlement to 1763.


HIST 7030 SOUTH TO 1877 (3). LEC. 3. Development of the Old South, from southeastern Indians and European contact through Reconstruction including slavery, white social classes, women and politics.

HIST 7040 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 7050 THE SOUTH SINCE 1877 (3). LEC. 3. Examination of the South since 1877, with emphasis on social, economic, cultural, political and ideological developments.
HIST 7450 SEMINAR IN FRENCH REVOLUTION (3). SEM. 3. The historiography in the French Revolution's origins and legacy.
HIST 7460 SEMINAR IN EARLY MODERN BRITAIN (3). SEM. 3. Main themes and events of British history between 1603 and the 1760's.
HIST 7470 SEMINAR IN EUROPEAN INTERNATIONAL HISTORY (3). SEM. 3. Research and writing of an original paper based on primary sources that should be of publishable or near-publishable quality. Course may be repeated for a maximum of 3 credit hours.
HIST 7480 RESEARCH SEMINAR IN UNITED STATES HISTORY TO 1865 (3). SEM. 3. Research and writing of an original paper based on primary sources that should be of publishable or near-publishable quality. Course may be repeated for a maximum of 3 credit hours.
HIST 7490 SEMINAR IN MODERN EUROPEAN CULTURAL POLITICS (3). SEM. 3. Traditional and revisionist approaches to the study of the political uses of culture in nineteenth and twentieth century Europe.
HIST 7495 SEMINAR IN TRANSITION (3). SEM. 3. The institutions in Europe and North America.
HIST 7510 INTRODUCTORY SEMINAR IN HISTORIOGRAPHY OF TECHNOLOGY (3). SEM. 3. Problems and issues in the history of technology, as well as key literature on the subject.
HIST 7520 SEMINAR IN POLITICS AND TECHNOLOGY IN THE SPACE AGE (3). SEM. 3. The political and technological context of the "space age." HIST 7530 SEMINAR IN SOUTHERN INDUSTRIALIZATION (3). SEM. 3. Significant scholarly works and primary sources dealing with the history of industrialization and technology in the American South.
HIST 7540 SEMINAR IN AEROSPACE HISTORY (3). SEM. 3. Central problems, issues, and literature in aerospace history.
HIST 7550 SEMINAR IN SCIENCE AND SOCIETY (3). SEM. 3. Exploration of interactions between science and politics in the twentieth century.
HIST 7560 SEMINAR IN THE FRENCH REVOLUTION (3). SEM. 3. Examines the central questions and historiography relating to the industrial revolution.
HIST 7570 TECHNOLOGY IN SOCIAL AND CULTURAL HISTORY (3). LEC. 3. Explores the literature in the history of technology that approaches the field from a social and cultural perspective.
HIST 7580 MODERN EAST ASIA (3). LEC. 3. Histories, cultures, and theories of historical research; preparation of a significant original research paper.
HIST 7590 SEMINAR IN EARLY MODERN EUROPE (3). SEM. 3. Methodology and theory of historical research; preparation of a significant original research paper.
HIST 7610 MODERN LATIN AMERICA (3). LEC. 3. European expansion into the western hemisphere from its Iberian background through 19th century fall of the Spanish and Portuguese empires.
HIST 7620 MODERN LATIN AMERICA (3). LEC. 3. History of Latin America in 19th and 20th centuries using a thematic approach arranged chronologically.
HIST 7630 SEMINAR IN LATIN AMERICAN HISTORY (3). SEM. 3. Research tools, major issues, and sources in Latin American history.
HIST 7700 SEMINAR IN HISTORICAL METHODS (3). SEM. 3. Methodology and theory of historical research; preparation of a significant original research paper.
HIST 7710 FUND ARCHIVAL THEORY & 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 the interactions between science and politics in the twentieth century.
HIST 7720 SEMINAR IN ARCHIVAL THEORY AND PRACTICE (3). SEM. 3. Pr. HIST 4710 or HIST 7710 or departmental approval. Development of archival theory in the major functional areas of archival practice: appraisal, acquisition, arrangement, description, preservation, reference and access, outreach and advocacy.
HIST 7730 SEMINAR IN THE HISTORY OF RECORDS AND ARCHIVES (3). SEM. 3. Pr. HIST 4710 or HIST 7710 or departmental approval. Origins, organization, and development of records, record keeping systems, and archival institutions in Europe and North America.
HIST 7760 RESEARCH SEMINAR IN UNITED STATES HISTORY TO 1865 (3). SEM. 3. Research and writing of an original paper based on primary sources that should be of publishable or near-publishable quality. Course may be repeated for a maximum of 3 credit hours.
HIST 7780 RESEARCH SEMINAR IN EARLY MODERN EUROPEAN HISTORY (3). SEM. 3. Research and writing of an original paper based on primary sources that should be of publishable or near-publishable quality. Course may be repeated for a maximum of 3 credit hours.
HIST 7790 SEMINAR IN THE CIVIL WAR ERA (3). LEC. 3. Examines sectional conflict, Civil War, and Reconstruction, including political, military and social development.
HIST 7800 RESEARCH SEMINAR IN THE CIVIL WAR ERA (3). SEM. 3. Research and writing of an original paper based on primary sources that should be of publishable or near-publishable quality. Course may be repeated for a maximum of 3 credit hours.
HIST 7820 RESEARCH SEMINAR IN EARLY MODERN EUROPEAN HISTORY (3). SEM. 3. Research and writing of an original paper based on primary sources that should be of publishable or near-publishable quality. Course may be repeated for a maximum of 3 credit hours.
HIST 7830 SEMINAR IN MODERN EUROPEAN HISTORY (3). SEM. 3. Research and writing of an original paper based on primary sources that should be of publishable or near-publishable quality. Course may be repeated for a maximum of 3 credit hours.
HIST 7850 SEMINAR IN LATIN AMERICAN HISTORY (3). SEM. 3. Research and writing of an original paper based on primary sources that should be of publishable or near-publishable quality. Course may be repeated for a maximum of 3 credit hours.
HLHP 6820 SPORT MANAGEMENT (3). LEC. 3. This course is designed to give students critical skills in understanding and analyzing a number of social issues associated with sport and physical education.

HLHP 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.

HLHP 7200 CURRICULUM AND TEACHING IN PHYSICAL EDUCATION (3). LEC. 3. Issues in developing and critiquing curricula in physical education.


HLHP 7260 INDIVIDUALS WITH DISABILITIES IN PHYSICAL EDUCATION (3). LEC. 3. Developing inclusive physical activity programs for children and adolescents with disabilities in physical education.

HLHP 7280 NATURALISTIC INQUIRY IN PHYSICAL ACTIVITY SETTINGS (3). LEC. 3. Pr., HLHP 7010. Exploration of naturalistic inquiry in physical activity and educational settings.

HLHP 7300 CONTENT AND PEDAGOGY IN PHYSICAL EDUCATION (3). LEC. 3. Instructional strategies and content for elementary and secondary physical education.

HLHP 7350 ORGANIZATION AND ANALYSIS OF INSTRUCTION IN PHYSICAL EDUCATION (3). LEC. 3. Focus on the teaching-learning process in physical education.

HLHP 7380 INTEGRATING CLASSROOM CONCEPTS THROUGH MOVEMENT (3). LEC. 3. Relationship of developmental foundations of young children and programming of physical activities.


HLHP 7570 EXERCISE ELECTROCARDIOGRAPHY (3). LEC. 3. Pr., HLHP 3680 or departmental approval. Electrocardiography from an exercise scientist's perspective, recognition of normal and abnormal electrocardiographic patterns at rest and during exercise.

HLHP 7620 PRINCIPLES OF BIOMECHANICS IN HUMAN MOVEMENT (3). LEC. 3. Pr., HLHP 3620 or departmental approval. Biomechanical principles and laws with applications to human movement in sport, exercise and daily activities.

HLHP 7650 ADVANCED MOTOR LEARNING AND PERFORMANCE (3). LEC. 3. Pr., HLHP 3650 or departmental approval. Theories, experimental studies and current issues in the acquisition, performance and retention of motor skills.

HLHP 7680 BIOMECHANICS OF SPORT INJURY AND REHABILITATION (3). LEC. 3. Pr., HLHP 7620. Biomechanical properties of the human body as related to injuries and rehabilitation in sport and daily activities.

HLHP 7670 LABORATORY TECHNIQUES IN BIOMECHANICS (2). LEC. 1,LAB. 2. Pr., HLHP 7620. Techniques and methods used in biomechanical analysis of human movement.

HLHP 7680 ADVANCED PHYSIOLOGY OF EXERCISE I (3). LEC. 3. Pr., HLHP 3680 or departmental approval. Physiological responses to exercise and control of metabolism, the cardiovascular system, and the respiratory system during acute exercise and training.

HLHP 7700 ADVANCED PHYSIOLOGY OF EXERCISE II (3). LEC. 3. Pr., HLHP 3680 or departmental approval. 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.


HLHP 7730 NEUROMOTOR CONTROL (3). LEC. 3. Pr., HLHP 3650 or departmental approval. Structure and function of the central and peripheral systems underlying human motor control.

HLHP 7740 ADVANCED MOTOR DEVELOPMENT (3). LEC. 3. Pr., HLHP 4610 or departmental approval. Examination of theoretical and empirical issues in motor development across the life span.

HLHP 7750 ADVANCED SPORT PSYCHOLOGY (3). LEC. 3. Pr., HLHP 4620 or departmental approval. Examination of psychological factors that influence athletic performance.

HLHP 7780 EXERCISE MOTIVATION AND ADHERENCE (3). LEC. 3. Pr., HLHP 4620 or equivalent. Theoretical foundations and recent research in exercise motivation and adherence.

HLHP 7790 MOTOR BEHAVIOR OF INDIVIDUALS WITH DISABILITIES (3). LEC. 3. Pr., HLHP 7650. Examination of motor behavior characteristics of individuals with disabilities.

HLHP 7900 INDEPENDENT STUDY (1-3). IND Pr., departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 3 credit hours.

HLHP 7910 PRACTICUM (1-3). FRA Pr., departmental approval. Application of basic concepts to specific work environments. Course may be repeated for a maximum of 3 credit hours.

HLHP 7920 INTERNSHIP (1-10). INT Pr., departmental approval. Supervised work experiences in schools, fitness or rehabilitation settings. Course may be repeated for a maximum of 10 credit hours.

HLHP 7940 DIRECTED FIELD EXPERIENCES (1-10). FLD Pr., departmental approval. Field studies away from campus. Course may be repeated for a maximum of 10 credit hours.

HLHP 7950 SEMINAR (1-3). SEM Course may be repeated for a maximum of 3 credit hours.

HLHP 7960 READINGS (1-3). IND Pr., departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 3 credit hours.

HLHP 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.

HLHP 7990 RESEARCH AND THESIS (1-10). IND Course may be repeated for a maximum of 10 credit hours.

HLHP 8710 SCIENTIFIC COMMUNICATION IN EXERCISE SCIENCE (3). LEC. 3. Pr., HLHP 7010 or equivalent. In-depth analysis of the major formats for scientific communication and the peer-review process in exercise science.

HLHP 8730 THREE-DIMENSIONAL ANALYSIS OF HUMAN MOVEMENT (3). LEC. 3. Pr., HLHP 7620. Three-dimensional nature of body segments in human movement, with emphasis on data processing and modeling techniques.

HLHP 8760 PHYSICAL ACTIVITY EPIDEMIOLOGY (3). LEC. 3. Pr., HLHP 7010, HLHP 7680. Development of analytic skills to evaluate and conduct population-based research related to physical activity and disease.

HLHP 8770 NEUROMUSCULAR ASPECTS OF EXERCISE AND TRAINING (3). LEC. 3. Pr., HLHP 7680 or departmental approval. Examination of neuromuscular mechanisms that allow humans to perform work, including energy output, neural integration, energy metabolism and neuromuscular adaptations to training.

HLHP 8780 BIOCHEMISTRY OF EXERCISE (3). LEC. 3. Pr., HLHP 7680, HLHP 7770 or departmental approval. Regulation of the metabolic pathways of energy metabolism with emphasis on the energetic response to acute exercise and exercise training.

HLHP 8900 INDEPENDENT STUDY (1-3). IND Pr., departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 3 credit hours.

HLHP 8910 PRACTICUM (1-3). FRA Pr., departmental approval. Application of basic concepts to specific work environments. Course may be repeated for a maximum of 3 credit hours.

HLHP 8920 INTERNSHIP (1-10). INT Pr., departmental approval. Supervised work experiences in schools, fitness or rehabilitation settings. Course may be repeated for a maximum of 10 credit hours.

HLHP 8940 DIRECTED FIELD EXPERIENCES (1-10). FLD Pr., departmental approval. Field studies away from campus. Course may be repeated for a maximum of 10 credit hours.

HLHP 8950 SEMINAR (1-3). SEM Course may be repeated for a maximum of 3 credit hours.

HLHP 8960 READINGS (1-3). IND Pr., departmental approval. Course may be repeated for a maximum of 3 credit hours.

HLHP 8970 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.

HLHP 8980 FIELD PROJECT (1-6). FLD. 1. Pr., departmental approval. Field project. Course may be repeated for a maximum of 6 credit hours.

HLHP 8990 RESEARCH AND DISSERTATION (1-10). DSR Course may be repeated for a maximum of 10 credit hours.

PHYSICAL EDUCATION (PHED)

PHED 1100 WELLNESS (2). LEC. 1,LAB. 2. Basic concepts and principles of wellness with laboratory experiences for the self-appraisal of health-related physical fitness.

PHED 1200 CARDIO-RESPIRATORY FITNESS (2). LEC. 1,LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning. Activities may include, but are not limited to, running (jogging) swimming, cycling and aerobic dance. Course may be repeated with change in topic.

PHED 1300 FITNESS AND CONDITIONING (2). LEC. 1,LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness. Activities may include, but are not limited to calisthenics and weight training. Course may be repeated with change in topic.
HORTiculture (HORT)

PHED 1400 TEAM SPORTS (2). LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport. Team sports may include, but are not limited to volleyball, basketball and softball. Course may be repeated with change in topic.

PHED 1500 INDIVIDUAL SPORTS (2). LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport. Sports may include, but are not limited to tennis, golf and racquetball. Course may be repeated with change in topic.

PHED 1600 PERFORMANCE ACTIVITIES (2). LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity. Activities may include, but are not limited to dance and gymnastics. Course may be repeated with change in topic.

PHED 1700 AQUATIC SKILLS (2). LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills. Activities may include, but are not limited to, swimming skills instruction, lifeguard training, and scuba diving. When appropriate, successful completion of the course will lead to Red Cross certification or certification by other agencies. Course ay be repeated with change in topic.

PHED 1800 VARSITY SPORTS (1). LEC. 1. Skills and training associated with participation in varsity sports. Course may be repeated with change in topic.

Horticulture (HORT)

Dr. Charles Gilliam - 844-4685

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.


HORT 2020 HORTICULTURE CROP PRODUCTION (3). LEC. 2. LAB. 3. Pr. BIOL 1010 or BIOL 1030. Techniques of plant propagation and cultural methods for successful fruit and vegetable production. Fall.


HORT 2040 ORGANIC GARDENING (3). LEC. 3. Principles, production practices, maintenance, harvesting and marketing of organically and traditionally grown vegetables. Spring, Summer, Fall.

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.

HORT 2210 LANDSCAPE GARDENING (4). LEC. 2. LAB. 4. Principles of landscape gardening applied to residential and small-scale commercial grounds. Includes plant identification and use, basic landscape design, and landscape installation and management concepts. Fall.

HORT 2240 PLANT PROPAGATION (3). LEC. 2. LAB. 3. Pr., or corequisite BIOL 1030 or departmental approval. Basic principles and practices involved in the propagation of horticulture plants.

HORT 2250 INTERIOR PLANTS AND FLOWER ARRANGING (3). LEC. 2. LAB. 2. Basic principles, practices and design with foliage plants and flowers in the interior setting.


HORT 3010 SMALL TREES, SHRUBS AND VINES (4). LEC. 2. LAB. 6. Pr. BIOL 1020 and BIOL 1030. Identification, culture and landscape use of small trees, shrubs and vines.

HORT 3220 ARBORICULTURE (4). LEC. 2. LAB. 6. Pr. BIOL 1030 or departmental approval. Identification, culture and use of ornamental trees in landscape plantings.

HORT 3280 LANDSCAPE CONSTRUCTION (3). LEC. 3. LAB. 4. Principles and practices used in the interpretation and implementation of landscape construction and planting plans. Summer.

HORT 3920 HORTICULTURE INTERNSHIP (4). LEC. 4. Pr. sophomore standing. Practical on-the-job training for selected commercial horticultural companies. Course may be repeated for a maximum of 4 credit hours.

HORT 3950 CAREERS IN HORTICULTURE (1). LEC. 1. Pr. sophomore standing. Current developments and career opportunities in horticulture.


HORT 4110 TREE FRUIT CULTURE (2). LEC. 2. Pr., HORT 3000 or departmental approval. Manipulation of growth and development of tree fruit crops by cultural methods. Summer.

HORT 4120 SMALL FRUIT AND PECAN CULTURE (3). LEC. 2. LAB. 2. Pr. BIOL 3100, BIOL 3101 or departmental approval. Principles and practices involved in the production and marketing of small fruits and pecans. Spring.

HORT 4130 SUSTAINABLE VEGETABLE CROP PRODUCTION (3). LEC. 2. LAB. 3. Pr., HORT 2030 and BIOL 3100, BIOL 3101 or departmental approval. Best management practices and quality of vegetable crops. Fall.

HORT 4140 POST-HARVEST BIOLOGY AND TECHNOLOGY (3). LEC. 2. LAB. 3. Pr., BIOL 3100, BIOL 3101, PLPA 3000 or departmental approval. Physiological changes occurring in fruits, vegetables and other horticultural products after harvest. Fall.

HORT 4150 RETAIL GARDEN CENTER MANAGEMENT (3). LEC. 3. LAB. 4. Pr., HORT 3210 or HORT 3220 or departmental approval. The following objectives will be covered: financing, location, design, stocking, selling, personnel management, advertising and maintaining plants. Summer.

HORT 4270 INTERMEDIATE LANDSCAPE DESIGN (3). LEC. 2. LAB. 6. Pr. HORT 3210 or HORT 4100. Human nature, art and technology and their influence on landscape design. Spring.


HORT 4930 DIRECTED STUDY (1-3). INT. Pr., departmental approval. Directed Studies related to research, teaching or outreach educational programs in Horticulture. Course may be repeated for a maximum of 3 credit hours.


HORT 6230 NURSERY MANAGEMENT (3). LEC. 2. LAB. 3. Pr., HORT 2240 and BIOL 3100 and BIOL 3101 or departmental approval. Factors affecting plant production. Environmental issues related to facilities design and pesticide and nutrient management. Fall.

HORT 7010 EXPERIMENTAL METHODS IN HORTICULTURE (4). LEC. 2. LAB. 4. Coreq., STAT 7000. Principles and methodologies of horticultural research, experimental design, preparation of project and grant proposals, and development of publication skills. Fall.

HORT 7040 ADVANCED GROWTH AND DEVELOPMENT OF HORTICULTURAL PLANTS (3). LEC. 3. Pr. HORT 3000 or BIOL 3100, BIOL 3101. Plant growth and development from seed germination, through maturity and senescence. Fall.

HORT 7050 NUTRITIONAL REQUIREMENTS OF HORTICULTURAL PLANTS (3). LEC. 3. LAB. 2. Pr., HORT 3000 or departmental approval. Nutritional requirements of horticulture crops and factors affecting these requirements. Summer.

HORT 7100 EXPERIMENTAL METHODS IN HORTICULTURE (4). LEC. 2. LAB. 4. Pr., BIOL 3100. Plant biotechnology, including plant tissue culture technologies and genetic transformation and applications to horticultural crop improvement. Spring.

HORT 7080 CURRENT CONCEPTS IN ENVIRONMENTAL PLANT STRESS (3). LEC. 4. Pr. HORT 3000 or departmental approval. Mechanisms related to adaptation of plants to environmental stresses. Spring.

HORT 7110 TREE FRUIT CULTURE (2). LEC. 2. Pr., HORT 3000 or departmental approval. Manipulation of growth and development of tree fruit crops by cultural methods. Summer.

HORT 7120 SMALL FRUIT AND PECAN CULTURE (3). LEC. 2. LAB. 2. Pr., BIOL 3100, BIOL 3101 or departmental approval. Principles and practices involved in the production and marketing of small fruits and pecans. Spring.

HORT 7130 SUSTAINABLE VEGETABLE CROP PRODUCTION (3). LEC. 2. LAB. 2. Pr., HORT 3000 or departmental approval. Advanced course in best management practices and quality of vegetable crops. Fall.

HORT 7140 POST-HARVEST BIOLOGY AND TECHNOLOGY (3). LEC. 2. LAB. 2. Pr., BIOL 3100, BIOL 3101, PLPA 3000. Physiological changes occurring in fruits, vegetables and other horticultural products after harvest. Fall.

HORT 7850 URBAN FORESTRY SEMINAR (1). LEC. 3. Presentation and discussion of research, scientific papers and issues related to urban forestry establishment, care and planning. Credit will not be given for HORT 7850 and FCVA 7850. Fall, Spring.

HORT 7850 SEMINAR (1). SEM. Graduate students are required to attend seminar all semester. Fall, Spring. Course may be repeated with change in topic.

HORT 7950 ADVANCED TOPICS 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.

HORT 7970 SPECIAL PROBLEMS IN HORTICULTURE (1-3). IND Conferences, problems and assigned readings in horticulture. Course may be repeated for a maximum of 3 credit hours.

HORT 7990 RESEARCH AND THESIS (1-10). MST Course may be repeated for a maximum of 10 credit hours.

HORT 8980 RESEARCH AND DISSERTATION (1-10). DSR Course may be repeated for a maximum of 10 credit hours.
Integrated Textile and Apparel Science (ITAS)

Dr. Carol Warfield - 844-4084
Dr. Peter Schwartz - 844-4123


ITAS 8950 INDUSTRY ISSUES SEMINAR (1). LEC. 1. Pr., departmental approval. Research presentations and discussions on issues facing the global textile industrial complex. Course may be repeated for a maximum of 1 credit hour.

ITAS 8960 CURRENT ISSUES IN INTEGRATED TEXTILE AND APPAREL SCIENCE (2). LEC. 2. Pr., departmental approval. Directed readings on current issues in the global textile industrial complex. Spring. Course may be repeated for a maximum of 2 credit hours.

ITAS 8970 ADVANCED TOPICS IN INTEGRATED TEXTILE AND APPAREL QUALITY CONTROL (3). LEC. 3. Pr., TXTN 2700, TXTN 3500 or CAHS 4650 or CAHS 7650 or departmental approval. Quality related topics integrated for textile and apparel operations. Spring.

ITAS 8990 RESEARCH AND DISSERTATION (1-10). DSR Pr., departmental approval. Course may be repeated for a maximum of 10 credit hours.

Industrial Design (INDD)

Prof. Clark Lundell - 844-2364

INDD 1120 INDUSTRIAL DESIGN IN MODERN SOCIETY (3). LEC. 3. Survey of the impact upon modern society of a review of methods, products, marketing, patents, education and career opportunities.

INDD 1310 SYNTHESIS OF DRAWING (10). LEC. 3,STU. 10. Pr., INDD 1120 or departmental approval. Developing mechanical and production design drawings, with in-depth study of perspective systems. Product design communication with an emphasis on presentation, rendering, and development. Fall.

INDD 1320 PROTOTYPE FABRICATION (3). LEC. 2,LAB. 2. Pr., INDD 1120 or departmental approval. Coreq., INDD 1310. Fabrication of three-dimensional models utilizing various materials and machineries. Includes model making, creative modeling, study models, presentation models, mock-ups and prototypes.


INDD 2130 PRESENTATION RENDERING (3). LEC. 2,LAB. 2. Pr., INDD 1310, INDD 1320. Coreq., INDD 2110. Concept development using drawing and rendering skills with different media for ideas communication and presentation.


INDD 2220 ANTHROPOMETRY (3). LEC. 3. Pr., INDD 2110 or departmental approval. Coreq., INDD 2210. Body measurements, movements and human capacity in relation to design with introduction to ergonomics and human physiology as it relates to design.

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 3210 PRODUCT DESIGN (5). LEC. 1,STU. 8. Pr., INDD 2120. 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. Coreq., INDD 3210. Characteristics and utility of materials such as plastic, metal and ceramics in manufacture and the study of machine/tool processes used by industry.


INDD 4110 ADVANCED PRODUCT DESIGN (5). LEC. 2,STU. 8. Pr., INDD 3120, INDD 3210. Design or redesign of products and systems of advanced complexity.

INDD 4120 PROFESSIONAL PORTFOLIO (3). LEC. 3. Pr., INDD 3110, INDD 3210. Design and development of a portfolio and promotional material presenting the student’s work to entry-level professional standards.

INDD 4210 INDUSTRIAL DESIGN THESIS (5). LEC. 2,STU. 8. Pr., INDD 4110. Product design projects involving all design phases, including planning, research, specification, development and documentation.

INDD 4220 PROFESSIONAL PRACTICE (3). LEC. 3. Pr., INDD 3110, INDD 3210. Business aspects of industrial design, including property, design contract, letters of agreement, business planning and design marketing.

INDD 6010 HISTORY OF INDUSTRIAL DESIGN II (3). LEC. 3. A survey of humankind'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 6970 SPECIAL PROBLEMS (2-5). LEC. Pr., INDD 2110, INDD 2210. Development of individual projects. Research, design and reports on approved topics. Course may be repeated for a maximum of 5 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 7120 PORTFOLIO (3). LEC. 3. Preparation of professional portfolio for graduation and employment.

INDD 7610 PRINCIPLES OF INDUSTRIAL DESIGN (3). LEC. 3. Detailed study of the communication principles of form qualities with emphasis of these aesthetic principles to the technical and human factors of artifacts.

INDD 7620 DESIGN MANAGEMENT (3). LEC. 3. Detailed study of the industrial design project management and development with emphasis on the international management concepts of research, product planning, production and marketing.

INDD 7630 HUMAN FACTORS IN DESIGN (3). LEC. 3. Theoretical and empirical examination of human factors (Anthropometrics, Biotechnology, Engineering Psychology, Behavioral Cybermetrics, Ergonomics) as applied to man-machine environmental systems.

INDD 7640 AESTHETICS IN DESIGN (3). LEC. 3. Aesthetics in the context of the designed environment encompassing: non-verbal communication; object language semiotics; gestalt and perception systems; information aesthetics and consumer product safety.

INDD 7650 DESIGN THEORIES (3). LEC. 3. Examination of design theories and philosophies related to technical artifacts in man-machine systems. Comparative studies of unifying theories in art, science, design, technology and the humanities.

INDD 7660 INDUSTRIAL DESIGN METHODOLOGY (3). LEC. 3. Industrial design methodologies and specific methods employed in research, analysis, synthesis andensive evaluation projects, and design development.

INDD 7670 SYSTEMS DESIGN (3). LEC. 3. Systems approach and interdisciplinary team work to design problems, inquires into details of sub-systems, components and parts, with emphasis on the relation of the performance of technical systems to optional human factor effects.

INDD 7790 NON-THESIS DFESIS (3). STU. 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.

INDD 7790 DESIGN THESIS (1-5). RES. Credit to be arranged. Course may be repeated for a maximum of 5 credit hours.

Industrial and Systems Engineering (INSY)

Dr. Alice Smith - 844-4340

INSY 3020 OCCUPATIONAL SAFETY AND 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 AND WORK MEASUREMENT LABORATORY (1). LAB. 3. Pr., STAT 3610. Coreq., INSY 3020. Classical industrial engineering and systems engineering procedures related to the design of efficient work methods. Analysis of the work measurement process and design of labor content assessment systems. Ergonomics considerations and applications.

INSY 3400 STOCHASTIC OPERATIONS RESEARCH (3). LEC. 3. Pr., COMP 1200, MATH 2660, STAT 3600. Modeling and analysis of decision-making and operations subject to randomness including decision analysis, stochastic dynamic programming, Markov chains, and queuing theory.

INSY 3410 DETERMINISTIC OPERATIONS RESEARCH (3). LEC. 2,LAB. 3. Pr., COMP 1200, MATH 2660. Formulation, solution, interpretation, and
implementation of mathematical models in operations research including linear programming, integer programming and network flows.

INSY 6200 SIMULATION (3). LEC. 2, LAB. 1, PR. COMP 3000, STAT 3610, INSY 3400. Simulation procedures for solving complex systems analysis problems. Emphasis on random processes, model building and construction of computer simulation models.

INSY 3600 ENGINEERING ECONOMY (3). LEC. 3. PR. MATH 2630, COMP 1200. Emphasizes economic analysis and justification of major projects. Prerequisites: elementary calculus, probability and statistics.

INSY 3700 OPERATIONS PLANNING AND CONTROL (3). LEC. 2, LAB. 3. PR. STAT 3610, INSY 3410, INSY 3600. Analytical methods for operations planning and control, including forecasting systems, production planning, inventory control systems, scheduling systems and project management.


INSY 4800 SENIOR DESIGN (3). LEC. 3. PR. 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 4970 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-5). LEC. PR. Departmental approval. Special topics in Industrial and Systems Engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 5 credit hours.

INSY 4980 INDUSTRIAL AND SYSTEMS ENGINEERING PROBLEMS (1-5). IND. PR. Departmental approval. 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.

INSY 4997 HONORS THESIS (1-6). IND. PR. Membership in the Honors College; INSY major; departmental approval. Individual student endeavor consisting of direct research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

INSY 6010/6016 LEAN PRODUCTION (3). LEC. 3. PR. INSY 3020. Examination of the practical aspects of lean production, kanban, jizai, value stream mapping and related methodologies. Emphasis is placed on biometric modeling, manual materials handling, tool design, and repetitive motion trauma.

INSY 6240/6246 PRODUCTION AND INVENTORY CONTROL SYSTEMS (3). LEC. 3. PR. INSY 3700. Continues the emphasis on the assembly and analysis of production systems. Facility location models and their relationship to strategic organization goals. Prerequisites: basic operations research, mathematical statistics.

INSY 6250/6256 SCHEDULING AND PROJECT MANAGEMENT (3). LEC. 3. PR. INSY 3700. Continues the emphasis on the assembly and analysis of production systems. Facility location models and their relationship to strategic organization goals. Prerequisites: basic operations research, mathematical statistics.

INSY 6380/6386 RELIABILITY ENGINEERING (3). LEC. 3. PR. STAT 3610 and senior standing. Emphasis on reliability analysis of complex systems, with special emphasis on statistical modeling and life testing.

INSY 6470/6476 SEARCH METHODS FOR OPTIMIZATION (3). LEC. 3. PR. MATH 2660, INSY 3410. Single and multivariate search techniques and strategies that are used in finding the optimum of discrete and continuous functions.

INSY 6500/6506 MANUFACTURING AND PRODUCTION ECONOMIES (3). LEC. 3. PR. INSY 3600. Continuation of INSY 3600. Emphasis on design economics and cost estimating techniques and applications to various manufacturing and service operations.

INSY 6800/6806 LEAN PRODUCTION (3). LEC. 3. PR. INSY 4700, INSY 6230, INSY 7400. Examination of production systems design based on a strategy of linked cells providing a continuous flow of materials. Evaluation strategies and analysis tools are studied.

INSY 6940 INDUSTRIAL AND SYSTEMS ENGINEERING PROBLEMS (1-5). IND. PR. Departmental approval. Individual student endeavor under staff supervision involving special problems of an advanced undergraduate or graduate nature pertinent to industrial and systems engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 5 credit hours.

INSY 6990 RESEARCH AND DISSERTATION (1-10). DIR. PR. Departmental approval. Course may be repeated for a maximum of 10 credit hours.
Mathematics (MATH)

Dr. Ulrich Albrecht - 844-4290

MATH 1000 COLLEGE ALGEBRA (3).LEC. 3. Pr., high school geometry and second-year high school algebra. Fundamental concepts of algebra, equations and inequalities, functions and graphs, polynomial and rational functions. Does not satisfy the core requirement in mathematics.


MATH 1150 PRE-CALCULUS ALGEBRA AND TRIGONOMETRY (4).LEC, 3, RCT. 2. Pr., high school geometry and second year high school algebra. Students are Pr., further required either to have an appropriate score on the mathematics Pr., placement exam or to have passed MATH 1000 with a ‘C’ or better. Mathematics Core. Algebraic functions, Exponential, Logarithmic functions. Analytic and geometric properties of trigonometric functions.

MATH 1610 CALCULUS I (4).LEC, 3, RCT. 2. Pr., MATH 1600. Mathematics Core. Limits, the derivative of algebraic, trigonometric, exponential, logarithmic functions. Applications of the derivative, antiderivatives, the definite integral and applications of the fundamental theorem of calculus. Credit will not be given for both MATH 1610 and MATH 1680. Students will receive credit for only one of MATH 1610, MATH 1617, or MATH 1710.

MATH 1617 HONORS CALCULUS I (4).LEC. 4. Pr., membership in the Honors College, MATH 1600. 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.

MATH 1620 CALCULUS II (4).LEC. 4. Pr., MATH 1610. 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 1626, MATH 1627 or MATH 1720.

MATH 1680 CALCULUS WITH BUSINESS APPLICATIONS I (4).LEC, 3, RCT. 2. Pr., high school geometry and second-year high school algebra. For students in the Pr., College of Business or by departmental approval. Mathematics Core. Calculus (derivatives, integrals, fundamental theorem) focused on business applications with introductory material on algebra (including exponential and logarithmic functions). Credit will not be given for both MATH 1680 and MATH 1610, or MATH 1617 or MATH 1710. Credit will not be given for majors in Engineering or Math or Physics.

MATH 1690 CALCULUS WITH BUSINESS APPLICATIONS II (3).LEC, 3. Pr., MATH 1680 or MATH 1610. For students in the College of Business, or by Pr., departmental approval. 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 for MATH 1690 and MATH 1620, or MATH 1627 or MATH 1720. Credit will not be given for majors in Engineering or Math or Physics.

MATH 1710 CALCULUS FOR ENGINEERING AND SCIENCE I (4).LEC. 4. Pr., MATH 1600. Mathematics Core. Vector algebra, real and vector valued functions, 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. Mathematics Core. MATH 1710 may be substituted for MATH 1610 and MATH 1720 may be substituted for MATH 1620. However, for MATH 1710 is not a sufficient prerequisite for MATH 1620, and students who pass MATH 1710 and wish to take MATH 1620, must take MATH 1610. Credit will be given for only one of MATH 1610, MATH 1617, or MATH 1710. Credit will not be given for majors in Engineering or Math or Physics.

MATH 1720 CALCULUS FOR ENGINEERING AND SCIENCE II (4).LEC. 4. Pr., MATH 1710. Exponents and logarithms, separation of variables, L'Hospital'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 2620. 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., membership in the Honors College, MATH 1627. 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.

MATH 2650 LINEAR DIFFERENTIAL EQUATIONS (3).LEC. 3. Coreq., MATH 2630. First and second order linear differential equations including the solutions by infinite series, applications.


MATH 2730 CALCULUS FOR ENGINEERING AND SCIENCE III (4).LEC. 4, Pr., MATH 1720. Optimization and Lagrange multipliers. Linear, spherical, cylindrical, and polar transformations. Surface integrals and integrals over solids. Divergence, Stokes' Theorem, Gauss' Theorem. Credit will be given for only one of MATH 2730, MATH 2630, or MATH 2637.
MATH 2850 MATHEMATICS FOR ELEMENTARY EDUCATION I (3). LEC. 3. Pr., MATH 1130 or higher. Elementary Education majors or departmental approval. Mathematical insights for elementary school teachers. Sets, the structure of the number system (integers, fraction, decimals).

MATH 2860 MATHEMATICS FOR ELEMENTARY EDUCATION II (3). LEC. 3. Pr., MATH 2850. Elementary Education majors or departmental approval. Mathematical insights for elementary school teachers. Probability, informal geometry, measurements.

MATH 3010 HISTORY OF MATHEMATICS (3). LEC. 3. Pr., MATH 1620 or departmental approval. 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.

MATH 3100 INTRODUCTION TO ADVANCED MATHEMATICS (3). LEC. 3. Pr., MATH 2630. Teaching of the fundamental abilities necessary for the pursuance of mathematical studies. Logic and set theory, mathematical induction, basic number theory, basic analysis.

MATH 4970 SPECIAL PROBLEMS (1-4). LEC. Pr., departmental approval, junior standing. An individual problem 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.

MATH 4997 HONORS THESIS (1-6). IND. Pr., membership in the Honors College and senior standing. May be repeated for a maximum of 6 credit hours.

MATH 6000 MATHEMATICAL MODELING: CONTINUOUS (3). LEC. 3. Pr., MATH 2650, MATH 2660 and programming ability. Applications of mathematical models and related techniques. Includes general principles involving continuous deterministic problems and a detailed, specified term-project.

MATH 6010 VECTOR CALCULUS (3). LEC. 3. Pr., MATH 2630 and MATH 2660 or departmental approval. Vector-valued functions, vector fields, Gradient, divergence, curl. Integral theorems: Green’s Theorem, Stoke’s Theorem, Gauss’s Theorem. Tensors and differential forms. Applications.

MATH 6030/6036 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 6040 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 6030-6040 are appropriate for students of engineering or science.


MATH 6060 ELEMENTARY PARTIAL DIFFERENTIAL EQUATIONS I (3). LEC. 3. Pr., MATH 2650. First and second order linear partial differential equations with emphasis on the method of eigenfunction expansions.

MATH 6130 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 6180 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 6200 ANALYSIS I (3). LEC. 3. Pr., MATH 3100 or analogous course subject to departmental approval. The real number system, theorems concerning number sets, sequences, graphs of functions.

MATH 6210 ANALYSIS II (3). LEC. 3. Pr., MATH 6200. 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 6280 SYSTEMS OF DIFFERENTIAL EQUATIONS AND APPLICATIONS (3). LEC. 3. Pr., MATH 2650, 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 6310 INTRODUCTION TO ABSTRACT ALGEBRA I (3). LEC. 3. Pr., MATH 3100 or departmental approval. Groups, Groups of Permutations, isomorphisms and homomorphisms; Cyclic Groups, Quotient Groups, The Fundamental Homomorphism Theorem.

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, Galois Theory.


MATH 6380 INTERMEDIATE EUCLIDEAN GEOMETRY I (3). LEC. 3. Pr., MATH 2630. 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 similitudes, path, arcs and length of curves, advanced theorems on the circle.

MATH 6470 DYNAMICAL SYSTEMS I (3). LEC. 3. Pr., MATH 2650. One dimensional dynamics. The logistic equation, bifurcation theory, chaos, hyperbolicity, symbolic dynamics, Sarkovskii’s Theorem, maps of the circle, homoclinic points and the theory of kneading sequences.


MATH 6500 INTRODUCTION TO TOPOLOGY (3). LEC. 3. Pr., MATH 3100 or departmental approval. Metric spaces, topological spaces, continuity, compactness, connectedness, product and quotient spaces and local properties.


MATH 6640/6646 INTRODUCTION TO NUMERICAL ANALYSIS II (3). LEC. 3. Pr., MATH 6630, programming ability. Numerical solutions of systems of linear equations, numerical computation of eigenvalues and eigenvectors, error analysis. Written programs using the algorithms.

MATH 6650 THEORY OF NONLINEAR OPTIMIZATION (3). LEC. 3. Pr., MATH 2650 and 2660. Kuhn-Tucker conditions, quadratic programming, search methods and gradient methods, Lagrangean and penalty function methods.


MATH 6690 INTRODUCTION TO CHAOTIC AND RANDOM PHENOMENA (3). LEC. 3. Pr., MATH 1620. Coreq., basic programming. Stochastic properties of random phenomena in computational complexity, data analysis, chaotic nonlinear systems, Computer simulation and experimenting within Mathematica, supported by Internet resources. Credit will not be given for both MATH 6690 and STAT 6690.


MATH 6850 NUMERICAL ANALYSIS FOR SECONDARY TEACHERS (3). LEC. 3. Pr., MATH 2630 and computer familiarity. The numerical solutions of selected problems arising in calculus and algebra along with the programming techniques.

MATH 6880 FOUNDATIONS OF NON-EUCLIDEAN GEOMETRY FOR SECONDARY SCHOOL TEACHERS (3). LEC. 3. Pr., MATH 2630. B.L. geometry, hyperbolic geometry, absolute geometry, parallel postulates.

MATH 6970 SPECIAL TOPICS (1-3). IND. Pr., departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 3 credit hours.


MATH 7040/7046 APPROXIMATION THEORY I
Techniques 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.


MATH 7100 SPECIAL FUNCTIONS (3). LEC. 3. Pr., departmental approval. Special functions from classical complex analysis which play an important role in the mathematics of physics, chemistry and engineering.

MATH 7110 DISCRETE GEOMETRY AND CONVEXITY I (3). LEC. 3. Pr., MATH 6380 and MATH 6390 or departmental approval. Geometric objects and configurations with discrete symmetry groups. Regular polygons and polyhedra. Regular arrangements. Plane tilings and patterns.


MATH 7150 AXIOMATIC SET THEORY I (3). LEC. 3. Pr., departmental approval. Introduction to modern set theory. The axioms of ZFC, ordinals and cardinals, closed unbounded sets, the constructible universe L, Martin's Axiom.

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 7200 REAL ANALYSIS I (3). LEC. 3. Pr., departmental approval. 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.


MATH 7230 FUNCTIONS OF A COMPLEX VARIABLE I (3). LEC. 3. Pr., departmental approval. Complex numbers, analytic functions, derivatives, Cauchy integral formula and formulae, Taylor and Laurent series, analytic continuation, residues, Cauchy's theorem, Cauchy's integral formula, series, maximum modulus principle, conformal mappings, elementary properties of analytic functions.


MATH 7280 ADVANCED THEORY OF ORDINARY DIFFERENTIAL EQUATIONS I (3). LEC. 3. Pr., departmental approval. Existence and uniqueness theorems for ordinary differential equations, continuation and differentiability with respect to initial conditions, linear systems, differential inequalities, Sturm theory.


MATH 7310 ALGEBRA I (3). LEC. 3. Pr., MATH 6320 or departmental approval. 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.

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.

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 Abelian groups, Torsion-free groups: Completely decomposable groups, Butler groups, p-local groups, Warfield groups,Enlargeable. Homological topics.

MATH 7370 MATRICES I (3). LEC. 3. Pr., MATH 6370 or departmental approval. Jordan form, functions of a matrix, spectral theorem, singular values, norms, quadratic forms, field of values, enertia; topics of current interest.

MATH 7390 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 7440 PARTIAL DIFFERENTIAL EQUATIONS I (3). LEC. 3. Pr., departmental approval. 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.

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. Pr., MATH 6210 or 6500 or departmental approval. Separation and countability axioms, covering properties, completeness, connectedness, metric spaces and metrizability, product and quotient spaces, function spaces.

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 or departmental approval. Topological study of dimension in separable metric spaces. Topological invariance of dimension of Euclidean spaces. Dimension and measure.

MATH 7530 CONTINUUM THEORY I (3). LEC. 3. Pr., MATH 7510 or departmental approval. Topics such as inverse limits, decompositions, hyperspaces, special mappings, topological structures from the pathological (indecomposable continua), to the straightforward (Peano continua).

MATH 7540 CONTINUUM THEORY II (3). LEC. 3. Pr., MATH 7530. Topics in inverse limit theory such as continuum mappings, chains, to-the-boundary theorems, relationship to inverse limits, advanced topics.

MATH 7550 SET THEORETIC TOPOLOGY I (3). LEC. 3. Pr., MATH 7510 or departmental approval. Compactifications, covering properties, metrization theorems and generalized metrizable spaces, topological groups.

MATH 7560 SET THEORETIC TOPOLOGY II (3). LEC. 3. Pr., MATH 7550. Topological groups, Cauchy complete metric spaces, 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. Pr., MATH 6640 or departmental approval. Topics selected from: discretization matrices, sparse matrices, QR-algorithm, symmetric eigenvalue problems, singular value decomposition, pseudo-inverses, simplex method, matrix algorithms for vector computers.

MATH 7610/7616 NUMERICAL SOLUTION OF PARTIAL DIFFERENTIAL EQUATIONS (3). LEC. 3. Pr., MATH 6640 or departmental approval. The numerical solution of partial differential equations using finite difference and finite element methods.

MATH 7620 OPTIMIZATION THEORY (3). LEC. 3. Pr., MATH 6640 and an ability to program in a high-level language. 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 INSYS 8420.

MATH 7650 HARMONIC ANALYSIS I (3). LEC. 3. Pr., MATH 7210 or departmental approval. Fourier series, Fourier transforms, maximal functions, singular integral theory, introduction to function spaces.
MECH 6200. Theoretical presentation of the fundamental principles of deformation and failure in materials systems.

MECH 7110 and 7115 with permission of instructor. Processing, structure-property relationships in metals and alloys, with examples from joining processes.

MECH 7120/7126 ADVANCED CERAMIC MATERIALS (3). LEC. 3. Pr., MECH 6200 or departmental approval. Processing, structure-property relationships and applications of advanced ceramics. Structural and functional applications of ceramics.

MECH 7130/7135 ADVANCED POLYMER SCIENCE AND TECHNOLOGY (3). LEC. 3. Pr., MECH 6100 or departmental approval. Recent developments in both functional and structural polymers including approaches to synthesis, processing techniques, high-strength materials, electronic polymers, optical polymers, and medical polymers.

MECH 7140/7146 ADVANCED COMPOSITE MATERIALS (3). LEC. 3. Pr., MECH 7050 or departmental approval. 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.

MECH 7210/7216 PLASTIC DEFORMATION AND STRENGTHENING OF METALLIC MATERIALS (3). LEC. 3. Pr., MECH 7050 or departmental approval. Mechanisms of plastic deformation and strengthening in metals and alloys. The role of dislocations in plastic deformation.

MECH 7220 RADIATION EFFECTS ON MATERIALS (3). LEC. 3. Pr., MECH 6400 or departmental approval. Theoretical and experimental treatment of the radiation effects and damage in materials as related to the nuclear industry.

MECH 7230/7236 HIGH TEMPERATURE MATERIALS PERFORMANCE (3). LEC. 3. Pr., MECH 6500 or departmental approval. Theoretical and experimental treatment of the behavior of metals at high temperatures.

MECH 7310/7316 SOLIDIFICATION PROCESSING (3). LEC. 3. Pr., MECH 6300 or departmental approval. Theoretical science and engineering principles that apply to semiconductor crystal growth, ingot solidification, metal casting, welding, and rapid solidification processes.

MECH 7230/7236 THIN FILM SCIENCE AND TECHNOLOGY (3). LEC. 3. Pr., MECH 6300 or departmental approval. Structure, properties, characterization, processing and application of thin films.


MECH 7420/7426 SMART MATERIALS AND STRUCTURES (3). LEC. 3. Pr., MECH 7050 or departmental approval. An introduction to the principles and applications of various sensors, actuator and functionality smart material systems and structures.

MECH 7510/7516 ELECTRON MICROSCOPY (4). LEC. 3. LAB. 3. Pr., MECH 6200 or departmental approval. Theory, instrumentation, techniques and applications of scanning and transmission electron microscopy.

MECH 7950 MATERIALS ENGINEERING SEMINAR (1-5). LEC. 1-5. Pr., MECH 7050 or departmental approval. Special design project report directed by major faculty. Topics to be determined by the student's graduate committee. Course may be repeated for a maximum of 6 credit hours.

MECH 7960/7966 DIRECTED READINGS IN MATERIALS ENGINEERING (1-6). IND. Pr., departmental approval. May be taken more than one semester. Up to 6 hours may count toward the minimum degree requirements. Course may be repeated for a maximum of 15 credit hours.

MECH 7970/7976 SPECIAL TOPICS IN MATERIALS ENGINEERING (1-3). LEC. Pr., departmental approval. Special courses taught by faculty from Auburn University or by faculty from the University of Alabama System via interactive television. Course may be repeated with change in topic.

MECH 7980 MASTER MATERIALS ENGINEERING PROJECT (1-6). LEC. Special application project report directed by major faculty. Topics to be determined by the student's graduate committee. Course may be repeated for a maximum of 6 credit hours.

MECH 7990 RESEARCH AND THESIS (1-15). MIST. Course may be repeated for a maximum of 15 credit hours.

MECH 8990 RESEARCH AND DISSERTATION (1-15). DSR. Course may be repeated for a maximum of 15 credit hours.

MECHANICAL ENGINEERING (MECH)


MECH 3030 FLUID MECHANICS (3). LEC. 3. Pr., MECH 2110, ENGR 2100, MATH 2650. Coreq., MECH 3130. Fluid properties; fluid statics; mass conservation; momentum balance; external and internal flows; Euler and Bernoulli equations; dimensional analysis viscous flows; boundary layers; compressible flow.


MECH 3140 SYSTEM DYNAMICS AND CONTROLS (3). LEC. 3. Pr., MECH 2120, MECH 3030, MATH 2650. System dynamics and automatic control theory.

MECH 3220 COMPUTER-AIDED ENGINEERING (3). LEC. 2. LAB. 3. Pr., ENGR 1110, COMP 1200, MATH 2650, MATH 2660. The computer as a tool in mechanical engineering.

MECH 3230 MACHINE DESIGN (3). LEC. 3. Pr., MECH 2210, MECH 3130, MECH 3240. Design of systems, parts and components, including mechanical systems, balancing, and optimization of mechanical equipment commonly found in industrial operations.

MECH 4130 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 4250 COMPREHENSIVE DESIGN II (2). LEC. 1. LAB. 3. Pr., MECH 3230 Coreq., MECH 3040, MECH 3050, MECH 3140, INSY 3600. Capstone engineering design course based on a design project similar to those encountered by the engineer in industry involving thermal and mechanical design.

MECH 4250 COMPREHENSIVE DESIGN II (2). LEC. 1. LAB. 3. Pr., MECH 4240, MECH 3050, MECH 3140, INSY 3600. Continuation of MECH 4240. Detailed design, fabrication, communication, and presentation of a prototype machine for an industrial sponsor.

MECH 4300 MECHANICAL EQUIPMENT ENGINEERING (3). LEC. 3. Pr., MECH 2210, MECH 3220. Design and analysis of various systems and components, including combustion engines, turbomachinery and drivetrain.

MECH 4420 VEHICLE DYNAMICS (3). LEC. 3. Pr., MECH 2120. Introduction to the basic mechanics governing vehicle performance, including analytical methods and terminology.

MECH 4440 NAVAL ARCHITECTURE (3). LEC. 3. Pr., MECH 3030 or AER0 1110 or CHEN 2610 or ENGR 2200. Basic engineering of seagoing vehicles. Hydrostatics and stability; ship structures; resistance and propulsion; maneuvering and seakeeping. Exercises using professional software.

MECH 4450 INDUSTRIAL AND ENVIRONMENTAL NOISE CONTROL (3). LEC. 3. Pr., MECH 3040, MECH 3230. Theoretical, design and application issues in internal combustion engine-driven powertrainers, including combustion, engines, turbomachinery and drivetrain.

MECH 4470 ON-HANDS NOISE CONTROL (3). LEC. 3. Pr., MECH 3040, MECH 3230. Theoretical, design and application issues in internal combustion engine-driven powertrainers, including combustion, engines, turbomachinery and drivetrain.

MECH 4510 INDUSTRIAL AND ENVIRONMENTAL NOISE CONTROL (3). LEC. 3. Pr., MECH 3040, MECH 3230. Theoretical, design and application issues in internal combustion engine-driven powertrainers, including combustion, engines, turbomachinery and drivetrain.


MECH 4930 DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3). IND. Pr., department approval. Individual or small group study of a specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.

MECH 4970 SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3). LEC. Pr., departmental approval. 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.

MECH 4997 HONORS THESIS (1-6). IND. Pr., membership in the Honors College; MECH major; departmental approval. Individual student directed
research and writing of an honors thesis. Course may be repeated for a maximum of 6 credit hours.

MECH 6100/6106 COMPRESSIBLE FLUID FLOW (3) LEC. 3. Pr., 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 6110 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 desiring a fundamental coverage of advanced theory but whose primary research interest may lie elsewhere.


MECH 6300/6306 ADVANCED MECHANICS OF MATERIALS (3) LEC. 3. Pr., MECH 3130. 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 6390/6396 FUNDAMENTALS OF THE FINITE ELEMENT METHOD (3) LEC. 2. LAB. 3. Pr., MECH 3030, MECH 3130, MATH 2630. Introduction to the fundamentals of the finite element method.

MECH 6410/6416 DYNAMICS OF ROTATING MACHINERY (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 6430/6436 BASICS OF SENSOR APPLICATIONS (3) LEC. 3. Pr., MECH 3140. Basic concepts, fabrication and operation of micro machined sensors, capacitive, piezoresistive, piezoelectric, and fiber-optic sensors.


MECH 6510/6516 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 6610 MECHANICAL VIBRATION (3) LEC. 3. Pr., MECH 2120, MATH 2650, MATH 2660. Modeling of lumped dynamic systems, free and forced vibration of single degree of freedom systems, response to arbitrary excitation, analysis of systems with two degrees of freedom.


MECH 6710/6716 KINEMATICS AND DYNAMICS OF ROBOTS (3) LEC. 3. Pr., MECH 3140. Basic concepts in robotics such as kinematics analysis, coordinate transformation, Lagrange and Newton Euler equations of motion.


MECH 6810 MECHATRONICS (3) LEC. 3. Pr., MECH 2120, ELEC 3810. Introduction to the integration of mechanism, sensors, controllers and actuators for machines and design of automatic machinery.

MECH 6820/6826 INTRODUCTION TO OPTIMAL SYSTEMS (3) LEC. 3. Pr., senior standing. 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. Pr., departmental approval. 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.

MECH 6970/6976 INTERMEDIATE SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) LEC. Pr., departmental approval. 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.

MECH 7010/7016 ADVANCED THERMODYNAMICS (3) LEC. 3. Pr., MECH 3040. Critical and statistical treatment of the laws and properties of thermodynamic systems; applications.
MILS 1010 INTRODUCTION TO ARMY ROTC I (1). LEC. 1. Coreq., MILS 1011. Introduction to the Reserve Officer Training Corps and the U.S. Army.

MILS 1011 INTRODUCTION TO ARMY ROTC I LAB (1). LAB. 3. Coreq., MILS 1010. Introduction to the Reserve Officer Training Corps and the U.S. Army.

MILS 1020 INTRODUCTION TO ARMY ROTC II (1). LEC. 1. Coreq., MILS 1021. Introduction to the Reserve Officer Training Corps and the U.S. Army.

MILS 1021 INTRODUCTION TO ARMY ROTC II LAB (1). LAB. 3. Coreq., MILS 1020. Introduction to the Reserve Officer Training Corps and the U.S. Army.

MILS 2010 SELF/TEAM DEVELOPMENT (1). LEC. 1. Coreq., MILS 2011. Learn and apply ethics-based leadership skills that develop individual attributes and contribute to effective team building.

MILS 2011 SELF/TEAM DEVELOPMENT LABORATORY (1). LAB. 2. Coreq., MILS 2010. Learn and apply ethics-based leadership skills that develop individual attributes and contribute to effective team building.


MILS 3010 LEADING SMALL ORGANIZATIONS I (2). LEC. 2. Pr., MILS 3011. Admittance into the Advanced Course of Army ROTC. Coreq., MILS 3011. Introduction to squad level planning and operations.

MILS 3011 LEADING SMALL ORGANIZATIONS I LAB (1). LAB. 4. Pr., MILS 3010. Practical application of the foundational skills of small unit leadership.


MILS 4040 THE ARMY PROFESSION (0). LEC. 1. Pr., completion of Army ROTC Advanced Course or Early Commissioning Program. U.S. Army current trends and affairs. Army policies and programs.

Marketing (MKTG)

Dr. Rajan Natarajan - 844-4035

A 2.0 GPA is required for enrollment in any Business course at the 3000-level or above. This rule applies to Business and non-Business students.

MKTG 3310 PRINCIPLES OF MARKETING (3). LEC. 3. Pr., 2.0 GPA, junior standing, ECON 2020. 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., 2.0 GPA, grade of C or better in MKTG 3310. Analysis of the buying process as it is affected by environmental and institutional forces.

MKTG 3710 INTRODUCTION TO LOGISTICS (3). LEC. 3. Pr., 2.0 GPA, junior standing. Coreq., MKTG 3310. Logistics activities and their interrelationships in the management of the materials supply and distribution process.

MKTG 3720 PRINCIPLES OF TRANSPORTATION (3). LEC. 3. Pr., 2.0 GPA, ECON 2020. The study of transportation systems and their role in domestic and international trade.

MKTG 3850 QUANTITATIVE ANALYSIS IN MARKETING (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3310. Examination of promotional marketing objectives, strategies, and tactics.

MKTG 4320 PROMOTION STRATEGY (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3310. Examination of promotional marketing strategies, objectives, and tactics.

MKTG 4330 RETAIL MANAGEMENT (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3310. Principles of retail operation: facility location, layout, purchasing, pricing, and merchandising.

MKTG 4340 PURCHASING (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3310. Examination of purchasing and related activities of shippers and carriers.

MKTG 4350 SERVICES MARKETING (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3310. Examination of marketing in service industries and implementation of service marketing strategies. Credit will not be given for both MKTG 4350 and MKTG 7425.

MKTG 4370 MARKETING RESEARCH (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3310, MKTG 3410 and STAT 2610. Research methods in marketing and its application to marketing problems.

MKTG 4370 SALES MANAGEMENT (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3310. Principles and practices of organization and administration of sales organizations.

MKTG 4380 MARKETING CHANNEL SYSTEMS (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3310. Designing channel objectives, constraints, alternatives, motivating, evaluating, and controlling channel members.

MKTG 4390 PERSONAL SELLING (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3310. Selling strategy as an interdisciplinary business activity.

MKTG 4400 INTERNATIONAL MARKETING (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3310. Strategy, policy and the variables affecting international marketing decisions.

MKTG 4500 MARKETING ON THE INTERNET (3). LEC. 3. Pr., 2.0 GPA grade of C or better in MKTG 3310. Coreq., BUS 3010. Credit will not be given for both MKTG 4500 and MKTG 7500.

MKTG 4600 GREEN MARKETING (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3310. Marketing viewed from an environmental protection perspective and resulting green market strategies.

MKTG 4770 SUPPLY CHAIN MANAGEMENT (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3310 and MKTG 3710. Problems and analysis in the design and management of the retail, industrial and service supply chain.

MKTG 4780 TRANSPORTATION MANAGEMENT IN THE SUPPLY CHAIN (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3720. Strategies for managers involved in the transportation industry covering the perspectives of both shippers and carriers.

MKTG 4800 INTERNATIONAL SUPPLY CHAIN MANAGEMENT (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3710. International aspects of managing the flow of product and its accompanying information around the world.
MKTG 4880 LOGISTICS DECISION MAKING (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3710, College of Business Information Pr., Technology requirements. Managerially-applied course utilizing data analysis packages and logistics software applications for logistics decision-making.

MKTG 4890 INTERMODAL DISTRIBUTION (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3710. The management of intermodal distribution and intermodal marketing operations.

MKTG 4900 SPECIAL PROBLEMS IN MARKETING (3). IND. 3. Pr., 2.0 GPA, senior standing, departmental approval. Advanced research, reading and study in the areas of marketing and/or logistics.

MKTG 4920 MARKETING STUDENT INTERNSHIP PROGRAM (3). INT. 3. Pr., 2.0 GPA, MKTG 3310, selection by departmental Marketing Intern Program Pr., Committee. Work experience in a marketing or marketing-related business, industry or organization. May be repeated for a maximum of 3 credit hours.

MKTG 4930 LOGISTICS STUDENT INTERNSHIP PROGRAM (3). INT. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3710, MKTG 3720, approval of the Pr., Interns Intern Program committee. Work experience in logistics or logistics-related business, industry or organization. Course may be repeated for a maximum of 3 credit hours.

MKTG 4950 LOGISTICS IN SERVICE INDUSTRIES (3). LEC. 3. Pr., 2.0 GPA, grade of C or better in MKTG 3710. The management of logistics processes in the retail, banking and communications industries.

MKTG 4980 MARKETING STRATEGY (3). LEC. 3. Pr., 2.0 GPA grade of C or better in MKTG 3710, 4360 and in 6 hours of marketing Pr., electives. Strategic perspectives of marketing in different competitive environments across organizational levels.

MKTG 4997 HONORS THESIS (1-3). IND. Pr., membership in the Honors College; 2.0 GPA, departmental approval. Provides honors 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.

MKTG 6940 INTERNATIONAL MARKETING ABDROAD PROGRAM (3-6). FLD. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

MKTG 6970/6976 SPECIAL STUDIES IN MARKETING AND LOGISTICS (3). LEC. 3. Pr., departmental approval. Variable content in the marketing and logistics area. 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 departmental approval. The influence of the social and political economic environment on business operations.

MKTG 7310/7316 MARKETING MANAGEMENT (3). LEC. 3. Pr., BUSI 7110, BUSI 7120 or 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 departmental approval. Managerial perspective of the marketing communication process.

MKTG 7350/7356 SERVICES MARKETING (3). LEC. 3. Pr., MKTG 3310 or departmental approval. Examination of marketing in service industries and implementation of service marketing strategies. Credit will not be given for both MKTG 7350 and MKTG 4350.

MKTG 7350/7356 MARKETING RESEARCH: METHODOLOGY AND APPLICATIONS (3). LEC. 3. Pr., MKTG 6040, MKTG 3310 or departmental approval. Marketing research design, implementation and data analysis for marketing managers.

MKTG 7370/7375 SALES MANAGEMENT (3). LEC. 3. Pr., MKTG 3310 or departmental approval. In-depth study of sales management strategy and tactics.

MKTG 7390/7396 DATA BASE, DIRECT MARKETING AND SALES PROMOTION (3). LEC. 3. Pr., MKTG 3310 or 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 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 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, College of Business Information Technology requirement. Ethical and strategic use of electronic media and the Internet for marketing communications and strategies. Credit will not be given for both MKTG 7500 and MKTG 4500.

MKTG 7600/7606 ENVIRONMENTALLY CONSCIOUS MARKETING MANAGEMENT (3). LEC. 3. Pr., STAT 2610, MKTG 3310 or departmental approval. Advanced marketing strategies with an environmental focus.

MKTG 7710/7716 SUPPLY CHAIN MANAGEMENT (3). LEC. 3. Pr., MKTG 3310 or departmental approval. Analysis of major logistics elements within the total supply chain management.

MKTG 7720/7726 NEW PRODUCTS DEVELOPMENT AND MANAGEMENT (3). LEC. 3. Pr., MKTG 3310 or departmental approval. Marketing in the process of developing innovative products and services.

MKTG 7990 RESEARCH AND THESIS (1-10). MIST. Pr., departmental approval. Course may be repeated for a maximum of 10 credit hours.

Management (MNGT)

MNGT 3030 REAL-WORLD DECISION MAKING (3). LEC. 3. Pr., sophomore standing, 2.2 GPA. In-depth study of technical and non-technical forces that influence the decision-making process in real-world companies by use of case studies.

MNGT 3040 BUSINESS TELECOMMUNICATIONS MANAGEMENT (3). LEC. 3. Pr., MKTG 3140; junior standing, 2.2 GPA. Voice communications and technology and data communications (LAN, WAN, Internet broadband), networks, protocols, standards, legislation and project development and management.


MNGT 3080 ADVANCED PROGRAMMING AND COMPUTER APPLICATIONS (3). LEC. 3. Pr., MKTG 3070, junior standing, 2.2 GPA. Visual and object-oriented business programming languages are introduced and explored.

MNGT 3090 ANALYSIS AND DESIGN OF BUSINESS INFORMATION SYSTEMS (3). LEC. 3. Pr., MKTG 3070 (with a “C” or better); 2.2 GPA or higher. General systems techniques, development methodologies, database considerations, project planning and control, system integration.

MNGT 3100 PRINCIPLES OF MANAGEMENT (3). LEC. 3. Pr., 2.0 GPA. Management functions and the applications of management principles in organizations.

MNGT 3140 OPERATIONS, INFORMATION TECHNOLOGY AND COMPETITIVE ADVANTAGE (4). LEC. 4. Pr., junior standing and 2.2 GPA. The structure of business operations and the role of information technology in forming and implementing strategies for competitive advantage.

MNGT 3250 INTRODUCTION TO ENTERPRISE OPERATIONAL SYSTEMS (3). LEC. 3. Pr., MKTG 3140, 2.2 GPA. Concepts, fundamentals and framework of business enterprise software.


MNGT 3460 ORGANIZATIONAL BEHAVIOR (3). LEC. 3. Pr., MKTG 3100, junior standing, 2.0 GPA. Study, analysis and application of theories and techniques for understanding, predicting and managing human behavior in the organizational context.

MNGT 4100 MANAGEMENT IN GLOBAL BUSINESS ENVIRONMENT (3). LEC. 3. Pr., MKTG 3100, 2.0 GPA. Issues unique to managing operations in the global business environment.

MNGT 4140 ESSENTIALS OF ENTREPRENEURSHIP (3). LEC. 3. Pr., 2.0 GPA, MKTG 3310, FINC 3610, ECO 2010. The application of basic business principles to the entrepreneurial environment.

MNGT 4150 SMALL BUSINESS MANAGEMENT (3). LEC. 3. Pr., MKTG 4140, junior standing, 2.0 GPA. Analysis of industrial, competitive, market and financial aspects of starting a business.

MNGT 4250 COMPETITIVE MANUFACTURING OPERATIONS (3). LEC. 3. Pr., MKTG 3250, 2.0 GPA. Provides a working model of manufacturing operations and explores how information is revolutionizing the field.

MNGT 4350 COMPETITIVE SERVICE OPERATIONS (3). LEC. 3. Pr., MKTG 3250, 2.0 GPA. Provides a working model of service operations and explores how information technology is revolutionizing the field.

MNGT 4400 ORGANIZATIONAL DEVELOPMENT AND CHANGE (3). LEC. 3. Pr., MKTG 3100, MKTG 3460, MKTG 3420, 2.0 GPA. The complexities involved in implementing change in organizations.

MNGT 4430 LABOR RELATIONS (3). LEC. 3. Pr., junior standing, 2.0 GPA. General survey of the development of collective bargaining, major provisions of labor law and bargaining issues and trends in labor relations.

MNGT 4460 HUMAN RESOURCE LEGISLATION (3). LEC. 3. Pr., MKTG 3420, 2.0 GPA, junior standing. Legislation that impacts the management of human resources within the organization.

MNGT 4470 EMPLOYEE COMPENSATION (3). LEC. 3. Pr., MKTG 3420, 2.0 GPA. Modern compensation systems, strategic planning, wage and salary management, benefits administration and pay incentive development.

MNGT 4480 LABOR RELATIONS LAW (3). LEC. 3. Pr., MKTG 4430 or equivalent course, junior standing, 2.0 GPA. Legal principles and issues under the Labor Management Relations Act and related laws. Case problem analysis.

MNGT 4510 HUMAN RESOURCE PLANNING, DEVELOPMENT, AND APPRAISAL (3). LEC. 3. Pr., MKTG 3420, 2.0 GPA. Theory, practice and design of managerial systems in these functions.

MNGT 4520 HUMAN RESOURCES AND ORGANIZATIONAL RESEARCH (3). LEC. 3. Pr., MKTG 2710, MKTG 3420, 2.0 GPA. Human resource problems studied through a project involving data collection, analysis and a research report.

A 2.0 GPA is required for enrollment in any Business course at the 3000-level or above. This applies to Business and Management students.
MNGT 4540 HUMAN RESOURCES SELECTION AND PLACEMENT (3). LEC. 3. Pr., MNGT 2710, MNGT 3420, 2.0 GPA. A review of contemporary issues involved in administering a program for selecting employees.

MNGT 4740 QUALITY MANAGEMENT SYSTEMS (3). LEC. 3. Pr., MNGT 2710, MNGT 3140, 2.0 GPA. Fundamentals of quality assurance; techniques for performing quality control and improvement functions; use of control charts in statistical process control; quality management systems.

MNGT 4800 MANAGING STRATEGIC MANAGEMENT (3). LEC. 3. Pr., FINC 3610, MNGT 3100, MKTG 3310, 2.0 GPA. Objectives, strategy, and policies pertaining to a total organization. Problem-solving and the relationship between the functional areas of an organization.

MNGT 4830 DATABASE MANAGEMENT SYSTEMS (3). LEC. 3. Pr., MNGT 3050, 2.2 GPA. Business applications software in a database environment, complex data and file structures, systems design consideration of global and distributed databases.

MNGT 4850 COMPETITIVE STRATEGIES THROUGH INFORMATION TECHNOLOGIES (3). LEC. 3. Pr., MNGT 3070, MNGT 3040, 2.2 GPA. Emphasizes the role of technology and information systems in producing competitive advantage.

MNGT 4880 MANAGEMENT INFORMATION SYSTEMS PROJECTS (3). LEC. 3. Pr., MNGT 3070, 2.0 GPA. Case study projects, guidelines and participation in the development of an information management system.

MNGT 4890 STRATEGIC ENVIRONMENTAL MANAGEMENT (3). LEC. 3. Pr., MNGT 3100, 2.0 GPA. Course will examine the relationship between the environment, strategy, and competitive advantage from both a domestic and international perspective.

MNGT 4900 SPECIAL PROBLEMS (1-3). IND. Pr., departmental approval, junior standing, 2.0 GPA. Independent study of current topics in management.

MNGT 4920 INTERNSHIP (1-6). INT. Pr., MNGT 3100, 2.0 GPA, and approval by departmental intern program committee. Course may be repeated for a maximum of 6 credit hours.

MNGT 4950 SEMINAR IN MANAGEMENT (1-10). SEM. Pr., departmental approval, junior standing, 2.2 GPA. Course may be repeated for a maximum of 10 credit hours.

MNGT 4960 READINGS IN MANAGEMENT (1-3). IND. Pr., departmental approval, junior standing, 2.0 GPA. Independent study of current topics in management.

MNGT 6040/6046 ADVANCED BUSINESS DATA COMMUNICATIONS (3). LEC. 3. Pr., MNGT 7140 or MNGT 3040 2.2 GPA. Experienced-based class building on domain knowledge of prerequisites; gives personal and team experience in data communications technology and networks.

MNGT 6300/6306 THE BUSINESS OF SPORTS (3). LEC. 3. Pr., MNGT 2710, MNGT 3100, ECON 2020, 2.0 GPA. Business aspects of sports teams including sources of revenue, labor market, revenue sharing, salary cap and free agency.

MNGT 6650/6656 ADVANCED OBJECT-ORIENTED AND INTERNET PROGRAMMING (3). LEC. 3. Pr., MNGT 3070, 2.2 GPA. Fundamentals of developing object-oriented, component-based and Internet business applications.

MNGT 6670/6676 ELECTRONIC COMMERCE (3). LEC. 3. Pr., 2.2 GPA. The tools, skills, technologies, and business and social implications of the emergence of electronic commerce in cyberspace.

MNGT 6680/6686 ADVANCED DATABASE ADMINISTRATION AND DEVELOPMENT (3). LEC. 3. Pr., MNGT 4830 or MNGT 7830 and 2.2 GPA. Key tasks and functions required of a database administrator in a business environment.

MNGT 7020/7026 BUSINESS TELECOMMUNICATIONS AND NETWORKS (3). LEC. 3. Provides an understanding of voice and data telecommunications, e.g., network (LAN, internet), protocols, standards, legislation and project development, so that managers might utilize telecommunications effectively.

MNGT 7050/7056 BEHAVIORAL SCIENCE FOR MANAGERS (3). LEC. 3. Pr., for non-business students; approval of the MBA program. Advanced study of organizational and human behavior within organizations. Examines issues such as leadership motivation and conflict.

MNGT 7080/7086 ADVANCED HUMAN RESOURCE MANAGEMENT (3). LEC. 3. Advanced study of the role of personnel and human resource management. Topics include employee selection, performance appraisal, compensation, training and development.

MNGT 7140/7146 MANAGING END USER COMPUTING (3). LEC. 3. Studies MIS from user's perspective, and compares it with the roles of the professional department. Course covers support of desktop applications, data usage, and communications.

MNGT 7150/7156 ORGANIZATIONAL BEHAVIOR AND CHANGE (3). LEC. 3. Pr., MNGT 7030 or equivalent, departmental approval. Advanced study of organizational behavior in individual and group interactions within the environment of business organizations.


MNGT 7250/7256 COMPETITIVE MANUFACTURING ENTERPRISES (3). LEC. 3. Pr., BUSI 7220. Provides MBA students with a working model of manufacturing operations and lets them explore how information technology can be used to re-engineer the manufacturing process.

MNGT 7350/7356 COMPETITIVE SERVICE ENTERPRISES (3). LEC. 3. Pr., BUSI 7220. Provides MBA students with a working model of service operations and lets them explore how information technology can be used to re-engineer the service process.

MNGT 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 materials.

MNGT 7370/7376 PROJECT MANAGEMENT (3). LEC. 3. In-depth study of the planning, scheduling and control processes in industrial projects.

MNGT 7380/7386 INTEGRATING INFORMATION TECHNOLOGIES TO PROVIDE COMPETITIVE ADVANTAGE (3). LEC. 3. How to integrate effectively information technologies in formulating and implementing competitive strategies for companies.

MNGT 7420/7426 SEMINAR IN ORGANIZATION CHANGE (3). SEM. Pr., MNGT 7150. The diagnostic and evaluation issues in organizational change.

MNGT 7440/7446 COLLECTIVE BARGAINING AND ARBITRATION (3). LEC. Evolution and development of union-management relationships and the process of collective bargaining and arbitration. Case problem analysis and current labor relations issues.

MNGT 7460/7466 HUMAN RESOURCE LEGISLATION (3). LEC. 3. Pr., MNGT 3420. Legislation that impacts the management of human resources within the organization.

MNGT 7470/7476 EMPLOYEE COMPENSATION (3). LEC. 3. Pr., MNGT 3420. Study of the theory, procedures, techniques, and practices used to administer modern organization compensation systems.

MNGT 7480/7486 LABOR RELATIONS LAW (3). LEC. 3. Pr., MNGT 4430. Study of legal principles under the Labor Management Relations Act and related labor laws. Case problems and current legal issues are analyzed.

MNGT 7510/7516 HUMAN RESOURCE PLANNING, DEVELOPMENT AND APPRAISAL (3). LEC. 3. Pr., MNGT 3420. Theory, practice, and design of managerial systems and these functions.

MNGT 7520/7526 HUMAN RESOURCE AND ORGANIZATIONAL RESEARCH (3). LEC. 3. Pr., MNGT 2710 and MNGT 3420. Study of human resource problems through a primary research project involving data collection, analysis and written research report.

MNGT 7540/7546 HUMAN RESOURCES SELECTION AND PLACEMENT (3). LEC. 3. Pr., MNGT 2710 and MNGT 3420. A review of contemporary issues involved in administering a program for selecting employees.

MNGT 7650/7666 INFORMATION SYSTEMS ANALYSIS AND DESIGN (3). LEC. 3. Pr., BUSI 7220. 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.

MNGT 7720/7726 OPERATIONS AND TECHNOLOGY STRATEGY (3). LEC. 3. Coreq., BUSI 7220. Development of upper management decision making for developing and implementing manufacturing and technology strategies through case analyses and a field project.

MNGT 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.

MNGT 7740/7746 QUALITY MANAGEMENT SYSTEMS AND STANDARDS (3). LEC. 3. Concepts and methods in quality assurance, quality control; techniques for quality control and improvement; control charts in statistical process control; quality management systems.

MNGT 7760/7766 QUANTITATIVE METHODS IN OPERATIONS MANAGEMENT (3). LEC. 3. Pr., BUSI 7120. Quantitative methods, techniques, practices, and tools used in the field of operations management in manufacturing and service industries.

MNGT 7810/7816 STRUCTURED DECISION MAKING (3). LEC. 3. Pr., BUSI 7120. Introduction to business-decision structuring and aiding, including multiple criteria and group-decision making methodology.

MNGT 7830/7836 ADVANCED DATABASE MANAGEMENT SYSTEMS PROJECTS (3). LEC. 3. Pr., BUSI 7220. Database management systems using database methodologies to support business applications, including requirements for distributed databases.

MNGT 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.
MNGT 7880/7886 ADVANCED MANAGEMENT INFORMATION SYSTEMS (3). LEC. 3. Pr., BUSI 7220. In-depth inquiry and analysis of advanced information technologies in organizations.

MNGT 7890/7896 INFORMATION RESOURCE MANAGEMENT (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.

MNGT 7900/7906 SPECIAL PROBLEMS (1-3). IND. Pr., departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours.

MNGT 7960 READINGS IN MANAGEMENT (3). IND. Pr., departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member.

MNGT 7970 SEMINAR IN MANAGEMENT (3). LEC. 3. Pr., departmental approval. Current topics in management.

MNGT 7990 RESEARCH AND THESIS (1-10). MST. Pr., departmental approval. Research on thesis or research project. Course may be repeated for a maximum of 10 credit hours.

MNGT 8010 MIS RESEARCH SEMINAR (3). SEM. 3. Pr., departmental approval. Prepares doctoral students to conceptualize, conduct and present MIS research.

MNGT 8020 TELECOMMUNICATIONS MANAGEMENT SEMINAR (3). SEM. 3. Pr., MNGT 7020, MNGT 7880 and departmental approval. A seminar to prepare the students to work, teach, and research in the telecommunications management area.

MNGT 8030 RESEARCH METHODS IN MANAGEMENT (3). LEC. 3. Pr., MNGT 7040 or equivalent graduate course in major, departmental approval. Research methodologies used in conducting research with emphasis on empirical organizational behavior research methods.

MNGT 8400 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT I (3). LEC. 3. Pr., BUSI 7120, departmental approval. Includes multiple regression, correlation analysis, ANOVA, MANOVA and discriminant analysis as applied to Human Resource Management, Operations Management and MIS. Credit will not be given for both MNGT 8400 and STAT 8400.

MNGT 8410 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT II (3). LEC. 3. Pr., STAT/MNGT 8400 and departmental approval. Includes Factor Analysis and Structural Equations Models as applied to Human Resources Management, Operations Management and MIS. Credit will not be given for both MNGT 8410 and STAT 8410.

MNGT 8500 ADVANCED RESEARCH SEMINAR IN TECHNOLOGICAL INNOVATIONS (3). SEM. 3. Theoretical foundations and research directions in the methodology of technology and technological innovation, with the primary focus on information technology.

MNGT 8660 RESEARCH IN INFORMATION TECHNOLOGY STRATEGY (3). LEC. 3. Pr., departmental approval. Theoretical foundations and research directions in the methodology of technology and technological innovation, with the primary focus on information technology.

MNGT 8740 COMPENSATION THEORY (3). LEC. 3. Pr., MNGT 8030. 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. Pr., MNGT 3420 or departmental approval. Coreq., MNGT 7010 and MNGT 7910. Examination of empirical issues pertaining to the performance appraisal and human resource development functions of organizations.

MNGT 8850 ADVANCED HUMAN RESOURCE SELECTION (3). LEC. 3. Pr., graduate statistics course; MNGT 7080 or departmental approval. Study of the technical considerations involved in the implementation of employee selection programs.

MNGT 8970 DOCTORAL SEMINAR IN MANAGEMENT (3). SEM. 3. Pr., departmental approval. Special issues and problems in management. The topics will reflect the critical issues and problems facing management. Course may be repeated with change in topic.

MNGT 8990 RESEARCH AND DISSERTATION (1-10). DSR. Pr., departmental approval. Course may be repeated for a maximum of 10 credit hours.

Music (MUSI)

Mr. Thomas Smith - 844-4164

MUSI 1000 PERFORMANCE ATTENDANCE (0). LEC. Coreq., enrollment in MUSI. Required during each semester of MUSI (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 1010 GUITAR AND STRING SKILLS (1). LEC. 1. Coreq., Music Education Major (CNM). 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 1040 BRASS INSTRUMENTS SKILLS (1). LEC. 1. Pr., MUSI 1040 is not a prerequisite for MUSI 1050. Coreq., Music Education major. Class instruction and practice in the rudiments of music as applied to trumpet, trombone, horn and other standard brass instruments.

MUSI 1050 BRASS INSTRUMENTS SKILLS (1). LEC. 1. Pr., MUSI 1040 is not a prerequisite for MUSI 1050. Coreq., Music Education major. Class instruction and practice in the rudiments of music as applied to trombone, tuba, and other low-brass instruments.

MUSI 1060 WOODWIND INSTRUMENTS SKILLS (1). LEC. 1. Pr., MUSI 1060 is not a prerequisite for MUSI 1070. Coreq., Music Education major. Class instruction and practice in the rudiments of music as applied to flute and clarinet.

MUSI 1070 WOODWIND INSTRUMENTS SKILLS (1). LEC. 1. Pr., MUSI 1060 is not a prerequisite for MUSI 1070. Coreq., Music Education Major. Class instruction and practice in the rudiments of music as applied to flute and clarinet.

MUSI 1080 PERCUSSION SKILLS (1). LEC. 1. Coreq., Music Education major. Class instruction and practice in the rudiments of music as applied to various percussion instruments.


MUSI 1100 MARCHING BAND (1). LEC. 1. Pr., successful audition. 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.

MUSI 1110 CONCERT BAND (1). LEC. 1. 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. Pr., successful audition. A large performance group which rehearses and performs the literature of the concert band. Open to any Auburn University student by audition only. Course may be repeated with change in topic.

MUSI 1130 JAZZ BAND (1). LEC. 1. Pr., successful audition. 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.

MUSI 1140 CAMPUS BAND (1). LEC. 1. A concert band which gives playing experience to all university with past band experience. No audition required. Course may be repeated with change in topic.

MUSI 1150 ORCHESTRA (1). LEC. 1. Pr., successful audition. The Auburn Orchestra performs once 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. Pr., successful audition. 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 in topic.

MUSI 1170 GOSPEL CHOIR (1). LEC. 1. Pr., departmental approval. Performance of choral works in the African-American gospel tradition. Course may be repeated with change in topic.

MUSI 1180 WOMEN'S CHOIR (1). LEC. 1. Pr., departmental approval. Course may be repeated with change in topic.

MUSI 1190 MEN'S CHOIR (1). LEC. 1. Pr., departmental approval. Course may be repeated with change in topic.

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. Pr., successful audition. Concert choir is a mixed chorus for study and performance of serious choral literature. Course may be repeated with change in topic.

MUSI 1220 MUSIC ENSEMBLE (1). LEC. 1. Pr., departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated with change in topic.

MUSI 1230 VOCAL CHAMBER ENSEMBLE (1). LEC. 1. Pr., departmental approval. Study and performance of musical compositions of small vocal groups. Course may be repeated with change in topic.

MUSI 1310 MUSIC THEORY I (2). LEC. 2. A systematic study of music composition procedures, form and style during the Period of Common Practice.

MUSI 1320 MUSIC SKILLS I (1). LEC. 1. Development of aural, keyboard, and sight singing skills with an understanding of basic harmonic practices.


MUSI 1420 MUSIC SKILLS II (1). LEC. 1. Pr., MUSI 1320. Development of aural, keyboard, and sight-singing skills with an understanding of basic harmonic practices.


MUSI 2310 MUSIC THEORY III (2). LEC. 2. Pr., MUSI 1410. A systematic study of music composition procedures, form, and style from the advent of chromaticism through the music of the 20th Century.

MUSI 2320 MUSIC SKILLS III (1). LEC. 1. Pr., 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 2310. A systematic study of music composition procedures, form, and style from the advent of chromaticism through the music of the 20th Century.

MUSI 2420 MUSIC SKILLS IV (1). LEC. 1. Pr., MUSI 2320. Development of advanced aural, keyboard, and sight-singing skills with the understanding of advanced harmonic practices.

MUSI 2730 APPRECIATION OF MUSIC (3). LEC. 3. Fine 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. Pr., membership in the Honors College. Fine Arts Core. The art and folk musics of western and non-western cultures. No previous music training required.

MUSI 3000 INTRODUCTION TO ELECTRONIC MUSIC (2), LEC. 2. Pr., departmental approval. A study of the basic production and recording techniques of electronic music.

MUSI 3510 MUSIC HISTORY I (3). LEC. 3. Pr., MUSI 1410. MUSI 3510 is not prerequisite for MUSI 3520. A study of the development of music from the earliest times through early 19th Century styles through recorded examples and readings.

MUSI 3520 MUSIC HISTORY II (3). LEC. 3. Pr., MUSI 1410. MUSI 3510 is not prerequisite for MUSI 3520. A study of music from the early 19th 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 4000 SENIOR RECITAL (0). PRL. Pr., MUAP 3220. Coreq., senior standing. Demonstration of a professional level of achievement in the student major performance medium by the successful presentation of a senior recital during or before the seventh semester of study.

MUSI 4010 VOCAL PEDAGOGY (2). LEC. 2. For prospective voice teachers. An intensive study of the materials and methods of voice training.

MUSI 4020 INSTRUMENTAL PEDAGOGY (2). LEC. 2. For prospective instrumental teachers. An intensive study of the materials and methods of teaching various brass, woodwind and percussion instruments.

MUSI 4040 MUSIC INSTRUMENTS REPAIR (1). LEC. 1. Pr., senior standing. Coreq., Music Education Major. 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. Fundamental methods and procedures of the marching band including study of computer-aided band charting systems.

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. Pr., MUSI 3610. Choral conducting techniques 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 5650 THEORY REVIEW I (1). LEC. 1. Pr., departmental approval. Coreq., junior standing. A study of and practical application of harmonic practices from
MUSI 7140 ORCHESTRAL ARRANGING I
participation in an approved band. Advanced arranging for various band organizations.

MUSI 7120 CHORAL LITERATURE (2). LEC. 2. Pr., departmental approval. Coreq., junior standing. A chronological study of choral music from the Middle Ages to the present day.

MUSI 6530 WIND BAND LITERATURE (2). LEC. 2. Pr., department approval. Coreq., junior standing. History of the development of the wind band and its literature from ca. 1500 to the present.

MUSI 6540 VOCAL LITERATURE (2). LEC. 2. Pr., departmental approval. Coreq., junior standing. A study of the vocal literature from the Baroque to the present day.

MUSI 6550 KEYBOARD LITERATURE (2). LEC. 2. Pr., departmental approval. Coreq., junior standing. A study of keyboard repertoire from the Baroque to the present.

MUSI 6560 INSTRUMENTAL LITERATURE (2). LEC. 2. Pr., departmental approval. Coreq., junior standing. A study of the literature of the major performance instrument from its beginning to the present.

MUSI 7100 ADVANCED CHORAL CONDUCTING I (2). LEC. 2. Coreq., registration in approved choral ensemble. Laboratory for the development of skills relating to conducting performances of traditional and modern choral works.

MUSI 7101 ADVANCED CHORAL CONDUCTING II (2). LEC. 2. Pr., MUSI 7100. Coreq., registration in approved choral ensemble. Laboratory for the development of skills relating to conducting performances of modern choral music.

MUSI 7105 ADVANCED INSTRUMENTAL CONDUCTING I (2). LEC. 2. Coreq., 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 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 7270 SEMINAR IN AMERICAN MUSIC (2). SEM. 2. Study of selected American music through history, analysis, and performance practice.

MUSI 7290 SEMINARE IN PRIVATE VOCAL TEACHING (2). LEC. 2. Coreq., participation in an approved choral ensemble. Detailed analysis of the styles, forms and performance practices of choral music of the Classic, Romantic, and Modern periods, with scores of representative works.

MUSI 7291 SEMINAR IN RENAISSANCE VOCAL INSTRUCTION (2). LEC. 2. Coreq., NAVS 7290. Analysis of selected literature from the Baroque to the present.

MUSI 7300 INTRODUCTION TO GRADUATE RESEARCH IN MUSIC (2). RES. 2. Required for commission in Navy/Marine Corps. Includes formal research methods and the preparation of written and oral communication skills. Includes preparation of an outline for a research paper.

MUSI 7500 INDEPENDENT STUDY (1-6). IND. Pr., departmental approval. Independent study directed toward desired objectives related to student's specific areas of interest and specialization. Includes evaluation at regular intervals. Course may be repeated with change in topic.

MUSI 7980 QUALIFYING RECITAL (3). LEC. 3. Pr., MUAP 7810. Public recital of graduate level repertoire. Reacital may include a lecture component.

Naval Science (NAVS)

NAVS 1010 INTRODUCTION TO NAVAL SCIENCE (3). LEC. 3. Coreq., NAVS 1011. Basic areas of Naval Science including uniforms and insignia, military courtesy, discipline, components and supporting elements of the Navy.

NAVS 1011 NAVAL SCIENCE LABORATORY (0). LAB. 3. Coreq., NAVS 1010. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.


NAVS 1021 NAVAL SCIENCE LABORATORY (0). LAB. 3. Coreq., NAVS 1020. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.


NAVS 3011 NAVAL SCIENCE LABORATORY (0). LAB. 3. Coreq., NAVS 3010. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAVS 3020 NAVIGATION II (3). LEC. 3. Coreq., NAVS 3021. Navy tactical formations and dispositions, relative motion, Rules of the Road, maneuvering and communication systems.

NAVS 3021 NAVAL SCIENCE LABORATORY (0). LAB. 3. Coreq., NAVS 3020. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAVS 3030 EVOLUTION OF WARFARE (3). LEC. 3. Coreq., NAVS 3031. 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.

NAVS 3031 NAVAL SCIENCE LABORATORY (0). LAB. 3. Coreq., NAVS 3030. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAVS 4010 NAVAL WEAPONS (3). LEC. 3. Coreq., NAVS 4011. Weapons systems through a study of fundamental principles of sensor, tracking, computational, and weapons delivery subsystems. Includes study of modern weapon systems.

NAVS 4011 NAVAL SCIENCE LABORATORY (0). LAB. 3. Coreq., NAVS 4010. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

Nutrition and Food Science (NUFS)

NUFS 4021 NAVAL SCIENCE LABORATORY (0). LAB. 3. Coreq., NAVS 4020. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NUFS 4030 AMPHIBIOUS WARFARE I (3). LEC. 3. Coreq., NAVS 4031. Amphibious warfare prior to WWII through Grenada; definitions of concept, examination of doctrinal origins, evolution of amphibious warfare tactics and techniques.

NUFS 4041 AMPHIBIOUS WARFARE II (3). LEC. 3. Coreq., NAVS 4041. Amphibious warfare prior to WWII through Grenada; definitions of concept, examination of doctrinal origins, evolution of amphibious warfare tactics and techniques.

NUFS 4041 NAVAL SCIENCE LABORATORY (0). LAB. 3. Coreq., NAVS 4040. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.


NUFS 4060 PROFESSIONAL DEVELOPMENT IN NAVAL SCIENCE (2). LEC. 2. Pr., NAVS 4060. Analysis of systems for management of the conference coordination segment of the hospital industry. Credit will not be given for both NUFS 4530 and NUFS 7530.

NUFS 4040 CONFERENCE COORDINATION (2). LEC. 2. Pr., NUFS 3600. Analysis of systems for management of the conference coordination segment of the hospital industry. Credit will not be given for both NUFS 4540 and NUFS 7540.

NUFS 4050 RESORT AND CLUB MANAGEMENT (2). LEC. 2. Pr., NUFS 3600. Examination of unique features, opportunities and problems associated with resort and club management. Credit will not be given for both NUFS 4550 and NUFS 7550.

NUFS 4060 GLOBAL HOSPITALITY MANAGEMENT (2). LEC. 2. Pr., NUFS 3600. Contemporary issues confronting the global hospitality industry. Management and marketing operations emphasized. Credit will not be given for both NUFS 4560 and NUFS 7560.


NUFS 4900 INDEPENDENT STUDY (1-8). IND. Pr., membership in the Honors College; departmental approval. Research in specialized topics. Course may be repeated for a maximum of 8 credit hours.

NUFS 4910 FOOD SCIENCE PRACTICUM (3). PRA. Pr., junior standing. Food science practicum. Credit will not be given for both NUFS 4910 and NUFS 7410.

NUFS 4920 INTERNSHIP IN HOSPITALITY (10). INT. Pr., 2.00 GPA; 400 hours work experience in hospitality; junior standing; Pr., departmental approval. Application of principles and theories of hospitality in a professional hospitality setting.

NUFS 4930 UNDERGRADUATE RESEARCH AND STUDY (1-9). IND. Pr., departmental approval. Directed research under faculty supervision. Course may be repeated for a maximum of 9 credit hours.

NUFS 4940 PROFESSIONAL DEVELOPMENT IN HOSPITALITY (2). IND. Coreq., NUFS 4920 or departmental approval. Computer-assisted capstone course to equip students with skills and experience for successful career entry. Internet and computer access required.

NUFS 4997 HONORS THESIS (1-3). IND. Pr., membership in the Honors College; departmental approval. Research in specialized topics. Course may be repeated for a maximum of 3 credit hours.

NUFS 6020 MEDICAL NUTRITION I (3). LEC. 3. Pr., NUFS 3721, NUFS 4820. NUFS 4830 or departmental approval. Application of nutrition principles to the pathophysiological and biochemical changes associated with endocrine, cardiovascular and gastrointestinal diseases. Fall.

NUFS 6030 MEDICAL NUTRITION II (3). LEC. 3. Pr., NUFS 6020 or departmental approval. 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. Spring.

NUFS 6430 FOOD CHEMISTRY (4). LEC. 3. LAB. 3. Pr., BCHE 3180 or departmental approval. Chemistry of food components; chemical and physical changes of food during processing and storage. Fall.

NUFS 6450 FOOD ANALYSIS AND QUALITY CONTROL (4). LEC. 3. LAB. 3. Pr., NUFS 4300 or departmental approval. Principles and application of chemical and instrumental food analyses; quality control procedures. Fall.

NUFS 6560 NUTRITION AND FOOD SERVICE MANAGEMENT (4). LEC. 4. Pr., NUFS 3041, ACCT 2910 or departmental approval. Organization, management and marketing of food and nutrition service systems in health care facilities. Spring.

NUFS 6590/6596 RECREATIONAL FOODSERVICE MANAGEMENT (2). LEC. 2. Pr., 3.00 GPA; 400 hours foodservice operations in recreational facilities. Credit is not allowed for both NUFS 6590 and NUFS 6596.


NUFS 6640 FOOD PRODUCT DEVELOPMENT (4). LEC. 2. LAB. 6. Pr., NUFS 4300 or departmental approval. Food product development from concept to market. Spring.

NUFS 6770/6776 FOOD PLANT SANITATION (4). LEC. 3. LAB. 3. Pr., BCHE 3200 or departmental approval. Sanitary regulations and procedures for hazard control and quality assurance in food industry. Credit is not allowed for both NUFS 6770 and NUFS 6776.
NUFS 6820 NUTRITION IN THE LIFE CYCLE (3). LEC. 3. Pr., NUFS 4830 or departmental approval. Metabolic and clinical aspects of nutrition during key periods of the life cycle emphasizing pregnancy, infancy and late adulthood. Fall.


NUFS 6910 PRACTICUM IN NUTRITION AND FOOD SCIENCE (1-12). PRA. Pr., departmental approval. Application of principles and theories of nutrition or food science in a professional setting. No more than three hours may count toward a graduate degree. Course may be repeated for a maximum of 12 credit hours.

NUFS 7050/7056 METHODS OF RESEARCH (2). LEC. 2. Pr., departmental approval. 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.

NUFS 7200 CARBOHYDRATE CHEMISTRY AND FUNCTIONALITY IN FOODS (3). LEC. 3. Pr., NUFS 6430 or departmental approval. Chemistry and functionality of sugars, starches and hydrocolloids as applied to food systems.

NUFS 7210 FOOD PROTEINS AND FATS (3). LEC. 3. Pr., NUFS 6340 or departmental approval. Advanced theories and practices of food science in the areas of protein and fat.

NUFS 7280 LABORATORY METHODS IN FOOD SCIENCE AND NUTRITION (3). LEC. 2. LAB. 3. Pr., departmental approval. Modern laboratory techniques and instruments used in human nutrition and food science research.

NUFS 7500 MINERALS (2). LEC. 2. Pr., departmental approval. Sources, digestion, absorption, transport, function and metabolism of major and trace minerals in the human body. Fall.

NUFS 7510 VITAMINS (2). LEC. 2. Pr., departmental approval. Advanced study of metabolism, requirements, interactions and deficiencies of the fat and water soluble vitamins as related to humans. Fall.


NUFS 7530/7536 CONTINUOUS QUALITY IMPROVEMENT HOSPITALITY (2). LEC. 2. Pr., NUFS 3600 or departmental approval. The principles of continuous quality improvement and total quality management for the hospitality industry. Credit will not be given for both NUFS 7530 and NUFS 4530.

NUFS 7540/7546 CONFERENCE COORDINATION (2). LEC. 2. Pr., NUFS 3600 or departmental approval. Systems for the management of the conference coordination segment of the hospitality industry. Credit will not be given for both NUFS 7540 and NUFS 4540.

NUFS 7550/7556 RESORT AND CLUB MANAGEMENT (2). LEC. 2. Pr., NUFS 3600 or departmental approval. Unique features, opportunities, and problems associated with resort and club management. Credit will not be given for both NUFS 7550 and NUFS 4550.

NUFS 7560/7566 GLOBAL HOSPITALITY (2). LEC. 2. Pr., NUFS 3600 or departmental approval. Contemporary issues confronting the global hospitality industry. Credit will not be given for both NUFS 7560 and NUFS 4560.

NUFS 7850 RESEARCH SEMINAR FOR MASTER’S PROGRAM (1). SEM. 1. Pr., departmental approval. Current topics in nutrition and food science presented by M.S. graduate students.

NUFS 7900/7906 ADVANCED INDEPENDENT STUDY (1-6). IND. Pr., departmental approval. Advanced reading or research approved and supervised by a faculty member. Course may be repeated for a maximum of 6 credit hours.

NUFS 7920/7926 PROFESSIONAL INTERNSHIP IN HOSPITALITY (1-3). INT. Pr., departmental approval. Practical experience teaching in the classroom. Course may be repeated for a maximum of 1 credit hour.

NUFS 8970/8976 ADVANCED TOPICS IN NUTRITION AND FOOD SCIENCE (1-6). LEC. Pr., Departmental approval. A) Nutrition, B) Food Science, C) Hotel and Restaurant Management. Course may be repeated for a maximum of 6 credit hours.

NUFS 8990 RESEARCH AND DISSERTATION (1-10). DSR. Pr., departmental approval. Research in an area of specialization. Course may be repeated for a maximum of 10 credit hours.

Nursing (NURS)

Dr. Barbara Witt - 844-5665

Nursing (NURS)

NURS 1010 ORIENTATION TO NURSING (1). LEC. 1. Introduction to the discipline of nursing as a career.


NURS 3420 NURSING RESEARCH AND DATA MANAGEMENT (2). LEC. 2. Pr., STAT 2010, STAT 2510, STAT 2610, STAT 3010 or departmental approval and Pr., admission to the Nursing Professional program. Explores the research process as the systematic means for contributing to nursing knowledge.

NURS 3510 FUNCTIONAL NURSING SKILLS (1). LEC. 1. Pr., admission to the School of Nursing. Coreq., NURS 3511, NURS 3710, NURS 3610, BIOL 4400. Core clinical skills used in nursing practice.

NURS 3511 FUNCTIONAL NURSING SKILLS LAB (1). LAB. 3. Pr., admission to the School of Nursing. Coreq., NURS 3510, 3710, 3610, BIOL 4400. Clinical application of core clinical skills used in nursing practice.


NURS 3531 NURSING CARE OF SPECIAL POPULATIONS I LAB (2). LAB. 6. Pr., NURS 3720, NURS 3420, NURS 3320. Coreq., NURS 3530, NURS 3630. Clinical application of concepts and theories underlying the nursing care of the childbearing family and children with special needs.

NURS 3610 COMPREHENSIVE HEALTH ASSESSMENT (3). LEC. 3. Pr., admission to the School of Nursing. Coreq., NURS 3611, NURS 3710, NURS 3510, BIOL 4400. Concepts and theories underlying the nursing care of the childbearing family and children with special needs.

NURS 3611 COMPREHENSIVE HEALTH ASSESSMENT LAB (2). LAB. 6. Pr., admission to the School of Nursing. Coreq., NURS 3611, NURS 3710, NURS 3510, BIOL 4400. Clinical application of concepts and theories underlying the nursing care of the childbearing family and children with special needs.

NURS 3630 NURSING CARE OF SPECIAL POPULATIONS II (3). LEC. 3. Pr., NURS 3720, NURS 3420, 3320. Coreq., NURS 3631, NURS 3530. Theories and concepts related to nursing management of clients with chronic psychosocial and/or physiological impairments.

NURS 3631 NURSING CARE OF SPECIAL POPULATIONS II LAB (2). LAB. 6. Pr., NURS 3720, NURS 3420, NURS 3320. Coreq., NURS 3630, NURS 3530. Clinical application of concepts and theories related to nursing management of clients with chronic psychosocial and/or physiological impairments.

NURS 3710 PROFESSIONAL NURSING CONCEPTS I (2). LEC. 2. Pr., admission to the School of Nursing. Coreq., NURS 3711, NURS 3610, NURS 3510, BIOL 4400. 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 I LAB (1). LAB. 3. Pr., admission to the School of Nursing. Coreq., NURS 3711, NURS 3610, NURS 3510, BIOL 4400. Clinical application of basic principles of nursing practice in community and institutional environments.


NURS 4100 CHILDREN WITH CHRONIC ILLNESSES (3). LEC. 3. Pr., senior-level student in Nursing or health-related field. Theories and concepts of care of children with specific health problems and/or chronic health problems.

NURS 4120 CAMP NURSING (3). LAB. 6. Pr., senior-level nursing student. Clinical experience in the care of children with chronic conditions in a camp setting.

NURS 4130 NURSING: THE ART OF CARING (3). LEC. 3. Pr., senior-level Nursing student. 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 (3). LEC. 3. Pr., senior-level Nursing student. Explores the health care delivery system as it pertains to women.

NURS 4150 HUMAN SEXUALITY IN HEALTH AND ILLNESS (3). LEC. 3. Pr., senior-level Nursing student or related medical field. Human sexuality in relation to the health-illness continuum. Sexuality across the lifespan.

NURS 4160 SPIRITUAL PERSPECTIVES IN NURSING (3). LEC. 3. Pr., senior-level Nursing student. Use of the nursing process to help clients with various spiritual orientations meet spiritual needs.


NURS 4180 TRAUMA NURSING (3). LEC. 3. Pr., senior-level Nursing student. A broad overview of the specialty of trauma nursing and the multiple factors that affect patient care in an emergency or trauma situation.

NURS 4190 AIDS: A SOCIAL EPIDEMIC (3). LEC. 3. Pr., senior-level Nursing student. The psychosocial, physical, emotional, ethical, legal, behavioral, and changing health care needs of clients, families, aggregates and populations as a result of AIDS.


NURS 4220 INTEGRATIVE HEALING THERAPIES (3). LEC. 3. Pr., senior-level Nursing student. Theoretical and empirical bases for the use of selected interventions in clinical nursing practice.


NURS 4810 TRANSITION INTO PROFESSIONAL NURSING (3). LEC. 3. Pr., admission to the Educational Advancement for RN program (EARN). Coreq., NURS 4811. Introduces the registered nurse to concepts and theoretical formulations that underlie professional nursing practice.

NURS 4811 TRANSITION INTO PROFESSIONAL NURSING LAB (1). LAB. 2. Pr., admission to the EARN Program. Coreq., NURS 4810. Provides registered nurse students with opportunities to apply concepts and theoretical formulations of professional nursing practice in the clinical situation.

NURS 4820 HEALTH PROMOTION IN CLIENT/FAMILY SYSTEMS (2). LEC. 2. Pr., NURS 4810. Coreq., NURS 4821. Concepts and theories underlying health promotion and primary prevention in client or family systems.

NURS 4821 HEALTH PROMOTION IN CLIENT/FAMILY SYSTEMS LAB (2). LAB. 6. Pr., NURS 4810. Coreq., NURS 4820. Provides the registered nurse student the opportunity to apply concepts and theories of health promotion and primary prevention to client or family systems.

NURS 4830 CASE MANAGEMENT IN ACUTE CARE SETTINGS (3). LEC. 3. Pr., NURS 4810. Coreq., NURS 4831. Integration of a multidimensional approach to acute care for clients/families who are experiencing multiple, complex stressors and responses. Focuses on case management to promote optimal access, quality, and cost of care for clients/families.


NURS 5800 LEADERSHIP MANAGEMENT AND INFORMATION MANAGEMENT IN NURSING LAB 1 (3). LAB. 3. Pr., NURS 4850. Application of case management principles for the promotion of optimal client/family health in the rehabilitation and home health settings.


NURS 4861 LEADERSHIP/MANAGEMENT AND INFORMATION MANAGEMENT IN NURSING LAB (1). LAB. 3. Pr., admission to the EARN program. Coreq., NURS 4860. Practice in the management of information and nursing care delivery systems in a rapidly changing technological environment.

NURS 4872 EARN SEMINAR (2). LEC. 2. Pr., EARN clinical courses. Exploration of issues related to nursing and health care to facilitate socialization into the role of the professional nurse.

NURS 4880 ACCELERATED PROFESSIONAL NURSING PRACTICE III (5). LEC. 5. Pr., NURS 3880, NURS 3320. Coreq., NURS 4881, NURS 3420. Theories and concepts of nursing management of clients from multiple aggregates experiencing complex stressors in various settings. Includes special populations with chronic physiological or psychological stressors.


NURS 4900 INDEPENDENT STUDY IN NURSING (1-6). IND. Pr., admission to the professional program. Directed readings and/or clinical study in student-selected areas related to nursing and health care to facilitate socialization and promotion of optimal client/family health in rehabilitation and home health settings. May be repeated for a maximum of 6 credit hours.


NURS 6850 PRA I: FAMILY NURSE PRACTITIONER (1-3). PRA. 3. Course may be repeated for a maximum of 3 credit hours.

NURS 6860 PRA II: FAM NURSE PRACTITIONER (1-3). PRA. 3. Course may be repeated for a maximum of 3 credit hours.

NURS 6870 PRA III: FAM NURSE PRACTITIONER (1-3). PRA. 3. Course may be repeated for a maximum of 6 credit hours.
PHIL 3500 EPISTEMOLOGY (3). LEC. 3. Various representatives of the major philosophical traditions during these periods.

PHIL 3400 MEDIEVAL PHILOSOPHY (3). LEC. 3. Philosophical thought from late antiquity through the Middle Ages. Emphasis on Plotinus, Islamic thinkers, Augustine, Abelard, Anselm and Thomas Aquinas.

PHIL 3420 BRITISH EMPIRICISM (3). LEC. 3. Pr., junior standing. 17th and 18th century empiricism emphasizing Locke, Berkeley, Hume.

PHIL 3440 CONTINENTAL RATIONALISM (3). LEC. 3. Pr., junior standing. Major philosophers in this tradition as Descartes, Spinoza, Leibniz, Gassendi.

PHIL 3450 PHILOSOPHICAL PERSPECTIVES ON THE SCIENTIFIC REVOLUTION (3). LEC. 3. Changes in science and worldview from Copernicus to Newton, including the political and theological implications of the changes.

PHIL 3500 EPISTEMOLOGY (3). LEC. 3. Pr., junior standing. The origin, nature, kinds, and validity of knowledge with a consideration of faith, intuition, belief, opinion, certainty and probability.


PHIL 3620 PHILOSOPHICAL FOUNDATIONS OF COMMUNISM (3). LEC. 3. Pr., junior standing. The thought of Marx-Engels and its development in Kant to emphasizing major thinkers.

PHIL 3750 HISTORY OF PHILOSOPHY III: RECENT AND CONTEMPORARY PHILOSOPHY (3). LEC. 3. Various representatives of the major philosophical trends during these periods.

PHIL 4967 READINGS FOR HONORS IN PHILOSOPHY (3). LEC. 3. Course may be repeated with change in topic.

PHYS (PHYS)


PHYS 1001 FOUN OF PHYSICS LAB (0). LAB. Coreq., PHYS 1000. Laboratory course for PHYS 1000. The 2-hour laboratory emphasizes hands-on experience.

PHYS 1150 ASTRONOMY (3). LEC. 3. LAB. 1. Coreq., PHYS 1001. 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 1151 ASTRONOMY LAB (0). LAB. Coreq., PHYS 1001. Laboratory course for PHYS 1150. The 3-hour laboratory emphasizes studies with the telescope.

PHYS 1500 GENERAL PHYSICS I LAB (3). LEC. 3. Pr., junior standing. Departmental approval. Topics vary. Course may be repeated for a maximum of 3 credit hours.

PHYS 1501 GENERAL PHYSICS I LABORATORY (0). LAB. Coreq., PHYS 1500. Laboratory course for PHYS 1500. Two 2-hour sessions per week.


PHYS 1511 GENERAL PHYSICS II LABORATORY (0). LAB. Coreq., PHYS 1510. Laboratory course for PHYS 1510. Two 2-hour sessions per week.


PHYS 1601 ENGINEERING PHYSICS I LAB (0). LAB. Coreq., PHYS 1600. Laboratory course for PHYS 1600. Two 2-hour sessions per week.


PHYS 1608 HONORS PHYSICS I LAB (0). LAB. Coreq., membership in the Honors College. Physics course for PHYS 1607. Two 2-hour sessions per week.


PHYS 1611 ENGINEERING PHYSICS II LAB (0). LAB. Coreq., PHYS 1610. Laboratory course for PHYS 1610. Two 2-hour sessions per week.
PHYS 617 HONORS PHYSICS II (4). LEC. 3. LAB. 1. Pr., PHYS 1600 or PHYS 1607 and MATH 1610. Coreq., membership in the Honors College and PHYS 1618. MATH 1620 Core. Thermodynamics, electricity and magnetism, simple AC circuits, waves, and geometric optics.

PHYS 1618 HONORS PHYSICS II LAB (0). LAB. Coreq., membership in the Honors College and PHYS 1617. Laboratory course for PHYS 1617. Two 2-hour sessions per week.


PHYS 2200 INTRODUCTORY QUANTUM PHYSICS AND RELATIVITY (3). LEC. 3. Pr., 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 3200 STATISTICAL THERMODYNAMICS (3). LEC. 3. Pr., PHYS 2200. The basic laws of thermodynamics, kinetic theory, and statistical mechanics including the partition function, free energy, and the quantum statistic 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 3 credit hours.

PHYS 3501 PHYSICS OF THE WORLD AROUND US (3). LEC. Coreq., PHYS3500. Laboratory course required for certain topics for PHYS3500. One 3 hour session per week.

PHYS 4100 FUNDAMENTALS OF QUANTUM MECHANICS (3). LEC. 3. Pr., PHYS 2200, MATH 2660. 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 INDEPENDENT STUDY IN PHYSICS (1-5). IND. Pr., departmental approval. Student will investigate a topic of interest under the direction of a faculty member. Course may be repeated for a maximum of 5 credit hours.

PHYS 4930 DIRECTED READING IN PHYSICS (1-5). IND. Pr., departmental approval. Student will study a topic of interest under the direction of a faculty member. Course may be repeated for a maximum of 5 credit hours.

PHYS 4967 HONORS READING (1-3). IND. Pr., membership in the Honors College; departmental approval. Course may be repeated for a maximum of 3 credit hours.

PHYS 5000 UNDERGRADUATE RESEARCH IN PHYSICS (1-5). IND. Pr., departmental approval. Student will work under the direction of a faculty member on a problem of mutual interest. Course may be repeated for a maximum of 5 credit hours.

PHYS 4997 HONORS THESIS (1-6). IND. Pr., membership in the Honors College; departmental approval. Course may be repeated for a maximum of 6 credit hours.

PHYS 6100 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 6500 FUNDAMENTALS OF PHYSICS (3). LEC. 3. Pr., departmental approval. 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 3 credit hours.

PHYS 6600 FRONTIERS OF PHYSICS (3). LEC. 3. Pr., PHYS 4100 or PHYS 3100 or departmental approval. 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 3 credit hours.

PHYS 6610 INTRODUCTION TO SOLID STATE PHYSICS (3). LEC. 3. Pr., PHYS 6100 or departmental approval. Lattice vibrations, band description of electronic states of metals, semiconductors and insulators, and magnetic, superconducting and defect properties of solids.

PHYS 6620 SURVEY OF PLASMA PHYSICS (3). LEC. 3. Pr., PHYS 3100 or departmental approval. 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. Legrangian and Hamiltonian formulations of mechanics, canonical transforms. Hamilton-Jacobi theories, action angle variables, rigid rotators, normal modes, and mechanics of continuous media.

PHYS 7200 ELECTRICITY AND MAGNETISM I (3). LEC. 3. Elastostatics, special function expansions, magnetostatics, linear media and Maxwell’s equations.

PHYS 7250 ELECTRICITY AND MAGNETISM II (3). LEC. 3. Pr., PHYS 7200 or departmental approval. Time dependent Maxwell theory, wave propagation and dispersion, diffraction, scattering, radiation, relativistic covariance and applications.

PHYS 7300 QUANTUM MECHANICS I (3). LEC. 3. Heisenberg and Schrodinger dynamics, invariance properties and symmetry operations, collision theory, perturbation and variational methods.

PHYS 7350 QUANTUM MECHANICS II (3). LEC. 3. Pr., PHYS 7300 or departmental approval. Heiser and Schrodinger dynamics, invariance properties and symmetry operations, collision theory, perturbation, and variational methods.

PHYS 7400 STATISTICAL PHYSICS (3). LEC. 3. Thermodynamic quantities, equilibrium ensembles for classical and quantum systems, fluctuations, phase transitions and critical phenomena.

PHYS 7510 COMPUTATIONAL PHYSICS (3). LEC. 3. The computational methods used to investigate physical systems. The application of these methods to several physical situations of current interest will be emphasized.

PHYS 7520 NONLINEAR DYNAMICS (3). LEC. 3. Pr., PHYS 7100 or departmental approval. Dynamical systems, maps, flows, fixed points and neighborhoods, chaos, fractals and fractal dimensions. Lyapunov exponents, strange attractors, dissipative and Hamiltonian systems, controlling chaos.

PHYS 7530 RELATIVITY (3). LEC. 3. An introduction to Einstein’s theories of special and general relativity.

PHYS 7540 NON-EQUILIBRIUM STATISTICAL MECHANICS (3). LEC. 3. Pr., PHYS 7400 or departmental approval. Introduces the fundamental concepts of non-equilibrium statistical mechanics, develops basic transport theories, and simulates statistic properties with Monte-Carlo and molecular dynamic methods.

PHYS 7600 PHYSICS OF PLASMAS AS FLUIDS (3). LEC. 3. Pr., PHYS 7200 or departmental approval. Two fluid and one fluid descriptions of plasma behavior; magnetohydrodynamics; wave propagation and dissipation; plasma instabilities; nonlinear interactions.

PHYS 7700 PHYSICS OF SOLIDS (3). LEC. 3. Pr., PHYS 6610, PHYS 7350 or departmental approval. Crystal structure and motion of atoms in solids and their effects on the structural, elastic, optical, and thermal properties of materials.

PHYS 7900 INDEPENDENT STUDY IN PHYSICS (1-5). IND. Pr., departmental approval. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 5 credit hours.

PHYS 7930 DIRECTED READING IN PHYSICS (1-5). IND. Pr., departmental approval. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 5 credit hours.

PHYS 7950 PHYSICS COLLOQUIUM (1). SEM. Offers a series of talks presented by invited speakers on broad fields of physics. Check with graduate adviser for credit allowed. Course may be repeated for a maximum of 1 credit hour.

PHYS 7970 SPECIAL TOPICS IN PHYSICS (1-5). SEM. Pr., departmental approval. Seminar or lecture series in a rapidly advancing specialty of physics. Course may be repeated for a maximum of 5 credit hours.

PHYS 7990 RESEARCH AND THESIS (1-10). MST. Course may be repeated for a maximum of 10 credit hours.

PHYS 8100 RELATIVISTIC QUANTUM MECHANICS (3). LEC. 3. Pr., PHYS 7350 or departmental approval. Dirac equation, 1D barrier scattering, 3D central potentials, S-matrix theory, Feynman diagrams, quantum electrodynamics, renormalization, tunnel and loop level problems.

PHYS 8150 STANDARD MODEL OF ELEMENTARY PARTICLES (3). LEC. 3. Pr., PHYS 8100 or departmental approval. Electroweak theory, spontaneous symmetry breaking, lepton and quark tree level problems, quantum electrodynamics, gluon pair annihilation, supersymmetry, grand unification, supergravity.


PHYS 8300 SPECIAL TOPICS IN PLASMA PHYSICS (3). LEC. 3. Pr., departmental approval. Current topics of interest in plasma science related to area of expertise of lecturer, e.g., space physics fusion, solutions, plasma processing, spectroscopy, diagnostics, etc.

PHYS 8400 SPECIAL TOPICS IN SOLID STATE PHYSICS (3). LEC. 3. Pr., departmental approval. Current topics of interest related to area of expertise of lecturer, e.g., epitaxial growth, oxidation, materials characterization, semiconductors, contacts and devices, etc.

PHYS 8600 PLASMA KINETIC THEORY (3). LEC. 3. Pr., PHYS 7200 or departmental approval. Statistical behavior of plasma described by distribution functions: Klimontovich and Liouville equations; Vlasov equation; hot plasma waves; Landau damping; quasilinear theory; plasma instabilities.

Phys 8900 Independent Study in Advanced Physics (1-5). Ind. Pr., departmental approval. Students will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 5 credit hours.

Phys 8930 Directed Reading in Advanced Physics (1-5). Ind. Pr., departmental approval. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 5 credit hours.

Phys 8970 Special Topics in Advanced Physics (1-5).LEC. Pr., departmental approval. Topic at the forefront of physics research will be chosen by the lecturer. Course may be repeated for a maximum of 5 credit hours.

Phys 8990 Research and Dissertation (1-10).DSR. Course may be repeated for a maximum of 10 credit hours.

PLPA 3000 General Plant Pathology (3).LEC. 2-LAB. 2. Pr., BIOL 1030 and junior standing. Survey of plant diseases common in Alabama, including symptom recognition, pathogen biology and management of plant diseases. Spring, Summer, Fall.

PLPA 4930 Directed Studies in Plant Pathology (1-3). Ind. Pr., 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. Physiological and Molecular Approaches. Course may be repeated for a maximum of 3 credit hours.

PLPA 4997 Honors Thesis (1-3). Ind. Pr., membership in the Honors College; junior or senior standing and departmental Pr., approval. Assigned readings on topics pertinent to plant pathology or individual student endeavor consisting of directed research and writing of honors thesis. Course may be repeated for a maximum of 3 credit hours.

PLPA 6000 Essentials of Plant Pathology (3).LEC. 3, Pr., BIOL 1030 or departmental approval. Advanced discussion of concepts and topics in plant pathology; terminology, pathogenesis, and management of plant diseases.

PLPA 6050 Plant Disease Diagnosis (3).LEC. 1. LAB. 6. Pr., PLPA 3000 or PLPA 6000. Approaches, techniques and practical experience in the diagnosis of plant diseases. Summer.

PLPA 6060 Plant Disease Management (3).LEC. 3. Pr., PLPA 3000 or PLPA 6000. Aspects of plant disease management including cultural practices, plant resistance, biological and chemical control, and disease forecasting. Spring.

PLPA 6080 Field Survey of Plant Pathology (3).LEC. 1. LAB. 6. Pr., PLPA 3000 or PLPA 6000. Practical aspects of plant diseases under field conditions, on-site visits via field trips; discussion of experimental design for field research. Summer.

PLPA 6200 Introductory Mycology (4).LEC. 3. LAB. 2. Pr., BIOL 1030 or departmental approval. A systematic survey of the fungi with emphasis on morphology. Fall.

PLPA 7040 Research Presentation in Plant Pathology (1).LEC. 1. Pr., departmental approval, major or minor in PLPA. Formal presentations on research and current issues in plant pathology and related disciplines. Fall, Spring. Course may be repeated with change in topic.

PLPA 7300 Plant-Bacterial Interactions (4).LEC. 3. LAB. 2. Pr., BIOL 3500, equivalent, or departmental approval. Biochemical and molecular basis of plant-bacterial interactions, including colonization, pathogenesis, symbiotic and associative nitrogen fixation, and transformation. Fall.

CMBL/PLPA 7400 Plant Virology (4).LEC. 3. LAB. 2. Pr., PLPA 3000, PLPA 6000, CHEM 6180 or departmental approval. 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.

PLPA 7500 Plant Nematology (3).LEC. 2. LAB. 2. Pr., BIOL 1030 or departmental approval. 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 phytonematology. Fall.

PLPA 7820 Research Proposal Writing for Plant and Microbial Sciences (2).LEC. 2. Development, writing, submission, and review process of a research proposal in microbial or plant sciences disciplines for a federal or regional granting agency. Fall.


PLPA 7930 Directed Studies in Plant Pathology (1-3). Ind. Pr., departmental approval. Directed studies or projects, under the supervision of faculty, for understanding of topics beyond course materials or due to particular requirements. Course may be repeated for a maximum of 3 credit hours.

PLPA 7950 Seminar in Plant Pathology (1).SEM. 1. Pr., departmental approval. 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 1 credit hours.

PLPA 7990 Research and Thesis (1-10).MST. Pr., departmental approval. Research and thesis on problems in plant pathology. Course may be repeated for a maximum of 10 credit hours.

CMBL/PLPA 8880 Physiological and Molecular Plant Pathology (3).LEC. 2.LAB. 2. Pr., PLPA 6000, CHEM 6180, BIOL 4230 or departmental approval. Comprehensive coverage of physiology and molecular biology of plant-pathogen interactions. Spring.

PLPA 8990 Research and Dissertation (1-10).DSR. Pr., departmental approval. Research and dissertation on problems in plant pathology. Course may be repeated for a maximum of 10 credit hours.

Political Science (POLI)

Dr. Paul Johnson - 844-4370

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 2100. Basic concepts and principles of administration of health services organizations.

HADM 3700 Legal Structure of Health Administration (3).LEC. 3. Pr., POLI 1090 or POLI 2100. Legal issues that arise between patients and health care providers.

HADM 4000 Developing Care Organizations (3).LEC. 3. Pr., HADM 2200 or 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 or HADM 3300 and MATH 1690. 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. Comparative 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. Pr., senior standing and GPA of at least 2.8 in HADM Courses. Internship in selected areas of Health Administration.

HADM 4930 Directed Studies in Health Administration (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., senior standing and 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 Readings 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 3 credit hours.

Political Science (POLI)

POLI 1020 Political Economy (3).LEC. 2.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 1027 Honors Political Economy (3).LEC. 3. Pr., membership in the Honors College. Social Science II Core. The two-way interaction between politics and the economy with special attention to contemporary issues of public policy.


POLI 2100 State and Local Government (3).LEC. 3. The organization and functioning of American state and local governments, including their relationships to the U.S. Federal Systems.
POLI 4900 INDEPENDENT STUDY (1-3). IND. Pr., departmental approval, 3.25 GPA. Course may be repeated with change in topic.

POLI 4910 INTERNSHIP (1-6). INT. Pr., senior standing and departmental approval. Internship in selected areas of political science. Course may be repeated for a maximum of 6 credit hours.

POLI 4960 DIRECTED READINGS (1-3). IND. Pr., departmental approval. 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 4967 HONORS READINGS (1-3). IND. Pr., membership in the Honors College, departmental approval. 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 4970 SPECIAL TOPICS (1-3). LEC. Pr., junior standing. Selected topics 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. Credit will not be given for both POLI 4970 and POLI 7970. Course may be repeated with change in topic.

POLI 4997 HONORS THESIS (1-3). IND. Pr., membership in the Honors College, departmental approval. Course may be repeated for a maximum of 3 credit hours.

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.

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, governmental and party politics. 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 a intense political environment. Credit will not be given for both POLI 7130 and POLI 4130.


POLI 7150 PUBLIC PERSONNEL ADMINISTRATION (3). LEC. 3. Personnel policies, processes and politics in American governments.

POLI 7170 PUBLIC ORGANIZATIONAL THEORY AND MANAGEMENT (3). LEC. 3. TEC. Application of macro-economic theory to public finance; emphasizes capital budgeting, taxation, user charges, debt administration, cash management and investment for small governments.

POLI 7210 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 7210 and POLI 4210

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 7280 PUBLIC ORGANIZATIONAL THEORY AND MANAGEMENT (3). LEC. 3. Pr., POLI 7260 or equivalent. The development and refinement of research on administrative and organizational theory in public management.

POLI 7330 SEMINAR IN ADMINISTRATIVE LEADERSHIP, RESPONSIBILITY, AND DEMOCRATIC POLI 7330 GOVERNMENT (3). SEM. 3. (3). SEM. 3. Problems and ethics, democratic theory and leadership as they relate to public administration.

POLI 7340 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 7340 and POLI 4340.

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 7370 NON-PROFIT MANAGEMENT (3). LEC. 3. A comprehensive overview of the complex and diverse non-profit sector in the United States. Focuses on managerial functions such as governance, fundraising, marketing and planning. Credit will not be given for both POLI 7370 and POLI 4370.

POLI 7380 SEMINAR IN PUBLIC-PRIVATE MANAGEMENT (3). SEM. 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 7380 and POLI 4380.

POLI 7410 SOUTHERN POLITICS (3). LEC. 3. Introduction to the politics and a lesser extent government of the Southern region of the United States. Credit will not be given for POLI 7410 and POLI 4410.

POLI 7500 PROFESSIONAL EVALUATION (3). LEC. 3. Theory and practice of action program evaluation in the public sector with attention to program planning, process assessment and impact assessment.

POLI 7610 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 7610 and POLI 4610.

POLI 7620 AFRICAN-AMERICAN POLITICS (3). LEC. 3. The political values, structure 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 7620 and POLI 4620.

POLI 7630 DIVERSITY IN PUBLIC LIFE (3). LEC. 3. Developing and implementing 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, the types of plans that might attract outside investment.

POLI 7920 MPA INTERNSHIP (3-6). LEC. 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 7960 DIRECTED READINGS (1-3). IND. 1. 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 7970 SPECIAL TOPICS (1-3). LEC. 1. Selected topics 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 7990 MPA RESEARCH PROJECT (3-6). LEC. 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 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 8020 DOCTORAL SEMINAR IN PUBLIC POLICY (3). SEM. 3. Advanced study of the nature of public policy development and implementation.

POLI 8040 DOCTORAL SEMINAR IN PUBLIC FINANCE (3). SEM. 3. The theory and practice of public finance in a comparative perspective.

POLI 8080 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 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 8750 PUBLIC LAW AND PUBLIC POLICY (3). LEC. 3. The role of the courts in public policy-making.

POLI 8890 RESEARCH AND DISSERTATION (1-10). DSR. Course may be repeated for a maximum of 10 credit hours.

Poultry Science (POUL)

POUL 1000 INTRODUCTORY POULTRY SCIENCE (3). LEC. 2.LAB. 2. Introduction to the poultry species and their commercial production, physiology, nutrition and management. Fall, 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 3150 POULTRY PHYSIOLOGY (4). LEC. 3.LAB. 2. Pr., BIOL 1030. The physiological principles and characteristics of poultry species which directly interact with commercial management systems, Spring.
experimental psychology such as learning, cognitive or social. Course may be repeated for a maximum of 3 credit hours.

**PSYC 4250 PSYCHOLOGY OF CHOICE AND DECISION** (3). LEC. 3. Pr., PSYC 2120 and PSYC 3560. In-depth treatment of the psychological science of choice (behavioral allocation) and decision-making.

**PSYC 4260 PSYCHOLOGY OF ADDICTIVE BEHAVIORS** (3). LEC. 3. Pr., PSYC 2120. Overview of various psychological features of addictive behaviors including alcohol and drug abuse, eating disorders, gambling and excessive sexual behavior.

**PSYC 4900 INDEPENDENT STUDY** (1-3). IND. Pr., junior standing and departmental approval. Work under the direction of a faculty member on a psychological topic of mutual interest. Maximum of 3 hours may be used for PSYC major. Course may be repeated for a maximum of 3 credit hours.


**PSYC 4960 SEMINAR IN PSYCHOLOGY** (3). SEM. 3. Pr., departmental approval. Seminar in research and theory on psychological topics.

**PSYC 4967 HONORS READINGS** (3). IND. Pr., membership in the Honors College, or senior standing. Course may be repeated for a maximum of 3 credit hours.

**PSYC 4970 ADVANCED TOPICS IN PSYCHOLOGY** (3). LEC. 3. Pr., departmental approval. Topics assigned by course instructor.

**PSYC 4997 HONORS RESEARCH AND THESIS** (1-3). IND. Pr., membership in the Honors College, or senior standing. Research in specialized topics. Course may be repeated for a maximum of 3 credit hours.

**PSYC 5610 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 7050 ASSESSMENT IN CLINICAL PSYCHOLOGY** (3). LEC. 3. Pr., PSYC 2120 and PSYC 3560. 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 THE TEACHING OF PSYCHOLOGY** (1). LEC. 1. The problems and practices of teaching psychology at the college level. In addition to seminar meetings, students will work with faculty in appropriate courses.

**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 and environmental interaction.

**PSYC 7150 BIOLOGICAL BASES OF BEHAVIOR** (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 BASES OF BEHAVIOR** (3). LEC. 3. Topics and literature on the social foundations of behavior.

**PSYC 7190 INTRODUCTION TO 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 7230 PSYCHOMETRIC THEORY** (3). LEC. 3. Pr., STAT 7000. Coreq., STAT/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/environment interaction, using environmental interventions and identifying behavior change and its causes.

**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 ANIMAL PSYCHOPATHOLOGY** (3). LEC. 3. Current theoretical conceptions and research in adult psychopathology.

**PSYC 7900 INDEPENDENT STUDY** (1-3). IND. Pr., departmental approval. Work under the direction of a faculty member on a psychological topic of mutual interest. No more than 3 hours count toward major. Course may be repeated for a maximum of 3 credit hours.

**PSYC 7960 SEMINAR IN PSYCHOLOGY** (3). SEM. 3. Pr., departmental approval. Seminar in research and theory on psychological topics.

**PSYC 7980 RESEARCH IN SPECIAL TOPICS** (3). IND. 3. Pr., departmental approval. Supervised scholarly activity related to student’s field of study. Course may be repeated with change in topic.

**PSYC 7990 RESEARCH AND THESIS** (1-10). MST. Course may be repeated for a maximum of 10 credit hours.

**PSYC 8180 ADVANCED SOCIAL PSYCHOLOGY** (3). LEC. 3. Pr., PSYC 7100 or departmental approval. Theories, research and issues in contemporary social psychology.

**PSYC 8250 MULTIVARIATE METHODS** (4). LEC. 3. LAB. 2. Pr., STAT 7000 or 7020. Introduction to the theory behind multivariate analyses and the statistical procedures 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** (3). Level 3. Investigating issues, assessment, intervention, professional and ethical issues in providing clinical services.


**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 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 8420 BEHAVIOR CHANGE IN CHILDREN** (3). LEC. 3. Pr., PSYC 8310 and PSYC 8400 or PSYC 8410. Introduction to methods of prevention and treatment of cognitive, behavioral and emotional disorders of children.

**PSYC 8440 HEALTH PSYCHOLOGY AND BEHAVIORAL MEDICINE** (3). LEC. 3. Pr., departmental approval. Seminar in 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. Pr., departmental approval. Theoretical framework and methodological practices in basic research on human alcohol and drug abuse.


**PSYC 8470 BEHAVIORAL ECONOMICS OF SUBSTANCE ABUSE** (3). LEC. 3. Level 3. Examination of 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. Examination of professional preparation issues and recent scientific developments relevant to careers in the experimental analysis of behavior.

**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 integration 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 8540 BEHAVIORAL PHARMACOLOGY** (3). LEC. 3. Pr., PSYC 7150 or departmental approval. Drugs that influence behavior and behavioral mechanisms that modify them. Topics include drug self-administration, behavioral tolerance, context and history, and direct actions of behaviorally active drugs.

**PSYC 8550 APPLIED BEHAVIOR ANALYSIS** (3). LEC. 3. Pr., PSYC 7140 or departmental approval. The scientific and conceptual foundations of applied behavior analysis and its strategies of intervention and evaluation.


**PSYC 8700 ADVANCED INDUSTRIAL PSYCHOLOGY** (3). LEC. 3. Coreq., graduate standing in PSYC or department approval. Analysis of methods and content of industrial (Personnel) psychology.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>PYDI 5190</td>
<td>PHARMACY PRACTICE EXPERIENCE 2</td>
<td>1</td>
<td>Requires second-year PYDI standing. First of a six-course introduction to the practice setting providing experiential activities in the provision of Pharmaceutical care.</td>
</tr>
<tr>
<td>PYDI 5200</td>
<td>PHARMACY PRACTICE EXPERIENCE 1</td>
<td>1</td>
<td>Requires first-year PYDI standing. First of a six-course introduction to the practice setting providing experiential activities in the provision of Pharmaceutical care.</td>
</tr>
<tr>
<td>PYDI 5290</td>
<td>PHARMACY PRACTICE EXPERIENCE 3</td>
<td>2</td>
<td>Requires third-year PYDI standing. Third of a six-course introduction to the practice setting providing experiential activities in the provision of Pharmaceutical care.</td>
</tr>
<tr>
<td>PYDI 5350</td>
<td>PRINCIPLES OF ANTIMICROBIAL THERAPY</td>
<td>3</td>
<td>Requires PYPS 5220, BIOL 3200, Coreq. PYPS 5300 Basic concepts of microbiology, immunology, pharmacology, and medicinal chemistry applied to decisions pertaining to antimicrobial drug therapy in the treatment of infectious diseases of humans.</td>
</tr>
<tr>
<td>PYDI 5400</td>
<td>PHARMACOTHERAPY 1</td>
<td>3</td>
<td>Requires PYPP 5260, BIOL 3200, PYPS 5300, PYPC 5340, BIOL 3200. Application of the basic, clinical and socio-behavioral sciences to infectious diseases.</td>
</tr>
<tr>
<td>PYDI 5410</td>
<td>PHARMACOTHERAPY 2</td>
<td>3</td>
<td>Requires PYPP 5260, BIOL 3200, PYPS 5300, PYPC 5340, BIOL 3200. Application of the basic, clinical and socio-behavioral sciences to cardiovascular disorders.</td>
</tr>
<tr>
<td>PYDI 5420</td>
<td>PHARMACOTHERAPY 3</td>
<td>3</td>
<td>Requires PYPP 5260, BIOL 3200, PYPS 5300, PYPC 5340, BIOL 3200. Application of the basic, clinical and socio-behavioral sciences to pulmonary disorders.</td>
</tr>
<tr>
<td>PYDI 5430</td>
<td>PHARMACOTHERAPY 4</td>
<td>3</td>
<td>Requires PYPP 5260, BIOL 3200, PYPS 5300, PYPC 5340, BIOL 3200. Application of the basic, clinical and socio-behavioral sciences to neurological and psychiatric disorders.</td>
</tr>
<tr>
<td>PYDI 5490</td>
<td>PHARMACY PRACTICE EXPERIENCE 5</td>
<td>2</td>
<td>Requires third-year PYDI standing. Fifth of a six-course introduction to the practice setting providing experiential activities in the provision of Pharmaceutical care.</td>
</tr>
<tr>
<td>PYDI 5500</td>
<td>PHARMACY PRACTICE EXPERIENCE 6</td>
<td>2</td>
<td>Requires third-year PYDI standing. Sixth of a six-course introduction to the practice setting providing experiential activities in the provision of Pharmaceutical care.</td>
</tr>
<tr>
<td>PSYC 8710</td>
<td>ADVANCED ORGANIZATIONAL PSYCHOLOGY</td>
<td>3</td>
<td>Requires Coreq., graduate standing in PSYC or departmental approval. Analysis of major issues in organizational psychology.</td>
</tr>
<tr>
<td>PSYC 8720</td>
<td>PERSONNEL SELECTION</td>
<td>3</td>
<td>Requires LEc. STAT 7000, PSYC 8700. Analysis of classical, contemporary, theoretical, and practical issues related to personnel selection.</td>
</tr>
<tr>
<td>PSYC 8730</td>
<td>PERFORMANCE APPRAISAL</td>
<td>3</td>
<td>Requires LEc. STAT/PSYC 7270, PSYC 8700. Application of classical, contemporary, theoretical and practical issues related to the appraisal of employee work performance.</td>
</tr>
<tr>
<td>PSYC 8910</td>
<td>CLINICAL PRACTICUM 1</td>
<td>1-4</td>
<td>Requires PRa. Coreq., PSYC 8320 or PSYC 8410. Supervised practicum experience in clinical assessment and intervention techniques. Course may be repeated for a maximum of 4 credit hours.</td>
</tr>
<tr>
<td>PSYC 8920</td>
<td>PRACTICUM IN PSYCHOLOGY 1</td>
<td>1-10</td>
<td>Requires PRa. Coreq., departmental approval. Supervised practicum in industrial and organizational psychology. Course may be repeated for a maximum of 10 credit hours.</td>
</tr>
<tr>
<td>PSYC 8930</td>
<td>DIRECTED STUDIES IN PSYCHOLOGY</td>
<td>1-3</td>
<td>Requires IND. Coreq., approved doctoral plan of study. 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 3 credit hours.</td>
</tr>
<tr>
<td>PSYC 8970</td>
<td>SPECIAL TOPICS 1</td>
<td>1-3</td>
<td>Requires SEm. Coreq., departmental approval. In-depth seminar on issues related to selected specializations in psychology. Course may be repeated for a maximum of 3 credit hours.</td>
</tr>
<tr>
<td>PSYC 8990</td>
<td>RESEARCH AND DISSERTATION 1</td>
<td>1-10</td>
<td>Requires DSR. Coreq., departmental approval. Course may be repeated for a maximum of 10 credit hours.</td>
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</tbody>
</table>

**Pharmacy Doctorate (PYDI)**

Dr. Robert Smith - 844-4033

**PYPP 5020/5023 PATIENT ASSESSMENT 1 (1)** | Requires LAB. Coreq., first-year PYDI standing. Performing a basic physical assessment and obtaining a medical and medication history. |

**PYPP 5260 HUMAN PATHOLOGY (3)** | Requires LEc. Coreq., second-year PYDI standing. General Mechanisms and language of disease. Emphasis on pathogenesis of disease to include and understanding of the dynamic nature of disease. |


**PYPP 5550/5553 DRUG INDUCED DISEASE (2)** | Requires LEc. Coreq., third-year PYDI standing. Patient evaluation in drug-induced disease and polypharmacy. |

**PYPP 5560 DRUG INFORMATION (3)** | Requires PRa. Coreq., fourth-year PYDI standing. Advanced practice experience in providing drug information services to health care providers. |
PYPP 5610 COMMUNITY PHARMACEUTICAL CARE (3). PRA. Pr., fourth-year PYDI standing. 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 INTERNAL MEDICINE (3). PRA. Pr., fourth-year PYDI standing. Advanced practice experience in providing in-patient pharmaceutical care to adult patients with diseases of the major organ systems.

PYPP 5640/5643 PRIMARY AND AMBULATORY CARE 1 (3). PRA. Pr., fourth-year PYDI standing. Advanced practice experience in providing pharmaceutical care to patients as they initially access the health care system.

PYPP 5650 PRIMARY AND AMBULATORY CARE 2 (3). PRA. Pr., fourth-year PYDI standing. Advanced practice experience in an primary/ambulatory care setting that is innovative and/or the pharmacist has a special role.

PYPP 5670 ELECTIVE ADVANCED PRACTICE EXPERIENCE (3). PRA. Pr., fourth-year PYDI standing. Elective experience at an advanced practice setting in which the student establishes personal learning goals and responsibilities. Must be repeated in 3 different practice settings for a total of 9 hours. Course may be repeated for a maximum of 3 credit hours.

PYPP 5680 CLINICAL SEMINAR (2). LEC. 2. Pr., fourth-year PYDI standing. Coreq., advanced practice sequence. Student seminars on topics of drug therapy.

PYPP 5690 LONGITUDINAL PHARMACY SERVICES (0). PRA. Pr., fourth-year PYDI standing. Coreq., advanced practice experience sequence. Longitudinal experience that develops the ability to adapt to and function within an integrated pharmaceutical care practice.

PYPP 5900/5903 SPECIAL PROBLEMS IN PHARMACY PRACTICE (1-3). LEC. Pr., departmental approval. Selected topics related to pharmacy practice. Course may be repeated for a maximum of 3 credit hours.

Pharmaceutical Sciences (PYPS)

PYPS 5010 PHARMACEUTICS 1 (2). LEC. 2. Pr., first-year PYDI standing. Coreq., PYPS 5011. Physical-chemical principles are applied to development and understanding of solid dosage forms and homogenous liquid dosage forms. Selected topical drugs are considered from this viewpoint.


PYPS 5100 PHARMACEUTICS 2 (2). LEC. 2. Pr., CHEM 6180, PYPS 5010, PYPS 5011, Coreq., PYPS 5101. Physical-chemical principles required to formulate, compound, manufacture and manipulate dosage forms including sterile dosage forms, heterogeneous liquid dosage forms, and novel drug delivery systems.


PYPS 5200/5203 PRINCIPLES OF PHARMACOKINETICS (3). LEC. 3. Pr., second-year PYDI standing. The time course of drug absorption, distribution, metabolism and excretion and the pharmacodynamic relationships.

PYPS 5220 PRINCIPLES OF DRUG ACTION 2 (4). LEC. 4. Pr., second-year PYDI standing. The chemical and physio-chemical properties of drugs and the biochemical mechanisms of drug action to include neurologic agents, antihypertensives, antibiotics, anticoagulants, and antineoplastic agents.

PYPS 5300 PHARMACEUTICAL BIOTECHNOLOGY (2). LEC. 2. Pr., PYPS 5220, Coreq., CHEM 5300. Principles of biotechnology as they relate to the pharmaceutical sciences, including recombinant DNA technology, recombiant proteins and oligonucleotides, monoclonal antibodies, and drug delivery systems.

PYPS 5500 SPECIAL PROBLEMS IN PHARMACAL SCIENCES (1-3). LEC. Pr., departmental approval. Selected laboratory research topics in pharmaceutical sciences. Course may be repeated for a maximum of 3 credit hours.

PYPS 6310 PHARMACOLOGY 1 (3). LEC. 3. Pr., BIOL 6600 and CHEM 6190. Biochemical and physiological effects, action mechanism, absorption, distribution, biotransformation, excretion, therapeutic and other uses of drugs.

PYPS 6320 PHARMACOLOGY 2 (3). LEC. 3. Pr., BIOL 6600 and CHEM 6190. Biochemical and physiological effects, action mechanism, absorption, distribution, biotransformation, excretion and therapeutic and other uses of drugs.

PYPS 6330 PHARMACOLOGY 3 (3). LEC. 3. Pr., BIOL 6600 and CHEM 6190. Biochemical and physiological effects, action mechanism, absorption, distribution, biotransformation, excretion and therapeutic and other uses of drugs.

PYPS 6350 TOXICOLOGY (3). LEC. 3. Pr., BIOL 6600. The basic science of poisons including the acute and chronic toxicity of common environmental, agricultural, industrial, commercial, medicinal and naturally occurring substances.


PYPS 6370 FUNDAMENTALS OF BIONUCLEONICS (3). LEC. 3. Pr., PHYS 1500. Theoretical and practical applications of trace-level radioactivity for research application to pharmacy and allied sciences.

PYPS 6390 NEUROPHARMACOLOGY OF DRUG ABUSE (2). LEC. 2. Pr., departmental approval. 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.

PYPS 6500 PHARMACOGNOSY (3). LEC. 3. Pr., CHEM 2080, BIOL 6600. Medicinal plants, folk medicines, herbal drugs and poisonous plants including constituents and uses.

PYPS 7010 PHARMACOKINETICS (4). LEC. 4. Pr., 06 PYPS or 09 PYSC standing or departmental approval. Pharmacokinetic and pharmacodynamic principles and methods used to study the absorption, distribution, metabolism and excretion of drugs.

PYPS 7020 TABLET MANUFACTURING (4). LEC. 4. Pr., 06 PYPS or 09 PYSC standing or departmental approval. Formulation, compression, coating and evaluation of tablets.

PYPS 7030 DRUG PRODUCT DEVELOPMENT (4). LEC. 4. Pr., 06 PYPS or 09 PYSC standing or departmental approval. Formulation and evaluation as well as actual manufacture of pharmaceutical products.

PYPS 7050 NOVEL DOSAGE FORMS (3). LEC. 3. Pr., 06 PYPS or 09 PYSC standing or departmental approval. Theoretical basis and design of controlled release and site specific drug delivery systems.

PYPS 7060 FORMULATION AND DELIVERY OF PEPTIDE/PROTEIN DRUGS (3). LEC. 3. Pr., 06 PYPS or 09 PYSC standing or departmental approval. Formulation and delivery problems unique to peptide/protein pharmaceuticals and strategies to overcome such problems.

PYPS 7070 TRANSPORT PHENOMENA IN PHARMACEUTICAL SYSTEMS (3). LEC. 3. Pr., 06 PYPS or 09 PYSC standing or departmental approval. Mechanisms of drug transport in various pharmaceutical dosage forms and biological systems. Elucidation of methods to characterize drug transport phenomena. Correlation of transport phenomena with drug disposition in the body. Emphasis on peptide, protein, and oligonucleotide drugs.

PYPS 7080 ADVANCED BIOPHARMACEUTICS (3). LEC. 3. Pr., PYPS 7010. The mathematical and pharmacokinetic relationships between physical and chemical properties of a drug and its dosage form and biological effects.

PYPS 7110 STABILITY KINETICS OF PHARMACEUTICALS (3). LEC. 3. Pr., 06 PYPS or 09 PYSC standing or departmental approval. Principles of chemical kinetics as applied to the unique stability problems of the various pharmaceutical dosage forms.

PYPS 7250 CHEMISTRY OF SYNTHETIC DRUGS 1 (3). LEC. 3. Pr., 06 PYPS or 09 PYSC standing or departmental approval. Explanation of the principles of Medicinal Chemistry progressing to qualitative and quantitative descriptions of the synthesis, influence of physical and chemical properties of chemical substances on biological activity and biodistribution.

PYPS 7250 CHEMISTRY OF SYNTHETIC DRUGS 2 (3). LEC. 3. Pr., 06 PYPS or 09 PYSC standing or departmental approval. Relationship of physicochemical properties to the pharmacological actions of drugs affecting the central and peripheral nervous systems. Synthetic methodology employed in the design and synthesis of drugs affecting the central and peripheral nervous systems.

PYPS 7220 CHEMISTRY OF SYNTHETIC DRUGS 3 (3). LEC. 3. Pr., 06 PYPS or 09 PYSC standing or departmental approval. Relationship of physicochemical properties to the pharmacological actions of drugs classified as chemotherapeutic agents. Synthetic methodology employed in the design and synthesis of chemotherapeutic agents.

PYPS 7260 ANALYTICAL AND CONTROL METHODS 1 (4). LEC. 4. Pr., 06 PYPS or 09 PYSC standing or departmental approval. A survey of the analytical methods used in the identification and identification of drug substances with emphasis on separation science. The relationships between the chemical and physical properties of the drug molecules and the analytical methods are emphasized.

PYPS 7270 ANALYTICAL AND CONTROL METHODS 2 (4). LEC. 4. Pr., 06 PYPS or 09 PYSC standing or departmental approval. A survey of the analytical methods used in the identification and identification of drug substances. The relationships between the chemical and physical properties of the drug molecules and the analytical methods are emphasized.

PYPS 7300 NEUROPHARMACOLOGY (3). LEC. 3. Pr., CHEM 6190, PYPS 6390. Neurochemical mechanisms related to the pharmacological actions of medicinal agents affecting the central nervous system.

RSED 3010 INTRODUCTION TO SPECIAL EDUCATION (3). LEC. 3. Pr., RYPS 7300. Discussions on schizophrenia, Alzheimer's disease, experimental methods and animal models of disorders.

RYS 7330 PHARMACOLOGY RESEARCH METHODS (3). LEC. 1.LAB. 9. Experimental design, research methods and data analysis in pharmacology.

RYS 7560 NEUROPHARMACOLOGY OF DRUG DEPENDENCE (2). LEC. 2. Pr., RYPS 5220 or departmental approval. An in-depth study of the neurochemical changes that occur during chronic drug use. Exploration of theories on the causes of drug dependence and current and proposed pharmacological treatments of drug addiction.

RYS 7370 PHARMACOLOGY-TOXICOLOGY SEMINAR (1). SEM. 1. Pharmacology-Toxicology Seminar. Course may be repeated for a maximum of 1 credit hours.

RYS 7500 METABOLISM AND DISPOSITION XENOBIOTICS (2). LEC. 2. Pr., CHEM 6180 and BIOL 6600. Portals of entry, absorption, distribution and elimination of drugs and xenobiotics. Metabolic mechanisms relevant to chemical structure and principles of pharmacokinetics will be emphasized.


RYS 7600 HETEROCYCLIC MEDICINAL CHEMISTRY (3). LEC. 3. Pr., CHEM 7220. A survey of the chemical nature of heterocyclic moieties which are either themselves of medicinal significance or are components of agents possessing therapeutic properties.

RYS 7900 SPECIAL PROBLEMS IN PHARMACAL SCIENCES (1-3). LEC. 1. Pr., 06 RYPS standing or departmental approval. Selected laboratory research topics in the pharmaceutical sciences. Course may be repeated for a maximum of 3 credit hours.

RYS 7950 SEMINAR (1). SEM. 1. Pr., 06 RYPS standing or departmental approval. Required of all 06 RYPS students. Course may be repeated for a maximum of 1 credit hours.

RYS 7960 DIRECTED READINGS IN PHARMACAL SCIENCES (1-3). IND. Pr., 06 RYPS standing or departmental approval and 6 hours of 7000-level courses. Selected study topics in the pharmaceutical sciences. Course may be repeated for a maximum of 3 credit hours.

RYS 7990 RESEARCH AND THESIS (1-10). MST. Research for Masters students. Course may be repeated for a maximum of 10 credit hours.

RYS 8900 SPECIAL PROBLEMS IN PHARMACAL SCIENCES (1-3). LEC. Pr., 09 PYSC standing or departmental approval. Selected laboratory research topics in the pharmaceutical sciences. Course may be repeated for a maximum of 3 credit hours.

RYS 8950 SEMINAR (1). LEC. 1. Required of all 09 PYSC students. Course may be repeated for a maximum of 1 credit hours.

RYS 8960 DIRECTED READINGS IN PHARMACAL SCIENCES (1-3). IND. Pr., 09 PYSC standing or departmental approval and 6 hours of 7000-level courses. Selected study topics in the pharmaceutical sciences. Course may be repeated for a maximum of 3 credit hours.

RYS 8990 RESEARCH AND DISSERTATION (1-10). DSR. Doctoral research for students. Course may be repeated for a maximum of 10 credit hours.

Rehabilitation and Special Education (RSED)

Dr. Philip L. Browning - 844-5943

RSED 3100 INTRODUCTION TO SPECIAL EDUCATION (3). LEC. 3. Orientation to the profession including history, philosophy, federal legislation, contemporary issues and professional 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 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.

RSED 3110 ASSESSMENT IN SPECIAL EDUCATION (3). LEC. 3. Selection, administration, scoring and interpretation of standardized aptitude and educational tests used in the field of special 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 4010 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. Pr., PHIL 1030. Ethical dilemmas that are routinely faced by practitioners in human service occupations.

RSED 4900 DIRECTED INDEPENDENT STUDY (1-3). IND. Pr., departmental approval. Content focus of study area will be translated into specific objectives with student learning guided by the instructor. Course may be repeated for a maximum of 3 credit hours.

RSED 4910 PRACTICUM (1-6). PRA. Pr., junior or senior standing. Practice in educational or community service setting aligned with degree program option. Course may be repeated for a maximum of 6 credit hours.

RSED 4920 INTERNSHIP (9). INT. Pr., senior standing. Comprehensive supervised on-the-job experience in a school, college or community-based setting serving individuals with disabilities.

RSED 4970/4973 SPECIAL TOPICS (1-3). IND. Pr., departmental approval. 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.

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 social disabilities with implications for personal, vocational, social and community adjustment.

RSED 6030 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 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 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 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 6100 INFANTS AND TODDLERS WITH DISABILITIES (3). LEC. 3. Pr., departmental approval. Historical, legislative, and philosophical basis of early intervention for young children, birth through age two, with special needs and their families.

RSED 6110 CURRICULUM IN EARLY CHILDHOOD SPECIAL EDUCATION (3). LEC. 3. Pr., RSED 3100. Procedures for developing, implementing, and monitoring individualized educational programs in natural settings.

RSED 6120 CURRICULUM IN ELEMENTARY SPECIAL EDUCATION (3). LEC. 3. Pr., RSED 3010. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum activities for the collaborative instruction of elementary children with disabilities.

RSED 6130 CURRICULUM IN SECONDARY SPECIAL EDUCATION (3). LEC. 3. Pr., RSED 3010. 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 SPEECH PATHOLOGY AND SPECIAL EDUCATION (3). LEC. 3. Theoretical and practical foundation in methods, instruments, and procedures used to identify, assess, and instruct pre-school and school-aged children with communication disorders.

RSED 6150 TEACHING METHODS IN SPECIAL EDUCATION (3). LEC. 3. Instructional strategies in reading and math for students who have learning and behavior problems.

RSED 6160 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 6200 VOCATIONAL EVALUATION IN REHABILITATION (3). LEC. 3. Vocational evaluation and work adjustment techniques and strategies used within the rehabilitation process.

RSED 6210/6216 OCCUPATIONAL INFORMATION (3). LEC. 3. Pr., RSED 6200. Identification, location, and use of data resources for job accommodation
and modification strategies, labor market surveys, and job placement of persons with disabilities.

RSED 6220/6226 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 6230/6236 REHABILITATION ASSISTIVE TECHNOLOGY (3). LEC. 3. Basic computer literacy; use of commercially available software, and assistive technology for persons with disabilities.

RSED 7000 ADVANCED STUDY OF EXCEPTIONALITY (3). LEC. 3. Advanced study of the major categories of disabilities with emphasis on the educational and rehabilitative practices of each. Contemporary issues and trends are included.

RSED 7010/7016 REHABILITATION PROFESSIONS, PROGRAMS AND SERVICES (3). LEC. 3. Comprehensive examination of the evolution, nature and contemporary status of state-federal vocational rehabilitation system including roles of the professionals within this system.

RSED 7100 ADVANCED ASSESSMENT IN EARLY INTERVENTION (3). LEC. 3. Pr., RSED 3100, RSED 4010. Advanced concepts and techniques for developmental screening and assessment for young children (ages 0-6) with developmental delay.

RSED 7110 ADVANCED ASSESSMENT IN EARLY CHILDHOOD SPECIAL EDUCATION (3). LEC. 3. Pr., RSED 3100, RSED 4010. Advanced concepts and techniques for developmental screening and assessment for young children, birth to age three, and their families.

RSED 7110 ADVANCED ASSESSMENT IN EARLY CHILDHOOD SPECIAL EDUCATION (3). LEC. 3. Pr., RSED 3100, RSED 4010. Standardized, norm-referenced procedures, curriculum, criterion assessments, play techniques; and naturalistic strategies for special-needs children, birth to age three, and their families.

RSED 7120 ADVANCED INTERVENTION WITH INFANTS AND TODDLERS WITH DISABILITIES (3). LEC. 3. Pr., RSED 7100. Administration and on-going management of early intervention programs and service coordination of individualized family service plans and family support.

RSED 7210 ADVANCED INTERVENTION IN EARLY CHILDHOOD SPECIAL EDUCATION (3). LEC. 3. Pr., RSED 7100. Curriculum methods, intervention plans, communication, physical and medical management, environmental and behavioral management, and evaluation of child and family outcomes.

RSED 7220 ADVANCED TEACHING METHODS IN SPECIAL EDUCATION (3). LEC. 3. Pr., RSED 6150. Applied study and practice in analyzing, designing, constructing and evaluating teaching sequences and programs with empirical emphasis for design of instructional principles.

RSED 7230 ADVANCED BEHAVIOR MANAGEMENT IN SPECIAL EDUCATION (3). LEC. 3. Pr., RSED 4010. Provides skills necessary to direct academic and social performance and appropriately manage the behavior of students with special needs.

RSED 7700 REHABILITATION COUNSELING TECHNIQUES (3). LEC. 3. Facilitative communication skills and systematic problem solving skills for effective clinical practice.

RSED 7310/7316 PROPRIETARY REHABILITATION (3). LEC. 3. Pr., RSED 6210, RSED 7130. Vocational rehabilitation in private sector including case management and vocational expert witness for workers compensation, personal injury litigation, and social security.

RSED 7400 CURRICULUM AND TEACHING IN SPECIALIZATION (3). LEC. 3. Pr., departmental approval. Curriculum design, content, and materials selection related to teaching practices in areas of specialization (mental retardation, learning disabilities, behavioral disorders, etc.). Course may be repeated for a maximum of 3 credit hours.

RSED 7410/7416 PROGRAM IMPLEMENTATION IN SPECIALIZATION (3). LEC. 3. Pr., departmental approval. Program organization and development of materials for curriculum improvement and teaching practices in specialization area (mental retardation, learning disabilities, etc.). Course may be repeated for a maximum of 3 credit hours.

RSED 7420 RESEARCH IN SPECIALIZATION (3). LEC. 3. Pr., departmental approval. Examination and interpretation of applied research in specialization area (mental retardation, learning disabilities, behavioral disorders, etc.).

RSED 7430 RESEARCH INTO PRACTICE (3). LEC. 3. Pr., departmental approval. Application of strategies for translating instructional and behavioral research into practice by working with students with disabilities who attend RSE's Summer Learning Clinic.

RSED 7440/7446 SEMINAR IN SPECIALIZATION (3). SEM. 3. Pr., departmental approval. 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.

RSED 7900/7906 DIRECTED INDEPENDENT STUDY (1-3). IND. Pr., departmental approval. Content focus of study area will be translated into specific objectives with advanced student learning guided by the instructor. Course may be repeated for a maximum of 3 credit hours.

RSED 7920/7926 INTERNSHIP (9). LEC. 9. Pr., departmental approval. Comprehensive supervised on-the-job experience in a school, college or community-based setting serving individuals with disabilities.

RSED 7990 RESEARCH AND THESIS (1-10). MST. Pr., departmental approval. Course may be repeated for a maximum of 6 credit hours.

RSED 8010 DISABILITIES AND RESEARCH METHODS (3). LEC. 3. Pr., departmental approval. History, principles, and methodology of single subject research with emphasis on the different types of research designs applied in rehabilitation and special education.

RSED 8020 DISABILITIES AND APPLIED RESEARCH IN MEASUREMENT (3). LEC. 3. Pr., departmental approval. Classical measurement theory, individual differences determination, constructs related to diagnostic labels, measurement bias and fairness, nature-nurture controversy, and clinical versus statistical inference.

RSED 8030 DISABILITIES AND PROFESSIONAL ISSUES (3). LEC. 3. Pr., departmental approval. Critical and contemporary issues regarding the disability population and their relationship to the roles and leadership of professionals in special education and rehabilitation.


RSED 8060 DISABILITIES AND THE LAW (3). LEC. 3. Pr., departmental approval. Advanced knowledge of legislative and litigative basis for special education and rehabilitation programs and services.

RSED 8060 DISABILITIES AND LIFE SPAN TRANSITIONS (3). LEC. 3. Pr., departmental approval. Advanced study of historical, legal, legislative, philosophical, and service delivery issues and trends with emphasis on research studies and programs.

RSED 8070 PROFESSIONAL SEMINAR (3). LEC. 3. Pr., departmental approval. The first of two consecutive doctoral seminars is devoted to professional technical writing, whereas the second seminar addresses grant writing and management. Course may be repeated with change in topic.

RSED 8090 DIRECTED INDEPENDENT STUDY (1-3). IND. Pr., departmental approval. Content focus of study area will be translated into specific objectives with student learning guided by the instructor. Course may be repeated with change in topic.

RSED 8980 NON-THESS PROJECT (1-10). IND. Pr., departmental approval. Course may be repeated with change in topic.

RSED 8990 RESEARCH AND DISSERTATION (1-10). DSR. Pr., departmental approval. Course may be repeated for a maximum of 10 credit hours.

Sciences and Mathematics, Interdepartmental (SCMH)

SCMH 1010 CONCEPTS OF SCIENCE (4). LEC. SLAB. 1. Science Core. Interdisciplinary course which presents major scientific concepts and stresses the interactions between the sciences and the humanities. Credit will not be given for both SCMH 1010 and either BIOL 1000 or BIOL 1020.

SCMH 1990 PRE-HEALTH PROFESSIONS ORIENTATION (1). LEC. 1. Orientation and guidance for all freshmen planning to seek admittance to health professions schools, such as medicine, dentistry, optometry, physical therapy, pharmacy, podiatry and veterinary medicine.

SCMH 3990 PRE-MEDICAL PRECEPTORSHIP (1). LAB. 2. Pr., junior standing and departmental approval. Direct observation and interaction with physicians at East Alabama Medical Center in various medical specialties.

Sociology (SOCY)

Dr. Arthur Wilke - 844-2825

ANTH 1000 INTRODUCTION TO ANTHROPOLOGY (3). LEC. 3. Pr., departmental approval. 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 2000 ETHNOGRAPHIC METHODS (3). LEC. 3. Pr., ANTH 1000. Approaches, techniques, and strategies for conducting ethnographic research and analyzing qualitative data in the social sciences.

ANTH 2100 INTRODUCTORY ARCHAEOLOGY (3). LEC. 3. Pr., ANTH 1000 or departmental approval. A broad introductory to archaeology, designed to introduce the history, principles and methods of modern archaeological anthropology.

ANTH 2200 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 societies.

ANTH 3100 LANGUAGE AND CULTURE (3). LEC. 3 Pr., Social Science Core I Core and junior standing. 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 ARCHAEOLOGICAL FIELD SCHOOL (6). LEC. 6 Pr., ANTH 1000 and junior standing. 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 or departmental approval and junior standing. 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.

ANTH 3500 ARCHAEOLOGICAL LABORATORY TECHNIQUES (1-3). LEC. 1 LAB. 2 Pr., ANTH 1000 and junior standing. The diversity and complexity of prehistoric to protohistoric cultures of the southeastern United States.

ANTH 3750 POLITICAL ECOLOGY (3). LEC. 3 Pr., Social Science Core I and junior standing. Problems of re-inoclogy, cultural ecology, political ecology and environmentalism.

ANTH 3800 MESOAMERICAN ARCHAEOLOGY (3). LEC. 3 Pr., ANTH 1000 or departmental approval and junior standing. The prehistoric cultures of Mesoamerica, from the Olmecs to the Aztecs.

ANTH 3850 SOUTHEASTERN ARCHAEOLOGY (3). LEC. 3 Pr., ANTH 1000 and junior standing. Historical archaeology and ethnohistory with emphasis on the cultures of peoples who left few written records.

ANTH 4100 NORTH AMERICAN INDIANS (3). LEC. 3 Pr., ANTH 1000 and junior standing. A comparative anthropological, cultural and ethnohistorical overview of Native Americans.

ANTH 4200 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 4300 THE ANTHROPOLOGY OF LAW (3). LEC. 3 Pr., ANTH 1000 and junior standing. An introduction to the study of law in cultures and societies around the world.

ANTH 4600 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 4700 CRITIQUE OF DEVELOPMENT (3). LEC. 3 Pr., ANTH 3700 and junior standing. The meanings and structures of national and international development.

ANTH 4900 ANTHROPOLOGICAL THEORY (3). LEC. 3 Pr., ANTH 1000. Major thinkers in cultural anthropology and their theoretical models considered in historical perspective.

ANTH 4920 INTERNSHIP IN ANTHROPOLOGY (3). INT. 3 Pr., ANTH 1000, junior standing. An internship with a federal/state agency for practical work or research on anthropological problems.

ANTH 4960 DIRECTED READING (3). LEC. 3 Pr., ANTH 1000 and junior standing. An independent reading program to pursue specific interests in anthropology not covered in other courses.

ANTH 6970 SPECIAL TOPICS IN ANTHROPOLOGY (3). LEC. 3 Pr., ANTH 1000 and senior or graduate standing. Examination of a specific problem in ethnographic methods, theory, and cultural analysis.

ANTH 7100 NORTH AMERICAN INDIANS (3). LEC. 3. An advanced comparative cultural and ethnohistorical overview of the Native American cultures of North America, emphasizing change and contact situations.

ANTH 7200 GENDER, DEVELOPMENT AND CULTURE (3). LEC. 3. The role of gender and culture in Third World economic development from an anthropological perspective.

ANTH 7600 CULTURE, MEDICINE AND POWER (3). LEC. 3. Power in the context of illness and healing at local, national and international levels.

ANTH 7700 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.

CRIMINOLOGY (CRIM)

CRIM 2000 CRIME AND JUSTICE IN AMERICA (3). LEC. 3. The distribution and measurement of criminality, different variations in criminal behavior and the handling of crime in the American criminal justice system.

CRIM 3000 CRIMINOLOGY (3). LEC. 3. Examine etiological issues related to crime. Major theories of crime causation from a wide variety of perspectives are explored in detail.

CRIM 3100 POLICE AND SOCIETY (3). LEC. 3. A sociological overview of policing and current issues that relate to the police.

CRIM 3200 SENTENCING AND CORRECTIONS (3). LEC. 3. An in-depth analysis of sentencing policy and the corrections system.


CRIM 3500 DELINQUENCY AND JUVENILE JUSTICE (3). LEC. 3 Pr., CRIM 2000. The nature and distribution of delinquency in the United States, as well as the various components of the juvenile justice system.

CRIM 4000 CRIMINAL LAW: SUBSTANTIVE AND PROCEDURAL ISSUES (3). LEC. 3 Pr., CRIM 2600 or junior standing. Statutory criminal law and its application to law enforcement and the criminal courts in the United States.

CRIM 4100 CONSTITUTIONAL LAW: CRIMINAL JUSTICE (3). LEC. 3. United States Supreme Court opinions defining due process and other issues related to the national and state administration of criminal justice.

CRIM 4200 SOCIOLOGY OF CRIMINAL LAW (3). LEC. 3. Controversial and contemporary issues in the field of criminal law from a sociological perspective.


CRIM 4350 CRIMINAL INVESTIGATION AND FORENSICS (3). LEC. 3. Criminal investigation procedures including case preparation, specific techniques for specific offenses and crime science.

CRIM 4400 COMPARATIVE CRIMINAL JUSTICE (3). LEC. 3. Institutional comparison, social control problems and policies and functional analysis of the criminal justice systems in selected countries.

CRIM 4500 VICTIMOLOGY (3). LEC. 3 Pr., junior standing. The impact of victimization upon the crime victim, offender, and society, as well as the dynamics of the victim-offender relationship.

CRIM 4550 SERIAL AND MASS MURDER (3). LEC. 3 Pr., junior standing. The phenomena of serial homicide and mass murder with emphasis on etiological issues, crime-scene investigation and profiling.

CRIM 4600 SEX CRIMES (3). LEC. 3 Pr., junior standing. Criminal sexual behavior, the social influences on what is defined as sexually deviant, and how the criminal justice system handles sex offenders.

CRIM 4650 DRUGS AND SOCIETY (3). LEC. 3 Pr., junior standing. The context and correlates of drug use, relationship with crime and delinquency, and societal reaction to drug abuse.

CRIM 4920 INTERNSHIP (3-6). INT. 3 Pr., junior standing and departmental approval. Field experience in a work setting under the joint supervision of the agency and the Criminology and Criminal Justice Program. Course may be repeated for a maximum of 6 credit hours.

CRIM 4960 READINGS IN CRIMINOLOGY/CRIMINAL JUSTICE (3). LEC. 3 Pr., junior standing. Independent reading course under the supervision of a faculty member from the Criminology and Criminal Justice Program. Course may be repeated for a maximum of 3 credit hours.

CRIM 4970 SPECIAL TOPICS IN CRIMINOLOGY/CRIMINAL JUSTICE (3). LEC. 3 Pr., junior standing. Selected topics related to Criminology/Criminal Justice.

CRIM 7200 SOCIOLOGY OF CRIMINAL LAW (3). LEC. 3. Controversial and contemporary issues in the field of criminal law from a sociological perspective.

CRIM 7300 ADVANCED CRIMINOLOGICAL THEORY (3). LEC. 3. The etiology of crime, including recent advances and issues in criminological theory.

CRIM 7350 VIOLENT CRIME (3). LEC. 3. The social, behavioral, cultural, spatial and situational antecedents of criminal violence.

CRIM 7500 VICTIMOLOGY (3). LEC. 3. The impact of victimization upon the crime victim, offender and society, as well as the dynamics of the victim-offender relationship.

CRIM 7550 SERIAL AND MASS MURDER (3). LEC. 3 Pr., junior standing. Independent reading course under the supervision of a faculty member from the Criminology and Criminal Justice Program. Course may be repeated for a maximum of 3 credit hours.

CRIM 7600 SEX CRIMES (3). LEC. 3. Criminal sexual behavior, the social influences on what is defined as sexually deviant, and how the criminal justice system handles sex offenders.

CRIM 7650 DRUGS AND SOCIETY (3). LEC. 3. The context and correlates of drug use, relationship with crime and delinquency, and societal reaction to drug abuse.

CRIM 7970 SPECIAL TOPICS IN CRIMINAL JUSTICE (3). LEC. 3. Select topics related to Criminology/Criminal Justice.
SOCIOLOGY (SOCY)


SOCY 2000 SOCIAL ISSUES (3). LEC. 3. Pr., SOCY 1000. 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 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 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 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 CONFLICT (3). LEC. 3. Pr., SOCY 1000. 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. An exploration of the sources and uses of minority representations in the U.S. addressing inequities such as race, ethnicity, gender and sexual orientation.

SOCY 3700 METHODS OF SOCIAL RESEARCH (3). LEC. 3. Pr., SOCY 1000. Methodological approaches to data collection used by social scientists including logic of science, hypothesis formation and research design.


SOCY 4100 DEVIANCE (3). LEC. 3. Pr., junior standing. 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. Pr., junior standing. 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. Pr., junior standing and departmental approval. Supplementary instruction concurrent with experience in some field of work involving application of sociological perspectives to community life. Course may be repeated for a maximum of 3 credit hours.

SOCY 4400 CONTEMPORARY THEORY (3). LEC. 3. Pr., junior standing. A survey of theorists from Comte to the present, emphasizing theory construction, theoretical analysis and differences in theoretical approaches.

SOCY 4900 DIRECTED READING IN SOCIOLOGY (3). IND. 3. Pr., junior standing and departmental approval. 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 3 credit hours.

SOCY 4970 SPECIAL TOPICS IN SOCIOLOGY (3). LEC. 3. Pr., junior standing and departmental approval. Advanced topics in population and ecology, social structure, social institutions, socialization and religion.

SOCY 7000 ADVANCED SOCIOLOGICAL THEORY (3). LEC. 3. Pr., SOCY 4400 or departmental approval. Reviews major types of sociological theory within the context of theoretical paradigms, and significant theoretical issues that face the discipline.

SOCY 7100 STATISTICAL ANALYSIS OF SURVEY, AGGREGATE AND LARGE DATA SOURCES (3). LEC. 3. Pr., STAT 2010 or departmental approval. Techniques commonly used in multivariate statistical analysis of data sources such as surveys, archival records and other large data sets. Credit will not be given for both SOCY 7100 and STAT 7100.

SOCY 7200 SEMINAR IN SOCIAL BEHAVIOR (3). SEM. 3. Research and theory concerning social and group influences on behavior.

SOCY 7800 MENTORING IN THE CLASSROOM (1). LEC. 3. Pr., departmental approval. 125st-hand experience in course building/planning, lecture and test construction, syllabus preparation, presenting and tapping a lecture, performance critique, developing discussions, and other techniques.

SOCY 7850 TECHNOLOGY AND TEACHING IN SOCIOLOGY (1). LEC. Pr., Department Approval. The use of technology as a teaching tool as it applies to Sociology.

SOCY 7900 INDEPENDENT STUDY (3). IND. Pr., departmental approval. An independent reading course under the supervision of a department faculty member. Course may be repeated for a maximum of 3 credit hours.

SOCY 7970 SOCIOLOGY SPECIAL TOPICS (3). LEC. 3. Focuses on substantive areas related to the discipline of sociology. Course may be repeated for a maximum of 3 credit hours.

SOCY 7990 research and THESIS (1-10). MST. In conjunction with the preparation of a thesis. Course may be repeated for a maximum of 10 credit hours.

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 2850 HISTORY OF SOCIAL WELFARE (3). LEC. 3. Provides detailed knowledge of the development of social welfare policies and programs in the U.S. Emphasizes analysis of political, economic, and social factors involved.

SOWO 3400 CHILDREN IN CRISIS AND TRANSITION (3). LEC. 3. Pr., SOWO 3800 or HDFS 2010. The normal childhood transitions and crisis situations and the social work knowledge and skills required for assisting both children and their parents or caregivers.

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. Work with court investigations and procedures, and worker burnout emphasized.

SOWO 3600 AGING ISSUES AND SERVICES (3). LEC. 3. Pr., SOCY 1000. Introduction to social services and social work with the elderly. Various socio-cultural issues and impact on the elderly are covered.


SOWO 3800 HUMAN BEHAVIOR IN SOCIAL ENVIRONMENT I (3). LEC. 3. Pr., SOWO 2000, BIOL 1000. Lifespan approach to biopsychosocial examination of behavior and early development. Special emphasis is given to influences of racism, sexism and ethniccentrism.

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. 3. Pr., departmental approval. Introduces fields and settings of social work practice via placement in a selected social service agency. Includes a concurrent integrative seminar to analyze their experience.

SOWO 4060 SOCIAL WORK PRACTICE METHODS I (3). LEC. 3. Pr., SOWO 2000, SOWO 2650, SOWO 3910. Introduces the student to generalist practice methods and skills in engagement, assessment and goal setting with individual clients.

SOWO 4070 SOCIAL WORK METHODS II (3). LEC. 3. Pr., SOWO 4060. The practice skills and perspectives required for work with families and groups.

SOWO 4080 SOCIAL WORK METHODS III (3). LEC. 3. Pr., SOWO 4070. 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 SOCIAL WORK FIELD PLACEMENT (9). FLD. 9. Pr., SOWO 4980. 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. Coreq., SOWO 4920. 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.

SOWO 4970 SOCIAL WORK SPECIAL TOPICS (3). LEC. 3. Pr., junior standing. Select, timely and/or controversial topics related to social work. Course content will depend upon the designated topic.

Statistics (STAT)

Dr. Jason A. Osbourne - 844-3647
Dr. Christine Curtis - 844-4784

STAT 2010 STATISTICS FOR SOCIAL AND BEHAVIOR SCIENCES (4). LEC. 3,LAB. 2. Pr., MATH 1100 or MATH 1120. Introduction to basic principles of statistical reasoning and statistical procedures used in data analysis in the social and behavioral sciences.

STAT 2510 STATISTICS FOR BIOLOGICAL AND HEALTH SCIENCES (3). LEC. 3. Pr., MATH 1100 or MATH 1120. Introduction to statistical concepts, reasoning and methods used in data analysis, descriptive statistics, sampling distributions, statistical inference, confidence intervals, regression or correlation, contingency tables.

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.
THEA 2400 THEATRE DESIGN (3). LEC. 3. An exploration of the fundamental elements and principles of design, pictorial composition, and design theory with an emphasis on scenario creation and application for scenic, costume, and lighting designs.

THEA 2610 COSTUME CONSTRUCTION (3). LEC. 1,STU. 4. Fundamentals of machine sewing techniques, pattern drafting and draping, fabric dyes, and craftsmanship as they relate to theatrical costuming.

THEA 2850 STAGE MAKEUP (3). LEC. 1,STU. 4. Theories and techniques of stage makeup, design, and execution of basic makeup techniques, special effects, and character makeups.

THEA 2810 THEATRE PRODUCTION I (3-6). STU. Pr., departmental approval. Coreq., THEA 2820. Intensive study of theatre arts through participation in the AU Summer Repertory Company, focusing mainly on technical work and design. Summertime may be repeated for a maximum of 6 credit hours.

THEA 2820 SUMMER REPERTORY THEATRE COMPANY I (3-6). STU. Pr., departmental approval. Coreq., THEA 2810. A concentrated workshop experience in all aspects of theatre production through participation in rehearsal and performance. Summer. Course may be repeated for a maximum of 6 credit hours.

THEA 2840 BEGINNING DANCE TECHNIQUES (2). STU. Exploration of applied dance technique and technology including ballet, jazz, and the history of dance.

THEA 2850 INTERMEDIATE DANCE TECHNIQUES I (2). STU. 4. Pr., THEA 2840 or departmental approval. Exploration of applied dance theory and technique with an emphasis on ballet.

THEA 2860 INTERMEDIATE DANCE TECHNIQUES II (2). STU. 4. Pr., THEA 2840 or departmental approval. Exploration of applied dance theory and techniques with an emphasis on jazz.

THEA 3000 PRODUCTION STUDIO II (1-2). STU. 4, Pr. 4 credit hours of THEA 2050. Experience in the design/technical and management areas of production. Course may be repeated for a maximum of 2 credit hours.

THEA 3010 PRODUCTION STUDIO III (1-2). STU. 4, Pr., admission to Bachelor of Fine Arts program in Design/Technical or Production Pr.. Management. Four credit hours of THEA 2030. Leadership positions in the Design/Technical and Management areas of production. Course may be repeated for a maximum of 2 credit hours.

THEA 3100 APPLIED THEATRE II: ACTING (1-2). PRA. Pr., casting in Auburn University theatre productions, junior or senior standing. Performance experience in Auburn University theatre productions. Leading roles are eligible for 2 credit hours, all other roles for 1 hour credit. Course may be repeated for a maximum of 2 credit hours.

THEA 3150 JUNIOR STUDIO I: ADVANCED PERFORMANCE STUDIES (6). LEC. 3,STU. 6. Pr., admission to Bachelor of Fine Arts Performance program. Intensive team-taught exploration of comprehensive internal and external acting techniques and the Lessac system of voice and speech in contemporary theatre.


THEA 3200 STAGE MANAGEMENT (3). LEC. 3. Examination of the role and responsibilities of the stage manager in the producing organization: management, organization, audits, rehearsal and production procedures.

THEA 3210 FUNDAMENTALS OF DIRECTING (3). LEC. 2,STU. 2. Pr., THEA 2000 or departmental approval. Theories and techniques of stage direction including play analysis, production preparation, and production of a one-act play for a public audience.

THEA 3220 THEATRE TECHNOLOGY II (3). LEC. 2,STU. 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. 1,LAB. 4. Pr., THEA 2400 or departmental approval. Studio-oriented course introducing the principles, techniques, and media of the scenic artist.

THEA 3350 THEATRE HISTORY AND CRITICISM (3). LEC. 3. Pr., THEA 2310. A comprehensive study of the styles and periods of Western theatre. Emphasis on the contributions of various cultures and nationalities.

THEA 3400 RENDERING FOR THE THEATRE (3). LEC. 1,STU. 4, Pr., THEA 2400 or departmental approval. Traditional drawing and rendering techniques and materials that help the designer to communicate scenic, costume, and lighting designs.

THEA 3410 SCENE DESIGN I (3). LEC. 2,STU. 2. Pr., THEA 2400 or departmental approval. Discussion, research, and execution of theory and practices of designing scenery for the stage. Emphasis on historical style or method of design and the application of materials in a limited demonstration for the prosenium theatre.

THEA 3420 PROPERTY DESIGN AND TECHNOLOGY (3). LEC. 2,STU. 2. Pr., THEA 3320 or departmental approval. History, design, organization, application of materials and techniques used in the design and construction of properties for the theatre, film and television.

THEA 3450 DRAFTING FOR THE THEATRE (3). LEC. 1,STU. 4, Pr., THEA 2510. A comprehensive study of the techniques and methods used in the design, representation, and construction of properties for the stage. Emphasis on traditional style or method of design and the application of materials in a limited demonstration for the prosenium theatre.

THEA 3510 LIGHTING DESIGN (3). LEC. 1,STU. 4, Pr., THEA 2310 or departmental approval. Studio course that explores the theory, research, and practice of stage lighting, practical illumination, and effects lighting.

THEA 3520 SOUND DESIGN (3). LEC. 2,STU. 2. Pr., THEA 3320 or departmental approval. A course to develop an in-depth understanding of the equipment and techniques used in sound design, as both a design and technical medium.

THEA 3610 ADVANCED COSTUME CONSTRUCTION (3). LEC. 1,STU. 4, Pr., THEA 2610. Historical pattern making and draping, millinery skills, and craft techniques, and their practical applications in theatre costuming.

THEA 3640 COSTUME DESIGN I (3). LEC. 2,STU. 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 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 3 credit hours.

THEA 3740 COSTUMES AND SCENES (3). LEC. 3. History of Western costume and scenic design in the theatre from ancient times to the present.

THEA 3840 ADVANCED DANCE TECHNIQUES (3). LEC. 1,STU. 4. Pr., THEA 2850 or departmental approval. Intensive exploration of advanced dance techniques in theory and practice. Course often serves as a training and preparation ground for public production and execution. Course may be repeated for a maximum of 3 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 4180 MOVEMENT: SPECIAL PROJECTS (1-3). LEC. Pr., THEA 2840 or departmental approval. Intensive exploration of movement theory and practice with an emphasis on circus skills, stage combat, mask work, and period dance. Course may be repeated for a maximum of 3 credit hours.

THEA 4190 ACTING: SPECIAL PROJECTS (1-3). LEC. Pr., departmental approval. Selected advanced projects in performance. Course may be repeated for a maximum of 3 credit hours.

THEA 4290 DIRECTING: SPECIAL PROJECTS (3). LEC. 1,STU. 4, Pr., THEA 3210. Direction of a long one-act or full-length play for public performance. Course may be repeated for a maximum of 3 credit hours.

THEA 4420 SCENE DESIGN II (3). LEC. 2,STU. 2. Pr., THEA 3410 or departmental approval. 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.

THEA 4490 SCENE DESIGN: SPECIAL PROJECTS (1-3). LEC. Pr., departmental approval. Selected projects in scenic design executed for a public production. Course may be repeated for a maximum of 3 credit hours.

THEA 4590 LIGHTING DESIGN: SPECIAL PROJECTS (1-3). LEC. Pr., departmental approval. Selected projects in lighting design executed for a public production. Course may be repeated for a maximum of 3 credit hours.

THEA 4650 ADVANCED STAGE MAKEUP (3). LEC. 1,STU. 4, Pr., THEA 2850 or departmental approval. Comprehensive study of specialized makeup: film, television, mask making, prosthesis, facial hair design, and wig making.

THEA 4660 THEATRE TECHNOLOGY: SPECIAL PROJECTS (1-3). LEC. Pr., departmental approval. Selected projects in theatre technology and/or technical direction for a public production. Course may be repeated for a maximum of 3 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.
TEXTILE ENGINEERING (TXEN)

THEA 4810 THEATRE PRODUCTION II (3-6). LEC. Pr., departmental approval. A concentrated workshop experience in all aspects of theatre production through participation in rehearsal and performance. Summer. Course may be repeated for a maximum of 6 credit hours.

THEA 4820 SUMMER REPERTORY THEATRE COMPANY II (3-6). LEC. Pr., departmental approval. Intensive and concentrated study of production skills and techniques and studio/laboratory experiences. Summer. Course may be repeated for a maximum of 6 credit hours.

THEA 4890 DANCE: SPECIAL PROJECTS (1-3). LEC. Pr., THEA 2850 or departmental approval. Selected advanced projects in dance. Course may be repeated for a maximum of 3 credit hours.

THEA 4900 INDEPENDENT STUDY (1-3). IND. Pr., departmental approval. Directed readings, creative and tutorial projects of interest to the advanced student. Course may be repeated for a maximum of 3 credit hours.

THEA 4920 PROFESSIONAL INTERNSHIP (1-8). INT. Pr., junior or senior standing, departmental approval. Internship with professional or community theatre in the student’s field of specialization. Each 10-hour work week equals one hour of credit. Course may be repeated for a maximum of 6 credit hours.

THEA 4967 HONORS READINGS (1-3). IND. Pr., membership in the Honors College; junior or senior standing. Subject areas to be determined between student and Theatre instructor. Course may be repeated for a maximum of 3 credit hours.

THEA 4980 SENIOR PROJECT (3). LEC. Pr., admission to Bachelor of Fine Arts program in Production/Design and Pr., Management. Research and production project. 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. Pr., Honors College enrollment. Final projects of varying natures and in the theatre program. Course may be repeated for a maximum of 6 credit hours.

Textile Engineering (TXEN)

Dr. Peter Schwartz - 844-4123

TEXTILE CHEMISTRY (TXCH)


TXCH 4411 ADVANCED DYING THEORY (4). LEC. 3. LAB. 3. Pr., TXEN 3400. Dye fiber bonding; thermodynamics and kinetics of dyeing; colorimetry and/or color systems.

TXCH 4910 SENIOR PROJECT I (1). IND. Pr., senior standing and departmental approval. Senior design project in the area of textile chemistry.

TXCH 4910 SENIOR PROJECT II (1). IND. Pr., TXCH 4900. Senior design project in the area of textile chemistry.

TXCH 4970 SPECIAL TOPICS (1-3). LEC. 1. Pr., departmental approval. Reading course with varying emphases to give opportunity for overview in textile chemistry. Course may be repeated for a maximum of 3 credit hours.

TEXTILE ENGINEERING (TXEN)

TXEN 2100 FIBER-TO-YARN ENGINEERING (3). LEC. 2. LAB. 3. Pr., ENGR 1110, MATH 1720 or MATH 1620. Engineering aspects required to design and modify textile yarns in relation to textile end products.


TXEN 3600 MECHANICS OF FLEXIBLE STRUCTURES (3). LEC. 3. Pr., TXEN 2250, TXEN 3310. Coreq., TXEN 2350. 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.

TXEN 4250 ENGINEERED TEXTILE STRUCTURES (3). LEC. 3. Pr., TXEN 2250, ENGR 2350, Coreq., TXEN 2210. Design and applications of high performance industrial textiles for civil engineering, architecture and construction, filtration, transportation, military/defense, safety/protective, medicine and composites.

TXEN 4500 TEXTILE REINFORCED MATERIALS (3). LEC. 3. Pr., TXEN 3600. Coreq., TXEN 2350. Material properties and manufacturing of textile reinforced materials; preform structures such as webs and braids; analysis, design methodology and applications.

TXEN 4600 MECHANICS OF TEXTILE MANUFACTURING PROCESSES AND SYSTEMS (3). LEC. 3. Pr., TXEN 2250, ENGR 2350, PHYS 1610. Engineering analysis of mechanisms used in modern textile machinery, inter-machine effects, interaction between machine parameters and textile product properties.

TXEN 4910 TEXTILE ENGINEERING DESIGN I (3). LEC. 3. Pr., senior standing. Undergraduate design project, first semester.

TXEN 4920 TEXTILE ENGINEERING DESIGN II (3). LEC. 3. Pr., TXEN 4910. Conclusion of undergraduate design project.

TXEN 4970 SPECIAL TOPICS (1-3). LEC. Pr., departmental approval. Reading course with varying emphasis to give opportunity for overview in specific areas of technology, research, and development. Course may be repeated for a maximum of 3 credit hours.


TXEN 6400 STRUCTURE AND PROPERTIES OF POLYMERS (4). LEC. 3. LAB. 3. Pr., CHEM 2080 or departmental approval. The inter-relationships between chemical structure of a polymer, polymer properties, and uses. Plastics, elastomers and fibers-synthesis and property requirements.

TXEN 6410 PHYSICAL CHEMISTRY OF DYING (4). LEC. 3. LAB. 3. Pr., TXEN 3400 or departmental approval. Thermodynamics and kinetics of dyeing systems; the laws of physical chemistry applied to dye/fiber interactions; color systems.

TXEN 6510 POLYMER CHEMISTRY (3). LEC. 3. Pr., CHEM 2090, ENGR 2050, and PHYS 2200. Polymer chemistry including polymer synthesis, polymer characteristics, polymer classes, solubility and swelling, and structure/property relationships.

TXEN 6610 TEXTILE FINISHES (3). LEC. 2. LAB. 3. Pr., TXEN 3400 or departmental approval. Theory, chemistry and mechanics of textile finishes. Coating and grafting.

TXEN 7100 INTEGRATED FIBER-TO-APPAREL QUALITY CONTROL (3). LEC. 3. Pr., TXMT 3520 or departmental approval. Quality-related topics for integrated textile and apparel operations.


TXEN 7250 ADVANCED ENGINEERING FIBROUS STRUCTURES (3). LEC. 3. Pr., TXEN 4250 or departmental approval. Application of advanced technology to the design, development and analysis of high performance industrial textiles.


TXEN 7620 ADVANCED MECHANICS OF FLEXIBLE STRUCTURES (3). LEC. 3. Pr., TXEN 3600. Recent advances in modeling and analysis of mechanical behavior of flexible structures.

TXEN 7950 GRADUATE SEMINAR (1). SEM. 1. Presentation of departmental research; practicing written and oral communication skills. Course may be repeated with change in topic. Course may be repeated with change in topic.

TXEN 7960 DIRECTED READINGS IN INTEGRATED TEXTILES (3). LEC. 3. Analysis of current issues in the integrated textile and apparel industry. Concurrent registration in TXEN 8950 is advised.

TXEN 7970 SPECIAL TOPICS (1-3). IND. Pr., Reading course with varying emphasis in particular areas of textile technology. Course may be repeated for a maximum of 3 credit hours. Course may be repeated for a maximum of 3 credit hours.

TXEN 7980 GRADUATE PROJECT (1-3). IND. Pr., graduate standing. In-depth work in a particular project of textile technology. Course may be repeated for a maximum of 3 credit hours. Course may be repeated for a maximum of 3 credit hours.


TEXTILE MANAGEMENT (TXMT)

TXMT 2120 YARN FORMATION II (3). LEC. 2. LAB. 3. Pr., TXMT 2110. An extension of TXMT 2110 with emphasis on the management/technology aspects of yarn manufacturing including yarn structures, fiber selection techniques, and fiber/machine interaction.


TXMT 3220 NON-CONVENTIONAL FABRICS (2). LEC. 2. Pr., TXTN 2210, TXTN 3310. The manufacturing technology of non-woven and tufted textiles along with their applications.

TXMT 3520 TEXTILE QUALITY CONTROL (2). LEC. 2. Pr., TXTN 2700, TXTN 3500. SPC and quality engineering aspects required for textile applications.

TXMT 4800 PLANT OPERATIONS AND COST CONTROL (3). LEC. 3. Pr., TXTN 2210. The principles of textile operations cost analysis based on labor cost, raw material cost, technological requirements and customer requirements. Strategies for improving competitive advantages.

TXMT 4900 SENIOR RESEARCH I (1). IND. Pr., senior standing. Undergraduate research sequence, initial semester.

TXMT 4910 SENIOR RESEARCH II (1). IND. Pr., TXTM 4900. Conclusion of an undergraduate research sequence.

TXMT 4970 SPECIAL TOPICS (1-10). IND. Pr., departmental approval. Reading and special project course for overview in specific areas of textile technology and management. Course may be repeated for a maximum of 10 credit hours. Course may be repeated for a maximum of 10 credit hours.

TEXTILE TECHNOLOGY (TXTN)

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 2920 INDUSTRY INTERNSHIP (3). LEC. 3. Pr., sophomore standing and departmental approval. A directed project in an industrial setting addressing current, significant problems selected by the sponsor and approved by the course coordinator. Course may be repeated for a maximum of 3 credit hours. Course may be repeated for a maximum of 3 credit hours.

TXTN 3310 STRUCTURE AND PROPERTIES OF FIBERS (4). LEC. 3,LAB. 3. Pr., CHEM 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 4967 HONORS READING I (1-3). IND. Pr., membership in the Honors College, junior or senior standing. Course may be repeated for a maximum of 3 credit hours. Course may be repeated for a maximum of 3 credit hours.

TXTN 4997 HONORS THESIS I (3). LEC. 3. Pr., membership in the Honors College, senior standing. May be substituted for Pr., TXTN 4900/TXTN 4910. Individual student endeavor consisting of directed research and writing of honors thesis.

University Courses (UNIV)

UNIV 1000 THE AUBURN EXPERIENCE (1). LEC. 1. Pr., first-year Auburn students only. Surveys the history of the University, current student resources, and academic programs.

UNIV 1010 SOCIETY, CULTURE AND THE ENVIRONMENT (3). LEC. 3. Social Science I Core. The influences of society, culture and environment upon the individual in a diverse-multicultural, global setting.

UNIV 1017 HONORS SOCIETY, CULTURE AND THE ENVIRONMENT (3). LEC. 3. Pr., membership in the Honors College. Social Science I Core. The influences of society, culture and environment upon the individual in a diverse-multicultural, global setting.

UNIV 1050 SUCCESS STRATEGIES I (1). LEC. 1. An introduction to essential academic and personal skills. Designed to familiarize students with university life and academic improvement skills.

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. Pr., membership in the Honors College. 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 LYCEUM I (1). LEC. 1. Pr., membership in the University Honors College. Weekly academic lectures followed by a discussion and interactive session. Course may be repeated for a maximum of 1 credit hours.

UNIV 3900 AUBURN ABROAD (0). FLD. Pr., study abroad office approval. Student must meet individual program requirements and complete a study abroad course approval form prior to departure.

UNIV 4990 UNDERGRADUATE GRADUATION (0). LEC. Pr., departmental approval. 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.

UNIV 5070 MICROSCOPIC ANATOMY I (3). LEC. 1,LAB. 4. Pr., departmental approval. A detailed study of and preparation of the basic tissues. Light microscopy and electron micrograph preparations are used to describe and interpret morphology.

UNIV 5070 MICROSCOPIC ANATOMY II (3). LEC. 1,LAB. 4. Pr., departmental approval. Light microscopy and electron microscopy detailed study of the cardiovascular, hemopoetic, digestive, urinary and respiratory systems of domestic animals.

UNIV 5700 DEVELOPMENTAL NEUROBIOLOGY (3). LEC. 3. Pr., departmental approval. Overview of the development of the nervous system. Emphasis will be directed towards understanding sensory systems, development, plasticity and regeneration. Fall.


UNIV 5700 ENDOCRINOLOGY (4). LEC. 4. Pr., BCH 7200, BCH 7260, BIOL 6600, or departmental approval. Molecular and cellular endocrinology and physiological regulation of hormone synthesis, secretion and action in mammalian species. Emphasis will be placed on metabolic regulatory hormones.

UNIV 5700 MOLECULAR ENDOCRINOLOGY (2). LEC. 2. Pr., VBMS 7070 or departmental approval. Examination of the literature of hormonal synthesis, secretion and mechanism of action with emphasis on receptors, second messenger systems and gene regulation. Spring.

UNIV 5700 CLINICAL PHARMACOLOGY (3). LEC. 3. Pr., acceptable courses in biochemistry and physiology; departmental approval. The actions and effects of drugs on human beings. Spring.


UNIV 5710 MEMBRANE PHYSIOLOGY (3). LEC. 2,LAB. 3. Pr., departmental approval. The classic and modern aspects of biological membranes. Labs include patch clamp, reconstruction of ion channels in bilayers, Langmuir-Blodgett techniques, and other methods. Summer.

UNIV 5710 VETERINARY MEDICINE DIAGNOSTIC ULTRASONOGRAPHY (3). LEC. 3. Pr., veterinary anatomy and/or DVM degree. 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.

UNIV 5710 PHYSIOLOGY I (5). LEC. 5. Pr., departmental approval. Cellular, Cardiovascular, Renal and Respiratory Physiology.

UNIV 5710 PHYSIOLOGY II (4). LEC. 4. Pr., VBMS 7140 or departmental approval. Gastrointestinal Physiology, Metabolism, Endocrinology and Reproductive Physiology.

UNIV 5710 NEUROSCIENCE (3). LEC. 3. Pr., departmental approval. An overview of neuroscience on the subcellular, cellular and system levels.

UNIV 5710 ANAT, PHYSIO & PHARM SEMINAR (1). SEM. 1. Required of all graduate students in Anatomy, Physiology and Pharmacology Fall, Spring.

UNIV 7250 NORMAL RADIOLOGICAL ANATOMY (5). LEC. 5. Pr., DVM Degree. Acceptance in an established residency program. 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.

UNIV 7260 ADVANCED RADIOLOGY (5). LEC. 5. Pr., DVM degree, acceptance in an established residency program. Detailed study of advanced radiographic techniques and alternate imaging.

UNIV 7270 RADIOLOGICAL INTERPRETATIONS (5). LEC. 5. Pr., DVM Degree. Acceptance in established residency program, VBMS 7250. The interpretation of various diagnostic imaging modalities utilized in veterinary medicine and their applications in the diagnostic work-up of clinical cases presenting to the College of Veterinary Medicine.

UNIV 7280 RADIOLOGICAL TECHNIQUES (5). LEC. 5. Pr., DVM Degree. Acceptance in established residency program, VBMS 7250 and VBMS Pr., 7270.
CMBL/VBMS 7500 CELLULAR AND MOLECULAR IMMUNOLOGY (4). LEC. 1,LAB. 9. Pr., departmental approval. Techniques used in modern diagnostic microbiology laboratories.

CMBL/VBMS 7510 MOLECULAR GENETICS I (5). LEC. 5. Pr., CHEM 7200. Genetic mechanisms by which eukaryotic cells replicate, communicate and differentiate. Current literature will be used extensively. Spring.

CMBL/VBMS 7520 MOLECULAR GENETICS II (5). LEC. 5. Pr., VBMS 7510. Genetic mechanisms by which eukaryotic cells replicate, communicate and differentiate. Current literature will be used extensively. Spring.


CMBL/VBMS 7540 CURRENT TOPICS IN MOLECULAR VIROLOGY (3). LEC. 3. Pr., VBMS 7510, VBMS 7520, or departmental approval. Viral gene expression and evasion of host defense mechanisms. Fall.

VBMS 7550 PATHOLOGY (1-3). LEC. Pr., DVM degree or equivalent and departmental approval. Diagnostic interpretation of lesions and test results. Special topics or current issues in pathology to meet the particular needs of students. Course may be repeated for a maximum of 3 credit hours.


VBMS 7570 DIAGNOSTIC PATHOLOGY (1-3). LEC. Pr., DVM degree. For graduate students and residents in pathology. Diagnosis of animal diseases using necropsy procedures and histopathology. Required every semester for all graduate students and residents in pathology. Course may be repeated for a maximum of 3 credit hours.


VBMS 7610 ADVANCED CLINICAL PATHOLOGY II (3). LEC. 3,VMED 5230 or departmental approval. Laboratory evaluation of organ function; disease pattern recognition. Spring.

VBMS 7620 DIAGNOSTIC ONCOLOGY (3). LEC. 3. Pr., VMED 5220 or departmental approval. Principles of gross and microscopic interpretation of animal neoplasms using basic and specialized techniques. Summer.


VBMS 7680 VETERINARY WOUND MANAGEMENT AND RECONSTRUCTIVE SURGERY (3). LEC. 2,LAB. 3. Pr., DVM degree or equivalent. Techniques in veterinary wound management and reconstructive surgery in large and small animals.

VBMS 7790 SMALL ANIMAL ORTHOPEDICS (3). LEC. 3. Pr., DVM or equivalent degree. Review of orthopedic diseases in small animals, interactive review of recent literature and advanced laboratory sessions intended for residents in small animal surgery.

VBMS 7800 SMALL ANIMAL MEDICINE I (3-5). LEC. Pr., DVM degree and currently enrolled in a residency program at the AU College of Pr., Veterinary Medicine and departmental approval. Special study of the causes, methods of diagnosis, treatment and control of non-surgical urogenital diseases of small animals. Course may be repeated for a maximum of 5 credit hours.

VBMS 7820 ADVANCED SMALL ANIMAL MEDICINE II (3-5). LEC. Pr., DVM degree and currently enrolled in a residency program at the AU College of Pr., Veterinary Medicine and departmental approval. Special study of the causes, methods of diagnosis, treatment and control of non-surgical urogenital diseases of small animals. Course may be repeated for a maximum of 5 credit hours.

VBMS 7830 ADVANCED SMALL ANIMAL MEDICINE III (3-5). LEC. 3. Pr., DVM degree and currently enrolled in a residency program at the AU College of Pr., Veterinary Medicine and departmental approval. Special study of the causes, methods of diagnosis, treatment and control of non-surgical urogenital diseases of small animals. Course may be repeated for a maximum of 5 credit hours.
of the causes, methods of diagnosis, treatment and control of non-surgical cardiovascular and respiratory diseases of small animals. Course may be repeated for a maximum of 5 credit hours.

**VMED 7840 ADVANCED SMALL ANIMAL MEDICINE IV** (3-5). LEC. Pr., DVM degree and currently enrolled in a residency program at the AU College of Pr., Veterinary Medicine and departmental approval. Molecular biology lectures and techniques related to diagnostic and research application to clinical problems in small animal veterinary medicine. Course may be repeated for a maximum of 5 credit hours.

**VMED 7870 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC MEDICINE** (3). LEC. 3. Pr., DVM or equivalent degree. Advanced ophtalmology with emphasis on diagnosis, pathophysiology and treatment of ocular diseases of domestic animals.

**VMED 7880 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC SURGERY** (3). LEC. 1, LAB. 6. Pr., VMED 7870. Advanced ophtalmology with emphasis on ophtalmic surgery.

**VMED 7890 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC BASIC SCIENCES** (3). LEC. 3. Pr., DVM or equivalent degree. Advanced ophtalmology with emphasis on diagnosis, pathophysiology and treatment of ocula diseases of domestic animals.

**VMED 7970 RESEARCH PROBLEMS IN BIOMEDICAL SCIENCES** (1-5). RES. Pr., Faculty approval. Research problems for graduate students, under supervision of faculty, in variety of specialized disciplines related to the biomedical sciences.

**VMED 7990 RESEARCH AND THESIS IN BIOMEDICAL SCIENCES** (1-10). MST. Credit to be arranged. Course may be repeated for a maximum of 10 credit hours.

**VMED 8950 BIOMEDICAL SCIENCES SEMINAR** (1). SEM. 1. 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 for a maximum of 10 credit hours.

**VETERINARY MEDICINE (VMED)**

**VMED 5000 ORIENTATION TO VETERINARY MED** (0). SEM. 1. Pr., enrollment in the AU College of Veterinary Medicine (AUCVM). 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. Pr., enrollment in AUCVM. Ethical issues confronting veterinarians in every phase of the profession.

**VMED 5012 PROBLEM-SOLVING IN VETERINARY MEDICINE I** (1). LEC. 1. Pr., enrollment in AUCVM. 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. Pr., enrollment in AUCVM. Laws relating to the veterinary profession, public policies and government regulations.

**VMED 5022 PROBLEM SOLVING IN VETERINARY MEDICINE II** (1). LEC. 1. Pr., enrollment in AUCVM. 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. Pr., enrollment in AUCVM. Zoonoses, principles of epidemiology and food hygiene, role of veterinarian in public health.

**VMED 5032 PROBLEM SOLVING IN VETERINARY MEDICINE III** (1). LEC. 1. Pr., enrollment in AUCVM. 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. Pr., enrollment in AUCVM. 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. Pr., enrollment in AUCVM. 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. Pr., enrollment in AUCVM. Cellular, Cardiovascular, Renal and Respiratory Physiology.

**VMED 5111 VETERINARY ANATOMY I (SMALL ANIMAL)** (4). LAB. 12. Pr., enrollment in AUCVM. Basic concepts of body structure and small animal gross anatomy with veterinary medical applications. Fall.


**VMED 5121 VETERINARY ANATOMY II** (3). LAB. 9. Pr., enrollment in AUCVM. In-depth study of the gross anatomy of the ox, horse and minor species with inclusion of clinical relevance.

**VMED 5130 CELL PHYSIO & MOLECULAR GENETICS** (2). LEC. 2. Pr., enrollment in AUCVM. Introduction to advanced concepts in the mechanisms regulating cell function and molecular biology and genetics.

**VMED 5131 BASIC MICROANATOMY/DOMESTIC ANIM** (3). LEC. 1. LAB. 4. Pr., enrollment in AUCVM. Functional comparative microstructure of cells, basic tissues, cardiovascular system, respiratory system, and placentation of domestic animals.

**VMED 5141 ORGANOLOGY OF DOMESTIC ANIMALS** (2). LAB. 4. Pr., enrollment in AUCVM. Comparative microstructure of the digestive system, lymphoid system, endocrine system, integumentary systems, reproductive system, and placenta of domestic animals.

**VMED 5150 DIAGNOSTIC IMAGING** (2). LEC. Pr., enrollment in AUCVM. Basic radiographic and ultrasonographic physics; introduction to computed tomography, magnetic resonance imaging, and nuclear imaging.

**VMED 5151 VETERINARY NEUROSCIENCES** (5). LEC. 4. LAB. 2. Pr., enrollment in AUCVM. Gross and microscopic morphology and physiology of the peripheral and central nervous systems.

**VMED 5180 VETERINARY ETHOLOGY** (1). LEC. 1. Pr., enrollment in AUCVM. Basic concepts of ethology and other approaches to animal behavior, introduce diagnostic and treatment methods, discuss relevant cases.

**VMED 5200 VETERINARY PARASITOLOGY I** (3). LEC. 2. LAB. 2. Pr., enrollment in AUCVM. Platyhelminthes, trematodes, and nematodes of domestic animals.

**VMED 5210 VETERINARY PARASITOLOGY II** (2). LEC. 2. LAB. 2. Pr., enrollment in AUCVM. Arthropods, protozoa, helminths, and acanthocephalans of domestic animals. Parasitcides.

**VMED 5220 PRINCIPLES OF VETERINARY PATHOPATHY** (3). LEC. 2. LAB. 2. Pr., enrollment in AUCVM. General principles of pathology and mechanisms of disease processes affecting animals.

**VMED 5230 VETERINARY CLINICAL PATHOLOGY** (3). LEC. 3. Pr., enrollment in AUCVM. 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 VET IMMUNOLOGY** (3). LEC. 3. Pr., enrollment in AUCVM. Principles underlying the immune system’s ability to protect animals from disease and mechanisms by which immune responses contribute to disease.


**VMED 5260 VETERINARY PHARMACOLOGY** (3). LEC. 3. Pr., enrollment in AUCVM. 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. Pr., enrollment in AUCVM. Basic approach to physical examination of large and small animals.

**VMED 5310 INTRODUCTION TO SURGERY** (1). LEC. 1. Pr., enrollment in AUCVM. Basics of surgical instruments, 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. Pr., enrollment in AUCVM. Aseptic technique, instrument handling, suture patterns, surgical ties, anesthetic administration/monitoring, surgical incision/issue handling, wound closure, postoperative patient management.

**VMED 5320 CLINICAL VETERINARY NUTRITION** (2). CLN. 2. Pr., enrollment in AUCVM. Nutritional requirements and feeding programs of cats, dogs, horses, cows, sheep, goats, llamas and some exotic pets.

**VMED 5330 MULTISPECIES MEDICINE** (3). LEC. 3. Pr., enrollment in AUCVM. Cause, pathology, diagnosis, and control of common diseases of poultry companion birds; small mammal, fish, amphibian and reptile pets.

**VMED 5340 EMERGENCY MEDICINE: CRITICAL CARE AND ONCOLOGY** (3). LEC. 3. Pr., enrollment in AUCVM. Emergency presentations, critical care monitoring techniques; and diagnostic and therapeutic measures used to manage animals with oncologic disease.

**VMED 5350 VETERINARY TOXICOLOGY** (3). LEC. 2. LAB. 2. Pr., enrollment in AUCVM. Poisons and poisonous plants affecting large and small animals, chemical properties, signs, lesions, diagnosis, treatment.


**VMED 5502 CURRENT TOPICS IN VETERINARY MEDICINE** (1). LEC. 1. Pr., enrollment in AUCVM. Emerging topics in veterinary medicine, current literature. Fall, Spring. Course may be repeated for a maximum of 1 credit hours.

**VMED 5510 HEMOLYMPHATIC/INTEGUMENTARY SYSTEM** (4). LEC. 4. Pr., enrollment in AUCVM. Diagnosis, treatment and prevention of diseases affecting the integument.

**VMED 5512 COMPUTER APPLICATION IN VETERINARY MEDICINE** (1). LAB. 1. Pr., enrollment in AUCVM. Presentation software, Internet applications, library searching, databases, continuing education, specialized veterinary medical networks, Web page design, practice management software.

**VMED 5520 CARDIOVASCULAR SYSTEM** (2). LEC. 2. Pr., enrollment in AUCVM. Pathophysiology, pathologic lesions, radiographic and ultrasonographic tract working.
lesions, diagnosis, treatment and prevention of diseases affecting the cardiovascular system.

VMED 5530 RESPIRATORY SYSTEM/ANESTHESIA (6). LEC. 6 Pr., enrollment in AUCVM. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the respiratory system. Principles and practices of veterinary anesthesiology.

VMED 5540 ALIMENTARY SYSTEM (5). LEC. 5 Pr., enrollment in AUCVM. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the alimentary system.

VMED 5550 URINARY SYSTEM (2). LEC. 2 Pr., enrollment in AUCVM. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of disease affecting the urinary systems.

VMED 5560 ENDOCRINE SYSTEM/SPECIAL SENSES (3). LEC. 3 Pr., enrollment in AUCVM. Pathophysiology, pathologic lesions, diagnosis, treatment and prevention of diseases of the endocrine and musculoskeletal systems.

VMED 5570 REPRODUCTIVE SYSTEM (5). LEC. 5 Pr., enrollment in AUCVM. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment; and prevention of diseases of the reproductive system.

VMED 5580 NEUROVASCULAR SYSTEM (2). LEC. 2 Pr., enrollment in AUCVM. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment, and prevention of diseases affecting the nervous system.

VMED 5590 MUSCULOSKELETAL SYSTEM (3). LEC. 3 Pr., enrollment in AUCVM. Pathophysiology; pathologic, radiographic and ultrasonographic lesions, diagnosis, treatment; and prevention of diseases affecting the musculoskeletal system.

VMED 5601 VETERINARY CLINICAL ROTATIONS (3). CLN. Course may be repeated with change in topic.

VMED 5602 RESEARCH PROBLEMS IN BIO MEDICAL SCIENCE. (1-10). RES. Pr., departmental approval. Research problems in a variety of specialized disciplines for veterinary students and advanced undergraduates. Course may be repeated for a maximum of 10 credit hours.

VMED 5650 CANINE SPORTS MEDICINE AND REHABILITATION (1). LEC. 1 Pr., enrollment in AUCVM. 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 Pr., enrollment in AUCVM. Husbandry, nutrition, handling, and diseases of common laboratory animals.

VMED 5670 RATTIE PRODUCTION AND MEDICINE (1). LEC. 1 Pr., enrollment in AUCVM. Diseases, treatment, husbandry, handling, and role of the veterinarian in rattie production.

VMED 5680 POCKET PET MEDICINE (1). LEC. 1 Pr., enrollment in AUCVM. Diseases, treatment, restraint, examination, sample collection in rabbits, Guinea pigs, hamsters, rats, mice, and ferrets.

VMED 5690 REPTILE AND AMPHIBIAN MEDICINE (1). LEC. 1 Pr., enrollment in AUCVM. Diseases, treatment, husbandry, handling, restraint, examination, sample collection in reptiles and amphibians.

VMED 5700 MEDICAL VOCABULARY (2). LEC. 2 Pr., enrollment in AUCVM. Greek and Latin roots, prefixes and suffixes and their use to define medical words, terms or phrases.

VMED 5702 WRITING REINFORCEMENT FOR THE HEALTH PROFESSIONAL (1). LEC. 3 Pr., enrollment in AUCVM, departmental approval. Written and oral presentation of project emphasizing health promotion and disease prevention in the 21st century.

VMED 5710 PRACTICE MANAGEMENT (1). LEC. 1 Pr., enrollment in AUCVM. Fundamental principles of effective client, personnel, practice and business management for the veterinarian.

VMED 5712 WRITING REINFORCEMENT FOR THE SENIOR VETERINARY STUDENT (1). LEC. 1 Pr., enrollment in AUCVM, fourth-year student. Written and oral presentation of interesting clinical case, contest with monetary reward.

VMED 5720 BASIC SCIENCE OF NEUROLOGY (1). LEC. 1 Pr., enrollment in AUCVM Interactive case-based review of functional neuroanatomy using clinical neurological cases.

VMED 5721 APPLIED ANATOMY I (1). LAB. 3 Pr., enrollment in AUCVM. Detailed anatomical basis for small animal surgical approaches.

VMED 5730 AVIAN AND EXOTIC ANIMAL PHYSIOLOGY (1). LEC. 1 Pr., enrollment in AUCVM, VMED 5110, 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., enrollment in AUCVM. Detailed anatomical basis for small animal diagnostics and therapeutic.

VMED 5740 APPLIED COMPANION ANIMAL BEHAVIOR (2). LEC. 1 LAB. 1 Pr., enrollment in AUCVM, VMED 5300. Diagnosis, treatment and client education on selected behavior problems in companion animals.

VMED 5741 EQUINE LIMB JOINTS AND FOOT (1). LAB. 3 Pr., enrollment in AUCVM. 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., enrollment in AUCVM, VMED 5121. Basic physics, instrumenta- tion, and scanning techniques of ultrasonography. Normal sonographic anatomy correlated with the cross-sectional anatomy of body structures and organs.

VMED 5751 ELECTROPHYSIOLOGIC DIAGNOSTIC TECHNIQUES (1). LAB. 3 Pr., enrollment in AUCVM. Practical study of clinical electrodiagnostic regimes, theory, practice and diagnostic use of BAER, ERG, VER, SER, EMG, NCV.

VMED 5760 ADVANCED CLINICAL OPHTHALMOLOGY (1). LEC. 1 Pr., enrollment in AUCVM, VMED 5590, VMED 5311. Strategies and methods of diagnosis, treatment and prevention of diseases of the eye in large and small animals.

VMED 5761 RATIONAL ANTIMICROBIAL THERAPY (1). LEC. 2 Pr., enrollment in AUCVM, VMED 5140. Pharmacology of antimicrobial drugs, case based format, emphasis on drug selection.

VMED 5770 ADVANCED VETERINARY DERMATOLOGY (1). LEC. 1 Pr., enrollment in AUCVM, VMED 5510. Clinical dermatology in a case-based format.

VMED 5780 ADVANCED SMALL ANIMAL ONCOLOGY (2). LEC. 2 Pr., enrollment in AUCVM, VMED 5340. Current diagnostic and therapeutic methods used in small animal oncology.

VMED 5790 SMALL ANIMAL WOUND MANAGEMENT AND SURGERY (1). LEC. 1 Pr., enrollment in AUCVM. Wound management, reconstructive/salvage surgery.

VMED 5800 APPLIED SMALL ANIMAL NEUROLOGY (1). LEC. 1 Pr., enrollment in AUCVM. Clinical management of commonly occurring neurologic disease of small domestic animals.

VMED 5801 PRECEPTORSHIP (3). LAB. 20 Pr., approval of Preceptorship Committee, enrollment in AUCVM. Training in a practice situation under the direct supervision of a veterinarian or, under certain conditions, in specialized programs.

VMED 5810 FOREIGN ANIMAL PARASITES (1). LEC. 1 Pr., enrollment in AUCVM, VMED 5200, VMED 5210. Foreign parasites of domesticated and wild animals from continents other than North America.

VMED 5820 ADVANCED REPRODUCTIVE TECHNIQUES (2). LEC. 2 Pr., enrollment in AUCVM. Second and third year students, participated in a research project under the guidance of a faculty member.


VMED 5840 WILDLIFE DISEASES (2). LEC. 2 Pr., enrollment in AUCVM. Control and role of veterinarian in prevention of disease in wild animals, specifically wildlife indigenous to U.S.

VMED 5850 CAGE BIRD PRACTICE (1). LEC. 1 Pr., enrollment in AUCVM. Techniques for handling, examination, sample collection, diseases and nutrition of cage birds.

VMED 5860 ADVANCED TECHNIQUES IN POPULATION MEDICINE (1). LEC. 1 Pr., enrollment in AUCVM. 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 (2). LEC. 2 Pr., enrollment in AUCVM. Prevention, diagnosis, and treatment of freshwater and marine aquarium fish diseases.

VMED 5880 EQUINE REPRODUCTION (1). LEC. 1 Pr., enrollment in AUCVM, third or fourth year student. Reproductive, physiology, endocrinology, breeding soundness evaluation, breeding management and advanced technologies.

VMED 5890 BEEF PRODUCTION/COMPUTER RECORD SYSTEM (1). LAB. 1 Pr., enrollment in AUCVM. Hands-on experience with computerized record systems for beef cattle operations.

VMED 5950 CLINICOPATHOLOGIC CONFERENCE (0). SEM. 1 Pr., enrollment in AUCVM. Oral presentation of veterinary clinical case or case material.

VMED 5960 READINGS IN CURRENT VETERINARY LITERATURE (1). LEC. 1 Pr., enrollment in AUCVM. Introduction to veterinary literature, evaluation of recent articles, references, reports on veterinary medicine.

Women's Studies (WMST)

Dr. Mary Cameron - 844-2822