

University Courses

College of Agriculture and Human Sciences

AGEC 5213. Land Use and Resource Management. (2-2) Credit 3 semester hours. Nature and the economic dimensions of private and public control of land. Use of natural resources, including land, stock and flow resource concepts; time and space as they affect resource utilization and benefits. Laboratory studies of field problems in resource management and use. Lab fee \$15.00

AGEC 5223. Farm and Ranch Management. (2-2) Credit 3 semester hours. Theories of the farm and of the management process; farm-ranch business growth and productive efficiency; control and coordination of the agents of production; risk and uncertainty; agribusiness organization and management; and managerial decision making. Laboratory application of principles of economics to the production process, including analysis of costs, returns, and productivity. Lab fee: \$15.00

AGEC 5233. Price Analysis. (3-0) Credit 3 semester hours. Theories and principles fundamental to pricing of agricultural factors of production and agricultural commodities; relationship of prices within the agricultural sector and between the agricultural sector and the general economy; kinds of price changes; forecasting factors and conditions that affect agricultural prices; futures trading; parity prices; and administrated prices.

AGEC 5243. Agricultural Policy. (3-0) Credit 3 semester hours. Theoretical foundations of policy making and economic value of public policies and programs to the agricultural industry; interrelation between the social, political, and economic systems and agriculture; policy development and implementation; and the value of agricultural policy to society.

AGEC 5253. Marketing of Farm Products. (3-0) Credit 3 semester hours. Theoretical foundations of the modern economic system, including values added in the marketing system; dimensions and functions of marketing in relation of time, space, and value; market integration and product quality control; and market contracting orders and power.

AGEC 5263. Research Methods in the Agricultural Sciences. (3-0) Credit 3 semester hours. Philosophy, methods, and techniques of scientific inquiry in the discovery of new knowledge in the food, agricultural and human sciences; role of theory and assumptions. Defining and evaluating research project proposals, including objectives and procedures, analytical methods and techniques, evaluation of research studies, and development of thesis prospectus or equivalent.

AGEC 5283. Agricultural Finance. (3-0) Credit 3 semester hours. Theories, principles, and problems of financing agricultural business, including farms and ranches; costs and returns from the use of capital; forms and roles of capital in agriculture; capital productivity and earning, and capital market organization, and institutions; supply and demand of financial resources; and role of debt in farm growth.

AGHR 5303. Research. (0-6) Credit 3 semester hours. Conduct data collection, manuscript preparation, and presentation of research. Registration with permission of the graduate advisor/research chair. Student may enroll in this course twice for a total of 6 semester credit hours. Lab fee: \$15.00

AGHR 5323. Workshop in Food and Agricultural Sciences. (2-2) Credit 3 semester hours. Study of selected problems and issues in the food and agricultural sciences with emphasis on teacher and/or extension education programs. Analysis of contemporary educational needs. Selection and organization of course/program content, criteria and procedures for evaluation. Lab fee: \$15.00

AGHR 5333. Administration and Supervision of Agriculture and Human Resources. (3-0) Credit 3 semester hours. Development, organization, administration, and supervision of vocational agricultural education at the local, state, and national levels.

AGHR 5343. Youth Leadership Development. (3-0) Credit 3 semester hours. Procedures of organizing and conducting agricultural programs and activities for developing leadership skills in youth.

AGHR 5353. Technological Change. (3-0) Credit 3 semester hours. A study of advanced technological changes affecting the food and agricultural economy. Cultural and socioeconomic forces retarding and/or accelerating change. Processes of planning and implementing change.

AGHR 5373. Seminar. (3-0) Credit 3 semester hours. Study of current legislative and research developments in the food and agricultural sciences. Readings, discussions and written reports focusing on application of developments in professional practice.

AGHR 5813. Vocational Guidance and Counseling. (3-0) Credit 3 semester hours. Study of educational and occupational opportunities to assist youth in making career choices. Special attention is given to rural and limited resource youth. Techniques of individual and group counseling.

AGHR 5823. Special Topics in the Food and Agricultural Sciences. (2-2) Credit 3 semester hours. Directed individual study of a problem affecting some aspect of the food and agricultural sciences. Special work in an identified area of special interest. Reports, discussion, and major paper required. Lab fee: \$10.00

AGHR 5833. Organization and Administration of Agricultural Extension Programs. (3-0) Credit 3 semester hours. Study of extension programming in agriculture and human sciences. Principles of developing objectives and program planning; coordination and procedures of teaching and evaluating. One week observation with a County Extension Agent required. Prerequisite: Last semester senior or graduate student classification.

AGHR 5991-5992-5993. Independent Study. (0-2); (0-4); (0-6) Credit 1; 2; or 3 semester hours. Readings research, and/or field placement focusing on pre-selected issues in the food and agricultural sciences.

AGRO 5613. Environmental Microbiology. (3-0) Credit 3 semester hours. Study of the biological and chemical interactions between microbes and microbial metabolites with the environment (e.g., air, water, and soil) as related to food, agriculture quality and safety, animal and human health, and waste management. Emphasis will be on bioremediation, microbial bioprocesses, microbial by-products, microbial control and aerobiology. Laboratory, field and greenhouse situations will be practiced.

AGRO 5653. Soil Chemistry. (2-2) Credit 3 semester hours. Chemical processes in soils and their application in nutrient cycling, plant nutrition, waste disposal, acid rain, fate of pesticides and heavy metals, soil, plant, and water analysis in lab. Lab fee: \$15.00

AGRO 5663. Principles of Environmental Science and Management. (3-0) Credit 3 semester hours. Discussion of the physical, chemical and biological components of the environment as related to agricultural and industrial waste treatments and processes. Scientific and management approaches will be evaluated.

AGRO 5713. Biostatistics. (3-0) Credit 3 semester hours. Study of experimental design, scientific methods, statistical concepts, data analysis procedures, and computer applications.

AGRO 5723. Soil-Plant Relationships (3-0) Credit 3 semester hours. Discussion of recent literature pertaining to growth response curves, nutrient uptake, movement of nutrients in the soil, and measurement of availability of nutrients to plants, movement of nutrient to natural water systems.

AGRO 5733. Agricultural Chemicals and Water Quality. (2-2) Credit 3 semester hours. Analysis of practices underlying the economical use of fertilizers, pesticides, and other agricultural chemicals. Emphasis on the relationship to soil properties and plant growth, selectivity and impact on the environment. Lab fee: \$10.00

AGRO 5743. Land Disposal of Wastes. (3-0) Credit 3 semester hours. Theoretical, regulatory, and practical aspects of disposal of municipal wastes, sewage effluent and sludge, industrial and hazardous wastes by land treatment and filling. Clean-up soil resources contained by past waste disposal as well as environmental impact of organic wastes will be considered.

AGRO 5753. Soils, Ecology, and Land Uses. (3-0) Credit 3 semester hours. Soils and their properties as related to landscape ecology and specific land uses will be examined on a global, regional, and local level. An ecosystem approach will be used to examine issues and current problems associated with ecology and land use practices in agricultural systems, rangelands, forests, and wetlands. Also, ethical and philosophical points will be considered based on different soils, ecology, and land use viewpoints.

AGRO 5783. Application of Biostatistics. (3-0) Credit 3 semester hours. Techniques of experimental designs for biological, food and agricultural research. Techniques for application in field, greenhouse, survey and laboratory situations. Emphasis on methods to reduce error and enhance experimental control.

AGRO 5793. Problems and Issues in Environmental Science. (3-0) Credit 3 semester hours. Identification and analysis of current trends and issues in environmental science. Evaluation of pending legislation, federal agency regulations and state and local policy applications. Reports, discussions, projects.

ANSC 5513. Physiology of Reproduction. (2-2) Credit 3 semester hours. Basic biochemical, physiological, and endocrine mechanisms involved in reproductive function. Current research principles and techniques useful in studying physiology of reproduction. Lab fee: \$10.00

ANSC 5533. Non-Ruminant Nutrition. (2-2) Credit 3 semester hours. Concepts of the function deficiency, interrelation and bioadaptability of nutrients as part of total feed formulation. The physical, chemical, and biological interrelationships of nutrients as they relate to growth, development, and production of monogastric animals. Lab fee: \$10.00

ANSC 5543. Ruminant Nutrition. (2-2) Credit 3 semester hours. Current concepts in anatomy, physiology, and microbiology of digestion of ruminants, with application of basic principles to efficient management of beef cattle, dairy cattle, goats and sheep. Lab fee: \$10.00

ANSC 5553. Dairy Goat Production and Management. (2-2) Credit 3 semester hours. Review of current research and production practices; the application of developing technology to goat enterprises, with economic evaluation of such enterprises. Lab fee: \$10.00

ANSC 5563. Animal Health and Diseases. (2-2) Credit 3 semester hours. Etiology, epidemiology, immunology, preventive measures, and management practices pertinent to diseases and health of animals. Lab fee: \$10.00

ANSC 5573. Beef Cattle Production and Management. (2-2) Credit 3 semester hours. Current research and production practices; the application of developing technology for beef cattle enterprises with economic evaluation of such enterprises. Lab fee: \$10.00

HUSC 5313. Studies in Family Resource Management. (3-0) Credit 3 semester hours. An analysis of fundamental management concepts, current research, and special topics and issues related to family consumer resource management. Abstracts of research studies and one major research paper required.

HUSC 5326. Advanced Practice in Dietetics I. (0-12) Credit 6 semester hours. Preplanned experience at the professional level in dietetic administration, food service management, clinical and therapeutic nutrition and community and public health nutrition. Prerequisite: Acceptance in Dietetic Internship Program.

HUSC 5333. Introduction to Clinical Hypnosis. (3-0) Credit 3 semester hours. History, ethic, suggestions, induction, and deepening techniques utilizing hypnosis with client issues. Training in

understanding, interpretation, and application of various hypnotic approaches. Suggestions utilized with major hypnotically indicated illness, disorders and varying client concerns. Prerequisite: Graduate student must have earned a minimum of 15 semester hours in an approved graduate program.

HUSC 5336. Advanced Practice in Dietetics II. (0-12) Credit 6 semester hours. Continuation of Advanced Practice in Dietetics I.

HUSC 5343. Research Problems. (3-0) Credit 3 semester hours. A study of research methods in the social sciences as applied to research issues in the human sciences. Planning a research study; analysis of research reports; identifying needed research in the human sciences. Abstract and proposal writing required.

HUSC 5346. Marriage and Family Therapy Practicum II. (0-12) Credit 6 semester hours.. Supervises clinical practicum in marriage and family therapy. Therapeutic sessions with a variety of client issues and the utilization of major therapeutic techniques required. 1400 clock hours of supervised field placement required. Prerequisite: 30 semester hours and/or advisors approval.

HUSC 5353. Dietetic Seminar I. (0-6) Credit 3 semester hours. Study of the delivery of nutritional services for individuals, families and institutions. Major emphasis on the current development in nutrition and dietetics. Reading, discussion and reports and presentations focusing on the professional practice of dietetics. Prerequisite: Acceptance into Dietetic Internship Program.

HUSC 5363. Dietetic Seminar II. (0-6) Credit 3 semester hours. Continuation of Dietetic Seminar I.

HUSC 5373. Analysis and Treatment of Sexual Dysfunctions. (3-0) Credit 3 semester hours. Analysis of varied factors affecting sexual functioning among men and women with an emphasis on marital and family dynamics.

HUSC 5383. Child and Adolescent Therapy. (3-0) Credit 3 semester hours. Analysis and study of cognitive, behavioral, ecological, and psychological treatment modalities indicated in the treatment of childhood disorders and illnesses. Examination, diagnosis, and evaluation of childhood symptomatology and the utilization of therapeutic interventions.

HUSC 5393. Family Communication. (3-0) Credit 3 semester hours. An examination and application of various communication theories, patterns and techniques. Analysis of verbal and non-verbal communication patterns within the family are examined in family settings.

HUSC 5523. Marriage and Family Therapy. (3-0) Credit 3 semester hours. Issues, practices and principles of marriage and family therapeutic strategies and techniques. Analysis of strategies and application of techniques in simulated situations required.

HUSC 5533. Family Theory and Issues. (3-0) Credit 3 semester hours. A comprehensive review of theoretical-conceptual frameworks and research in family studies. Role of theory and research in the interdisciplinary study of individual and family behavior throughout the life cycle.

HUSC 5543. Theories of Child Development. (3-0) Credit 3 semester hours. A study of the developmental characteristics of the child from birth to age 20. Analysis of major theories and research with emphasis on interpretation and application of research findings to programs for children and parenting education.

HUSC 5553. Human Development. (3-0) Credit 3 semester hours. Study of multiple psychobiosocial characteristics of human development and behavior throughout the lifespan. Examination, evaluation and interpretation of developmental theories and current issues and trends.

HUSC 5563. Marriage and Family Therapy Practicum I. (0-6) Credit 3 semester hours. Supervised clinical practicum in marriage and family therapy. Therapeutic sessions with a variety of client issues and

the utilization of major therapeutic techniques required. 600 clock hours of supervised field placement required. Prerequisite: 27 semester credit hours and/or advisor's approval.

HUSC 5683. Family Ethics and Issues. (3-0) Credit 3 semester hours. Critical review of current literature on family ethics: principle problems of confidentiality, therapist and client relationships; special consideration given to state and federal law.

HUSC 5693. Thesis. (0-6) Credit 3 semester hours.

HUSC 5723. Family Financial Counseling. (3-0) Credit 3 semester hours. Analysis of family expenditure patterns, common financial difficulties and avenues by which families are assisted in making financial decisions. Survey and analysis of consumer counseling services with written documentation of interactions required.

HUSC 5993. Independent Study. (0-0) Credit 3 semester hours. Readings, research, and/ or field placement focusing on pre-selected issues.

School of Architecture

ARCH 5423. Urban Planning. (3-0) Credit 3 semester hours. Study of theories and concepts concerning the structure and function of urban communities; spatial and temporal aspects of urban development; problems and consequences of planned and unplanned changes in urban society.

ARCH 5506. Internship. (0-0) Credit 6 semester hours. Approved summer internship in an architecture office, the building construction industry or a planning or public service agency or approved foreign study program. Appropriate documentation of the experience will be required. Permission of the Dean.

ARCH 5513. Research Seminar. (3-0) Credit 3 semester hours. Research and programming for the Comprehensive Project Studio.

ARCH 5523. Historic Preservation and Adaptive Reuse. (3-0) Credit 3 semester hours. Introduction to the methods and practices of preservation and reuse of architectural heritage.

ARCH 5566. Architecture Design IX. (2-8) Credit 6 semester hours. Advanced design studio with emphasis on comprehensive architectural design projects.

ARCH 5579. Comprehensive Project Studio. (3-12) Credit 9 semester hours. A comprehensive design project based on research and programming accomplished in ARCH 5513. Prerequisites: ARCH 5513, 5566.

ARCH 5593. Professional Practice. (3-0) Credit 3 semester hours. The ethical, legal and administrative responsibilities of the architect. Relationships between the architect, the client, and the contractor involved in comprehensive architectural services and emerging techniques of practice.

ARCH 5973. Special Topics. Credit 3 semester hours. The study of various specialized fields of architecture as they relate to contemporary social or technical issues. Topics vary by semester. Course may be repeated for credit when topics vary.

ARCH 5976. Special Topics. (2-8) Credit 6 semester hours. Design studio with a focus on a particular issue or area of architecture. Topics vary by semester. Course may be repeated for credit when topics vary.

ARCH 5986. Special Projects. (2-8) Credit 6 semester hours. Design projects of differing lengths and content with group or individual involvement. May be repeated for credit.

ARCH 5993, 5996. Independent Study. (0-0) Credit 3 or 6 semester hours. Readings, research, and/or field work on selected topics. Prerequisite: Consent of advisor.

CODE 5013. Community Development Seminar. (3-0) Credit 3 semester hours. History, theory and practice of the community development profession. Prerequisite: Concurrent enrollment in CODE 5016.

CODE 5016. Community Development Studio I. (2-8) Credit 6 semester hours. A selection of supervised field trips, case studies, research projects and other hands-on community experiences to give students a contextual understanding of the community development profession. Prerequisite: Credit or concurrent enrollment in CODE 5013.

CODE 5023. Advanced Community Development. (3-0) Credit 3 Semester hours. Advanced studies in the history, theory and practice of community development. Prerequisite: CODE 5013

CODE 5026. Community Development Studio II. (2-8) Credit 6 semester hours. Projects and case studies applying community development theory. Prerequisite: Credit or concurrent enrollment in CODE 5023

CODE 5303. Community Political Structure. (3-0) Credit 3 semester hours. The role and function of public and private organizations and local, state and national government in the community development process.

CODE 5313. Community Management and Leadership. (3-0) Credit 3 semester hours. The theory and practice of leadership and management in various community development related settings.

CODE 5323. Community Analysis. (3-0) Credit 3 semester hours. The basic skills of studying and understanding the structure, function, goals, standards and performance of a community.

CODE 5343. Community Research. (3-0) Credit 3 semester hours. Methods for recognizing information needs, sources and applications.

CODE 5353. Resource Development. (3-0) Credit 3 semester hours. The techniques of promoting financial, human and organization support for community development.

CODE 5363. Community Physical Structure. (3-0) Credit 3 semester hours. The physical context of the community and its impact on community health and development.

CODE 5406. Internship. (0-0) Credit 6 semester hours. Approved internship with a community development related organization. Prerequisite: Permission of program coordinator.

CODE 5973. Special Topics. (3-0) Credit 3 semester hours. The study of various specialized fields of community development as they relate to contemporary issues. Topics may vary by semester. Course may be repeated for credit when topics vary.

CODE 5976. Special Topics. (2-8) Credit 6 semester hours. The study of various specialized fields of community development as they relate to contemporary issues. Topics may vary by semester. Course may be repeated for credit when topics vary.

CODE 5993. Independent Study. (0-0) Credit 3 semester hours. Individual reading, research and/or field work in selected topics.

CODE 5996. Independent Study. (0-0) Credit 6 semester hours. Individual reading, research and/or field work in selected topics.

College of Arts and Sciences

ARMY 3313. Small Unit Tactics. (3-0) Credit 3 semester hours. Studies leadership techniques and tactical operations at the small-unit level. An introduction to basic team/squad tactical employment. Instruction covers operation orders, troop leading procedures, and squad movement techniques. Individual skills in map reading, land navigation, basic rifle marksmanship and physical fitness are emphasized. Prerequisites: ARMY 2212, 2222, summer internship or consent of the PMS.

ARMY 3323. Principals and Techniques of Command. (3-0) Credit 3 semester hours. Studies leadership techniques and tactical operations at the small-unit level. In-depth analysis of team/squad tactical procedures and techniques. Instruction covers the principals of offensive and defensive combat operations, patrolling, the decision-making process, troop leading procedures, land navigation, and operation orders. Numerous student oral presentations and practical exercises. Prerequisites: ARMY 3313 or consent of PMS.

ARMY 3371-3381. Leadership Laboratory V and VI. (0-2) Credit 1 semester hour. Considers the fundamentals of leadership. Provides practical exercise in command, organization, and control of small elements, together with physical fitness, using U.S Army Physical Readiness Training program as a model.

ARMY 4413. Army Management and Leadership. (3-0) Credit 3 semester hours. Considers the role of the junior officer in the U.S. Army. Individual motivational and behavioral processes, leadership, communications, financial planning, counseling, command and staff functions are emphasized.

ARMY 4423. Army Administration and Professionalism (3-0) Credit 3 semester hours. Pre-service overview of Army organizations and general concept of military operations. Includes a study of administration and logistics for junior officers, including many sub-courses in military justice, Army readiness, ethics and professionalism, and a review of the principles of war.

ARMY 4471-4481. Leadership Laboratory VII and VIII. (0-2) Credit 1 semester hour. Considers the fundamentals of leadership. Provides practical exercise in command, organization, and control of small elements, together with physical fitness, using U.S. Army Readiness Training as a model.

BIOL 5003. Research in Zoology. (0-6) Credit 3 semester hours. Selected individual research problems in any specified area in which the student has a sufficient background. Lab fee.

BIOL 5073. Selected Topics in Environmental Toxicology. (3-0) Credit 3 semester hours. In-depth treatments of several important areas in the field of environmental toxicology, including studies of microbiology of toxic substances, toxic substances in food, poisonous plants and venomous animals, occupational health and safety and chemical ecology.

BIOL 5074. Genetics. (2-4) Credit 4 semester hours. Laws and principles governing heredity in plants and animals; plant and animal improvement through eugenics. Lab fee.

BIOL 5094. General Microbiology. (2-4) Credit 4 semester hours. Morphology, physiology, classification, cultivation of micro-organisms and their relation to agriculture, premedicine, and industry. Lab fee.

BIOL 5141. Seminar in Biological Problems. (1-0) Credit 1 semester hour. Student participation in general and specific research topics in Biology.

BIOL 5183. Experimental Genetics. (3-0) Credit 3 semester hours. Thorough experimentation to show how variations may be brought about; techniques of mating and breeding to support accepted principles. Lab fee.

BIOL 5991-5993. Independent Study. (0-0) Credit 1-3 semester hours. Reading, research and/or field work on selected topics in Biology. Prerequisite: consent of advisor.

CHEM 5013. Research. (0-0) Credit 3 semester hours. Problems for investigation may be selected from one of the following fields of Chemistry: 1. Analytical; 2. Biochemistry; 3. Inorganic; 4. Organic; and 5. Physical.

CHEM 5023. Research. See CHEM 5013.

CHEM 5026. Research. (0-0) Credit 6 semester hours. Problems for investigation may be selected from one of the following fields of chemistry: 1. Analytical; 2. Biochemistry; 3. Inorganic; 4. Organic; 5. Physical.

CHEM 5313. Advanced Analytical Chemistry. (0-3) Credit 3 semester hours. Fundamental principles and investigation of chemical reactions as they relate to application of classical and modern instrumental methods. Focuses on the processes occurring in sampling, separation and quantitative measurement emphasizing chemical concepts. Prerequisites: CHEM 3413, CHEM 3423, and CHEM 5783.

CHEM 5322. Instrumental Lab. (0-4) Credit 2 semester hours. An integrated laboratory that uses modern instrumentation to analyze complex chemical systems. Theories and principles encountered in CHEM 5313 and CHEM 5323 will provide the basis for bulk, surface, and interfacial analysis at the atomic and molecular levels. Prerequisites: CHEM 5313 and CHEM 5323.

CHEM 5323. Instrumental Analysis. (3-0) Credit 3 semester hours. Fundamental principles and theories underlying modern instrumental methods and techniques for analysis of complex systems. Atomic and molecular level characterization of surfaces, interfaces, and bulk systems will be emphasized. Prerequisite: CHEM 5783.

CHEM 5402. Advanced Organic Chemistry. (2-0) Credit 2 semester hours. A review of elementary Organic Chemistry with an extension of more advanced topics. Includes assigned subject materials.

CHEM 5414. Identification of Organic Compounds. (2-4) Credit 4 semester hours. The separation and identification of pure organic compounds and mixtures.

CHEM 5442. Polymer Chemistry Laboratory. (0-4) Credit 2 semester hours. A laboratory course in polymer chemistry focusing on characterization and synthesis of polymers and copolymer systems. (Concurrent enrollment in CHEM 5443 is required)

CHEM 5443. Polymer Chemistry (3-0) Credit 3 semester hours. Presentation of polymer concepts including polymerization and copolymerization processes, nomenclature, classifications, stereochemistry, structure-property relationships and morphology. Prerequisite: graduate standing or consent of instructor.

CHEM 5534. General Biochemistry. (2-4) Credit 4 semester hours. A basic and extension course designed for graduate students planning to major or minor in Biochemistry or related fields and who require more than an elementary knowledge of the subject. Prerequisite: CHEM 4033 or permission of instructor.

CHEM 5613. Advanced Inorganic Chemistry. (3-0) Credit 3 semester hours. Consideration of important aspects of modern inorganic chemistry. Application of thermodynamics and kinetics in inorganic chemistry; practical and potential applications of inorganic systems. Prerequisites: CHEM 4063 and CHEM 4023

CHEM 5783. Advanced Physical Chemistry. (3-0) Credit 3 semester hours. A lecture course dealing with advanced topics of special interest in modern physical chemistry in areas including experimental and theoretical thermodynamics, chemical kinetics, collision and transition state theories, atomic and molecular spectra, quantum mechanical systems, photochemistry, structure of crystals and liquids, surface chemistry,

macro-molecules, and gas phase reactions. Prerequisites: CHEM 3413-3423 and Mathematics through Differential Equations (MATH 2043).

ENGL 5053. Studies in Teaching English. (3-0) Credit 3 semester hours. Special problems, critical study and evaluation of methods of teaching English at secondary level. Prerequisite: Twelve semester hours of English at 3000 level or above and one year of teaching experience.

ENGL 5113. Linguistics and Grammar. (3-0) Credit 3 semester hours. Nature of modern linguistic science and its approach to phonology, morphology, syntax, and semantics; structural, generative-transformational grammar in the linguistic context. Prerequisite: Acceptance to graduate study or to the teacher certification program.

ENGL 5123. Research. (3-0) Credit 3 semester hours. Principles of literary theory and research technique. Pre-thesis research practice. Prerequisite: 27 hours of graduate English courses.

ENGL 5133. Seminar in Thesis Writing. (3-0) Credit 3 semester hours. Application of research skills to thorough development of thesis on topic approved by advisor. Prerequisite: Candidacy for graduate degree.

ENGL 5143. English Workshop. (3-0) Credit 3 semester hours. Lectures and practice exercises for enrichment in language usage and methods of teaching for non-English majors. Advanced study and practice for English majors. Prerequisite: 12 hours of English at 3000 level or above and one year of teaching experience.

ENGL 5156. English Workshop. (6-0) Credit 6. Lectures and practice exercises for enrichment in language usage and methods of teaching for non-English majors. Advanced study and practice for English majors. Prerequisite: 12 hours of English at 3000 level or above and one year of teaching experience.

ENGL 5213. A Study of the Short Story. (3-0) Credit 3 semester hours. The history, art, and techniques of the short story with emphasis on the American short story. Prerequisite: Acceptance to graduate study or to the teacher certification program.

ENGL 5223. The Novel. (3-0) Credit 3 semester hours. The evolution of the English novel, with study of representative novels of the 19th and 20th centuries. Prerequisite: Acceptance to graduate study or to the teacher certification program.

ENGL 5233. Medieval Literature. (3-0) Credit 3 semester hours. Survey, in translation, of major genres, allegory and romance, of English and continental European literature from the beginning through the thirteenth century. Prerequisite: Acceptance to graduate study or to the teacher certification program.

ENGL 5243. Shakespeare. (3-0) Credit 3 semester hours. Shakespeare's art at its maturity, with emphasis on masterpieces of history, romance, and tragedy. Prerequisite: Acceptance to graduate study or to the teacher certification program.

ENGL 5253. Seventeenth Century Literature. (3-0) Credit 3 semester hours. Study of modern and contemporary English and American poets, dramatists, and fiction writers. Prerequisite: Acceptance to graduate study or to the teacher certification program.

ENGL 5263. Seminar in Masterpieces of Literature. (3-0) Credit 3 semester hours. Study and analysis of form, language, and style of English and American masterpieces of literature. Prerequisite: Acceptance to graduate study or to the teacher certification program.

ENGL 5273. Chaucer. (3-0) Credit 3 semester hours. Detailed study of Troilus and Criseyde and selected Canterbury Tales. Prerequisite: Acceptance to graduate study or to the teacher certification program.

ENGL 5313. Literary Criticism. (3-0) Credit 3 semester hours. Survey of critical theories of literature from Plato and Aristotle to the present. Prerequisite: 9 hours of graduate English courses.

ENGL 5993. Independent Study. (0-3) Credit 3 semester hours. Readings, research, and/or field work on selected topics. Prerequisite: Consent of department head.

HIST 5213. Afro-American History. (3-0) Credit 3 semester hours. This course emphasizes the importance of the black contribution to America's history. In examining that history, the course investigates the stereotyped views that have been handed down from one generation to the next, slanted accounts of black experience, apathy of many blacks and prejudices of many whites.

HIST 5313. American Revolution and the Constitution. (3-0) Credit 3 semester hours. An examination of scholarly research into the American Revolution that regards certain aspects of the Revolution as "clinical phenomena" in the development of revolutions in general; ideological background, actionists and vigilantes, the fall of Tory rule, the internal revolution, subsidence of the fever, and the Neuer Ordnung. Prerequisite: Graduate Status.

HIST 5323. Sectionalism and Civil War. (3-0) Credit 3 semester hours. Regional hypothesis; socioeconomic regionalism; government, politics, and the regional compromise in the middle period; important issues and men; Reconstruction and the new nation.

HIST 5353. Economic History. (3-0) Credit 3 semester hours. Historical review of the development of agriculture, commerce, industry, and business from colonial times to the present; social and economic forces in American society with attention to the present; social and economic forces in American society with attention to various mass movements; industrialization for the country and the necessity for governmental regulations; historical interpretation of trade unions, employers' associations, and cooperatives.

HIST 5363. Contemporary United States. (3-0) Credit 3 semester hours. Twentieth century American development: America comes of age; the quest for social justice; the Great Crusade (World War I); postwar normalcy and reaction; democracy in transition-the New Deal; and American leadership in the United Nations.

HIST 5383. American Foreign Relations. (3-0) Credit 3 semester hours. The United States and its relationships with Latin America and the rest of the world. Public opinion and the economy.

HIST 5923. Tools of Scientific History. (3-0) Credit 3 semester hours. History and its relationship to the social sciences; the subject, collection and classification of sources; the criticism of data; exposition or the presentation of historical evidence.

HIST 5993. Independent Study. (0-0) Credit 3 semester hours. Readings, research, and/or field work on selected topics. Prerequisite: Consent of advisor.

MATH 5003. The Real Number System. (3-0) Credit 3 semester hours. The development of the real number system, deductive systems, field properties, order properties, completeness properties, powers and roots, and decimal representation. Prerequisite: Consent of instructor.

MATH 5013. Introduction to Point-Set Theory. (3-0) Credit 3 semester hours. Basic set theory; cardinal and ordinal numbers, countable and well-ordered sets; and the study of the basic properties of metric spaces with an introduction to completeness, separability and compactness. Prerequisite: Consent of instructor.

MATH 5023. Complex Analysis I. (3-0) Credit 3 semester hours. Holomorphic functions, complex integration, residue theorem. Taylor series, Laurent series, conformal mapping, and harmonic functions. Prerequisite: MATH 4033.

MATH 5033. Complex Analysis II. (3-0) Credit 3 semester hours. Infinite products, Weierstrass factorization theorem, Mittag-Leffler's theorems, normal families, Picard's theorem, and Riemann mapping theorem. Prerequisite: MATH 5023.

MATH 5103. Special Problems. (3-0) Credit 3 semester hours. Reading and discussion of articles appearing in various mathematical journals; patterns and techniques of mathematical research; modern techniques and trends in the field of advanced mathematics. Trends in the field of elementary mathematics. May be repeated for credit.

MATH 5113. Elementary Functions. (3-0) Credit 3 semester hours. Real number system, algebraic functions, circular functions, exponential functions, logarithmic functions, hyperbolic functions, and their properties. Prerequisite: Graduate standing in mathematics.

MATH 5123. General Topology I. (3-0) Credit 3 semester hours. Topological spaces including continuous functions, compactness, separation properties, connectedness and metric spaces. Prerequisite: MATH 5013.

MATH 5173. Computer Programming. (3-0) Credit 3 semester hours. Basic computer concepts and terminology. Computer characteristics and storage fundamentals of output and input operations. Flow charts and block diagrams. Programming elementary algorithms using a scientific language.

MATH 5203. Calculus for High School Teachers. (3-0) Credit 3 semester hours. Concise treatment of certain fundamental ideas in the mathematics of the calculus with the intention of extending, illuminating, and clarifying the teacher's past knowledge. Prerequisite: Consent of instructor.

MATH 5233. Selected Topics in Mathematics. (3-0) Credit 3 semester hours. Introduction to symbolic logic and set theory; applications to elementary algebra; linear and plain analytical geometry; and probability statistics. Prerequisite: Consent of instructor.

MATH 5283. Structure of Arithmetic. (3-0) Credit 3 semester hours. Introduction to sets, the number concept, the evolution of numeration systems, modular systems, the number system, measurement, ratio, proportion, and percentage.

MATH 5293. Logic and Geometry. (3-0) Credit 3 semester hours. Elementary logic, plausible reasoning, informal geometry, and coordinate geometry as a mathematical system.

MATH 5303. Modern Techniques in Secondary Mathematics. (3-0) Credit 3 semester hours. Teaching strategies; instructional packages composed of modules of various areas and topics of mathematics; performance-based teaching methods; effective use of audiovisual equipment and materials; and small group methods.

MATH 5343. Boundary Value Problems. (3-0) Credit 3 semester hours. Fourier Series and integrals, application of partial differential equations to problems, including heat flow, fluid flow, electric fields, mechanical vibration, and similar problems arising in chemistry, physics, radiotherapy and engineering. Prerequisite: One course in ordinary differential equations.

MATH 5413. Seminar. (3-0) Credit 3 semester hours. Seminar in mathematics lectures, demonstrations, and reports on current trends in the field of mathematics. Prerequisites: consent of instructor.

MATH 5443. Statistics for High School Teachers. (3-0) Credit 3 semester hours. Processes of statistical methods, with reference to applications in various fields and with special application to analysis of school data.

MATH 5473. Probability. (3-0) Credit 3 semester hours. Theory of permutations, combinations, distributions, repeated trials, and discussion of the probability integral. Prerequisite: MATH 4043.

MATH 5543. Integrated Introduction to Geometry. (3-0) Credit 3 semester hours. The origin of geometry; the three classical problems of antiquity; the five Platonic solids; Euclid's elements and fallacies;

a modern set of axioms for geometry; geometries in the Euclidean plane; transformation groups; hyperbolic geometry; and elliptic geometry. Prerequisite: consent of instructor.

MATH 5613. Theory of Matrices. (3-0) Credit 3 semester hours. Definitions in matrix algebra; inverse of a matrix, transposition of a matrix, rank of a matrix, linear transformations; differentiation and integration of matrices; and application of matrices to systems of linear equations; quadratic forms, bilinear forms, and systems of differential equations. Prerequisite: MATH 3013 or 3073.

MATH 5723. Partial Differential Equations. (3-0) Credit 3 semester hours. Existence and uniqueness theorems, techniques for solving first and second order partial differential equations, approximate (numerical) solutions and applications. Prerequisite: MATH 5343.

MATH 5753. Intermediate Analysis. (3-0) Credit 3 semester hours. Continuous functions; sequences; limits of functions; integrable functions; the integral of continuous and bounded functions; series and step-functions. Prerequisite: consent of instructor.

MATH 5763. Intermediate Differential Equations. (3-0) Credit 3 semester hours. Existence theorems, uniqueness theorems, and vector and matrix treatment of linear and non-linear systems of ordinary differential equations. Prerequisite: MATH 3073 or 4113.

MATH 5773. Advanced Analysis. (3-0) Credit 3 semester hours. Continuous functions of several numbers; properties of functions of several numbers; the double integral; and the Riemann-Stieltjes integral. Prerequisite: MATH 5753.

MATH 5823. Analytic Mechanics. (3-0) Credit 3 semester hours. Axiomatic foundations of mechanics; Newton's laws; harmonic oscillator; planetary motion; non-inertial coordinate systems; systems of particles; plane motion of rigid bodies; space motion of rigid bodies; Lagrange's equations; and Hamilton's principle. Prerequisite: consent of instructor.

MATH 5893. Thesis Research, A-D. (0-0) Credit 3 semester hours. Research for thesis. Course may be repeated for credit.

MATH 5903. Modern Algebra. (3-0) Credit 3 semester hours. Fundamental concepts of algebra; integral domain, fields, and introduction to such concepts as groups, vector spaces, and lattices. Prerequisite: MATH 3013.

MUSC 5513-5563. Applied Music Courses

PIANO—Applied music studies in piano with attention to appropriate graduate level literature. Private lessons.

VOICE—Applied music studies in voice with attention to appropriate graduate level literature. Private lessons.

WOODWINDS—Applied music students in the woodwind instruments with attention to appropriate graduate level literature. Private lessons. Flute, oboe, clarinet, bassoon and saxophone.

	<i>Piano</i>	<i>Voice</i>	<i>Woodwind</i>
MUSC	5513	5613	5813
MUSC	5523	5623	
MUSC	5533	5633	
MUSC	5543	5643	
MUSC	5553		
MUSC	5563		

MUSC 5993. Independent Study. (0-0) Credit 3 semester hours. Readings, research, and/or field work on selected topics. Prerequisite: consent of advisor.

SOCG 5021. Professional Seminar in Sociology. (3-0) Credit 1 semester hour. Introduction to the discipline of sociology. This course provides students with trends and issues affecting sociology as a Profession. Information about available resources, career preparation including curriculum vita development, professional organizations and meetings as well as other relevant information is provided and evaluated. Must be taken in the first semester.

SOCG 5123. Social Statistics. (3-0) Credit 3 semester hours. This course is designed to enhance students' statistical knowledge of measurement of central tendency, z-test, t-tests, and analysis of variance, correlation techniques and regression analysis.

SOCG 5213. Classical Sociological Theory. (3-0) Credit 3 semester hours. Major sociological contributions of the classical theorists including but not limited to Thomas Hobbes, Auguste Comte, Alexis de Tocqueville, Karl Marx, Emile Durkheim, Max Weber, Harriet Martineau, W.E.B. DuBois, and Jane Addams, providing the foundation for contemporary theory.

SOCG 5223. Research Methods. (3-0) Credit 3 semester hours. Advanced instruction in sociological research requiring a detailed treatment of qualitative and quantitative techniques of data collection and analysis. Written paper based on original research required.

SOCG 5243. Urban Sociology. (3-0) Credit 3 semester hours. Examines the social structure of cities and the adjustment people make to urban conditions. Urban neighborhoods, population groupings, social processes, trends and problems are treated in the light of historical, ecological and social factors. A review of selected problems including urban tensions and the persistence of local ties such as family and ethnicity are explored.

SOCG 5263. Sociology of Education. (3-0) Credit 3 semester hours. Exploration of knowledge in society and its relationship to the social structure and individual consciousness; how the social attributes of groups as well as individuals affect the production, ordering, and presentation of information as well as the form knowledge takes in a particular society.

SOCG 5333. Criminology. (3-0) Credit 3 semester hours. A survey of the historical and contemporary explanations of phenomena of crime and criminal behavior from the perspective of contemporary theories and the analysis of evidence supportive of various theoretical positions. Crime measurement and crime statistics are also discussed, as are the techniques for crime analysis.

SOCG 5353. Seminar in Race Relations. (3-0) Credit 3 semester hours. Wide range exploration of the dynamics of inter-group relations including historical and sociological factors in race and ethnic relations. An examination of politico-economic and societal development processes that serve to maintain social positions in contemporary society.

SOCG 5413. Contemporary Sociological Theory. (3-0) Credit 3 semester hours. Basic ideas of contemporary sociological theory: structuralism, functionalism, conflict, symbolic interaction, exchange; includes but not limited to the works of Parsons, Merton, Mead, Cooley, Goffman, Coser, Dahrendorf, Marcuse and Habermas and their application to current research. Prerequisite: SOCG 5213.

SOCG 5423. Social Stratification. (3-0) Credit 3 semester hours. Analysis of the nature of social stratification and its relation to other aspects of society: distribution of influence and wealth occupational structural, family relations, religious and educational institutions, minority problems, and cultural patterns. Comparison between open class, caste and other arrangements. Sources of mobility and change in stratification systems. Also addresses the impact of different forms of ranking and the consequent inequalities that arise.

SOCG 5433. Theory of Criminal Justice System. (3-0) Credit 3 semester hours. Theoretical analysis of crime and criminal justice systems including the police, courts and prisons that deal with people who are accused of having committed crimes. Theories of crime commission include: Differential Association

Theory, Control Theory, Labeling Theory, Strain Theory, and Illegitimate Opportunity Theory among others.

SOCG 5443. Social Movements. (3-0) Credit 3 semester hours. Examination of theories and research on social movement and social change; historical and contemporary social movements in the United States and elsewhere; collective violence and protest; terrorism and social and political revolutions.

SOCG 5453. Complex Organizations. (3-0) Credit 3 semester hours. Introduces students to the critical examination of modern organizations, the nature of bureaucracy and its effect on personality, social relations, group dynamics and social change. Examines bureaucratic arrangements and processes in a variety of organizational context such as corporations, universities, unions, professionals associations, government bureaus and religious institutions. The role of power in bureaucratic settings and exchanges is explored.

SOCG 5463. Special Topics. (3-0) Credit 3 semester hours. Seminar on specialized topics in sociology. Subject matter may vary by semester. May be repeated for credit when topics vary.

SOCG 5553. Sociology of Gender and Sex Roles. (3-0) Credit 3 semester hours. Analyzes the social significance of gender. Explores the theoretical assumptions that undergird the nature of women's oppression sex-class-race cleavage, plus inequalities between women and men. A cross-cultural analysis of the development of gender roles and an examination of contemporary gender inequality in terms of gender work patterns, labor force participation, and occupational mobility as well as alternatives to conventional division of labor by sex in society.

SOCG 5613. Thesis. (0-0) Credit 3 semester hours. A candidate for the Master of Sociology is required to prepare a thesis under the direction of a faculty thesis committee. The thesis must be orally defended and approved by all members of the faculty thesis committee before the degree is conferred. The student must register for thesis each semester until satisfactorily completed

SOCG 5623. Thesis. (0-0) Credit 3 semester hours. A candidate for the Master of Sociology is required to prepare a thesis under the direction of a faculty thesis committee. The thesis must be orally defended and approved by all members of the faculty thesis committee before the degree is conferred. The student must register for thesis each semester until satisfactorily completed. Prerequisite: SOCG 5613.

College of Business

ACCT 5003. Concepts of Accounting. (3-0) Credit 3 semester hours. Builds a solid foundation of basic accounting concepts and principles. The course includes an emphasis on the accounting cycle, financial reporting of Balance Sheet, Income Statement, and Statement of Cash Flows. The course also includes contemporary manufacturing accounting tools. These topics include cost-volume-profit analysis, inventory management, and comparative cost allocation systems.

ACCT 5103. Managerial Accounting. (3-0) Credit 3 semester hours. The interpretation and use of accounting data for management purposes. Topics covered include: cost accounting; budgets; standards; production costing; distribution costing; and special analyses for managerial purposes. Prerequisite: ACCT 5003 or equivalent.

ADSY 5203. Managerial Communication. (3-0) Credit 3 semester hours. Applications of communications theory, human relations concepts, research methods, and information technology to the internal communication of the manager's work environment. Survey of the organizational communication climate; applications: Oral and written reports.

ADSY 5513. Management Information Systems. (3-0) Credit 3 semester hours. Analysis and synthesis of the principal interactions among the components of a company and its environment; establishing system requirements and developing control procedures to increase effectiveness. Examines methods to evaluate the effectiveness and efficiency of systems. Includes hands-on introduction to computer application software used by contemporary managers.

ECON 5003. Concepts of Economic Analysis. (3-0) Credit 3 semester hours. Analysis of supply and demand, production and cost functions, price and output determination under different market conditions, and resource pricing. Means of national income and output determination, and issues related to unemployment, inflation, business cycles, monetary and fiscal policies, income distribution, economic development issues, and the global linkage of national economies.

ECON 5103. Managerial Economics. (3-0) Credit 3 semester hours. Economic theory and tools needed to make sound managerial decisions for optimal outcomes; theoretical and empirical demand functions; theoretical and empirical production and cost functions; profit maximization under different market conditions, over time and under uncertainty; game theory; economics of information; government in the market place. Prerequisite: ECON 5003 or equivalent.

FINA 5003. Concepts of Finance. (3-0) Credit 3 semester hours. An overview of financial securities and markets, financial statement analysis, cash budgeting, working capital management, time value of money, valuation of securities, and capital budgeting.

FINA 5013. Legal Environment of Business. (3-0) Credit 3 semester hours. Introduces the student to the legal and social environments in which business decisions are made, Examines the business relationship within the regulatory environment, judicial process, and constitution. Covers the law and its effect on consumers, investors, and the environment as well as regulation of competition, labor, and employment.

FINA 5103. Theory of Financial Management. (3-0) Credit 3 semester hours. Risk-return analysis, cost of capital, cash-flow analysis in capital budgeting, capital structure policy, dividend policy, corporate restructuring, and international financial management. Prerequisite: FINA 5003 or equivalent.

FINA 5313. Investment Analysis and Management. (3-0) Credit 3 semester hours. Fundamentals of investment, investment securities and markets, analysis of risk and return, fixed income securities and valuation, common stock and valuation, mutual funds, options and futures, portfolio theory and management. Prerequisite: FINA 5003 or consent of advisor.

FINA 5333. International Finance. (3-0) Credit 3 semester hours. International financial markets and the flow of funds, interrelation of foreign exchange rates, interest and inflation rates, financial risk management for multinationals, short and long-term financing for multinationals, multinational capital budgeting, direct foreign investment, country risk analysis, and international banking. Prerequisite: FINA 5003 or equivalent.

MGMT 5103. Organizational Behavior. (3-0) Credit 3 semester hours. A study of social science concepts relevant to understanding and predicting human behavior in organizations. Topics include perception, learning, group processes, motivation and leadership, and organizational structure and change. Prerequisite: MGMT 5003 or equivalent.

MGMT 5113. Business Statistics. (3-0) Credit 3 semester hours. Review of statistical measures, tests of hypotheses, analyses of variance, and specialized correlation techniques as applied to business data.

MGMT 5123. Quantitative Analysis. (3-0) Credit 3 semester hours. Application of quantitative methods to solution of business problems, including linear programming, integer programming, dynamic programming, goal programming, network models, transportation methods, inventory models, and decision-making under uncertainty. Prerequisite: MGMT 5113.

MGMT 5323. Strategy and Policy. (3-0) Credit 3 semester hours. Examines top management strategy, formulation, implementation, and evaluation. This course is the MBA capstone which synthesizes and integrates material from the various functions of business as it presents itself to organizational strategic managers. Prerequisite: 12 hours of graduate management courses, and ACCT 5103; ECON 5103; FINA 5103, MRKT 5303.

MGMT 5343. Human Resource Management. (3-0) Credit 3 semester hours. An analysis of the methods and issues pertaining to the recruitment, selection, testing, promotion, and remuneration of members of organizations. Covers job design and labor relations concepts.

MGMT 5433. Production and Operations Management. (3-0) Credit 3 semester hours. Organization for production and analysis of production methods. Techniques addressed include forecasting models; capacity, location and layout analysis; inventory management; material requirements planning; scheduling; project management; network analysis; quality control. Prerequisite: MGMT 5123.

MGMT 5613. Special Topics. (3-0) Credit 3 semester hours. Explores and examines contemporary subjects and trends in business. Topics deal with issues of current importance. Prerequisite: Consent of advisor.

MRKT 5003. Concepts of Marketing. (3-0) Credit 3 semester hours. Surveys the different aspects of the marketing function including the institutions involved in the creation, distribution, and sale of products and services. Addresses the issues of product, price, promotion, and distribution.

MRKT 5303. Marketing Management. (3-0) Credit 3 semester hours. Application course dealing with formulation of marketing strategies, evaluation of alternatives, and implementing a marketing program. Examines segmentation, positioning, and marketing mix issues as part of strategic marketing planning. Includes discussion of specific problems involving consumer and industrial products and services in profit and not for profit organizations. Prerequisite: MRKT 5003 or equivalent.

MRKT 5313. International Marketing. (3-0) Credit 3 semester hours. Analysis of the economic, political, social and cultural environments of international business and the development of product, price, channels of distribution, and promotion strategies for international markets. Prerequisite: MRKT 5003 or equivalent.

College of Education

ADMN 5003. Fundamentals of School Administration. (3-0) Credit 3 semester hours. A study of educational administration, basic concepts of administrative theory and practice, and the relationship of administrative practice to school organization and control.

ADMN 5013. Educational Administration: Theory, Practice and Research. (3-0) Credit 3 semester hours. The analysis and study of theory, practice, and research as they relate and interrelate to effective educational management. This course includes an in-depth study of contemporary research and practice in educational administration.

ADMN 5023. Public School Law. (3-0) Credit 3 semester hours. An examination and study of legal principles as they apply to public education.

ADMN 5033. School Business Management. (3-0) Credit 3 semester hours. Management techniques for the school administrator in the areas of preparing and managing the school budget, in-school accounts, and the financial auditing process.

ADMN 5043. The School Principalship. (3-0) Credit 3 semester hours. Problems in elementary and secondary school administration with emphasis on the organization, administration, and supervision of curricular and extra-curricular programs, and the management of school personnel and students.

ADMN 5053. Administration of Special Programs. (3-0) Credit 3 semester hours. Administrative and management techniques for implementing special school programs in the areas of special education, reading, career education, vocational-technical education and pupil services.

ADMN 5063. Problems in Education Administration. (3-0) Credit 3 semester hours. Study and analysis of contemporary issues related to the administrative function in an educational setting.

ADMN 5073. Public School Curriculum Leadership. (3-0) Credit 3 semester hours. An examination of educational leadership as it relates to curriculum development and improvement. Consideration is given to the administrator's role in identifying and implementing innovations in curriculum construction at all levels; furnishing leadership in coordinating educational offerings in elementary and secondary schools; diagnosing and prescribing learning activities for all students' needs; planning and evaluating curriculum content and changes; and designating personalized programs in specific skill areas such as reading, math, etc.

ADMN 5083. Special Topics in Educational Administration. The purpose of this course is to provide students an opportunity to research selected topics in an identified area of educational administration.

ADMN 5093. Educational Statistics. (3-0) Credit 3 semester hours. Basic educational statistics course for master's degree candidates in administration. Includes concepts and operations as applied to frequency distributions, graphing techniques, measurement of central tendency and variability, normal distribution curves, sampling theory and tests of significant differences between related and independent samples. Computer application packages and their utilization in classrooms and social agencies are also introduced.

ADMN 5103. School Personnel Administration. (3-0) Credit 3 semester hours. The administration of school personnel services, including standards and procedures of the personnel office and the supervision and evaluation of personnel records and policies.

ADMN 5113. Planning and Managing Educational Facilities. (3-0) Credit 3 semester hours. Educational facilities planning with emphasis on design, financing, and management.

ADMN 5123. School Finance. (3-0) Credit 3 semester hours. Fiscal planning for educational excellence. Includes systems of needs assessment, budget preparation, and management. Federal, state, and local resources for financing education.

ADMN 5133. School-Community Relations. (3-0) Credit 3 semester hours. A study of the relationships between the school and other elements of the community. Insight into the development of a comprehensive school-community relations program.

ADMN 5163. Research. (3-0) Credit 3 semester hours. General orientation research course for master's degree candidates in administration. The course considers the nature of research problems and techniques used by investigators in solving those problems. Study is made of types and methods of educational research, the collecting of data, analyzing and sharing of data with public. The student is expected to complete a research project or field study utilizing appropriate methods of educational research.

ADMN 5173. Computer Applications for Administrators. (3-0) Credit 3 semester hours. Application of computers and selected software to information management, scheduling, and other functions of administrators.

ADMN 5503. Mid-Management Internship. (0-3) Credit 3 semester hours. Field-based and seminar experiences designed to provide on-site school-related activities, and the analysis of actual administrative situations and problems. Prerequisites: 18 semester hours of ADMN course work.

ADMN 5513. Superintendency Internship. (0-3) Credit 3 semester hours. Field-based and seminar experiences designed to provide on-site school-system related activities, and the analysis of actual administrative situations and problems.

ADMN 5991-5992-5993. Independent Study. (0-0) Credit 1, 2, or 3. Readings, research, and/or field work on selected topics. Prerequisite: consent of advisor.

CNSL 5003. Organization and Administration of Guidance and Human Service Programs. (3-0) Credit 3 semester hours. Introduction to guidance and counseling programs in schools and community agencies. Emphasis on the history, philosophy, and development of programs; programmatic activities and delivery; organizational and administrative patterns; and the interrelationships of educational and human services agencies.

CNSL 5013. Counseling Techniques. (3-0) Credit 3 semester hours. Study and practice of basic interview communication skills and counseling techniques. Emphasis on self-development, attending, feedback and influencing skills and core elements of counseling.

CNSL 5023. Theory and Practice of Counseling. (3-0) Credit 3 semester hours. A study of major counseling theories and issues related to therapeutic practice with emphasis on practical application.

CNSL 5033. Counseling Process. (3-0) Credit 3 semester hours. Pre-practicum experience with emphasis on the counselor-client relationship and on using appropriate therapeutic strategies and techniques in working with children, adolescents, and adults. Special consideration given to the counseling needs of minorities.

CNSL 5043. Consultation. (3-0) Credit 3 semester hours. Theoretical rationale for consultation; content and process of consultation services. Basic principles of and skill development in several approaches to consultation.

CNSL 5053. Professional Orientation and Development. (3-0) Credit 3 semester hours. Obligations and problems in professional practice of guidance, counseling, human development services and research. Professional ethics, legal considerations, and relations with other professionals and with the public. Current trends and issues emphasized.

CNSL 5063. Counseling Practicum I. (3-0) Credit 3 semester hours. Laboratory and supervised practical experiences in individual/group counseling and related functions in a public school, a university, or a community agency setting. A minimum of 150 clock hours required. Prerequisites: CNSL 5013, 5023, 5113, and 5123 and/or consent of advisor.

CNSL 5073. Counseling Practicum II. (3-0) Credit 3 semester hours. A continuation of supervised practical experiences in individual/group counseling and related functions in a public school, a university, or a community agency setting. A minimum of 150 clock hours required. Prerequisites: CNSL 5013, 5023, 5063, 5113, and 5123 and/or consent of advisor.

CNSL 5083. Psychology of Abnormal Behavior. (3-0) Credit 3 semester hours. An examination of dysfunction in human behavior, with emphasis on description, causation, and treatment.

CNSL 5093. Educational Statistics. (3-0) Credit 3 semester hours. Basic educational statistics course for master's degree candidates in counseling. Includes concepts and operations as applied to frequency distributions, graphing techniques, measurement of central tendency and variability, normal distribution curves, sampling theory and tests of significant differences between related and independent samples. Computer application packages and their utilization in classrooms and social agencies are also introduced.

CNSL 5113. Career Development Counseling. (3-0) Credit 3 semester hours. A study of major vocational development and career choice theories. Sources and use of educational and career information; community resources; and use of interest and aptitude instruments in career/vocational decision-making. Individual and group career counseling practice emphasized.

CNSL 5123. Appraisal Techniques. (3-0) Credit 3 semester hours. An examination of several instruments used to measure achievement, aptitude, interest and personality, and to collect non-test data. Emphasis on selection and use of these instruments for individual and group assessment, and on techniques of interpretation. Ethical and legal issues of testing addressed.

CNSL 5133. Group Dynamics. (3-0) Credit 3 semester hours. Theory and practice in group work. Examination of types of groups; group processes and theories; techniques and methods of practice in group counseling. Ethical and professional issues addressed. Group participation and facilitation required.

CNSL 5143. Human Growth and Development. (3-0) Credit 3 semester hours. A study of the growth and development of the individual. Emphasis on stages of human intellectual, physical, social, and emotional development throughout the lifespan.

CNSL 5153. Cross-Cultural Issues. (3-0). Credit 3 semester hours. A study of the sociological and cultural factors impacting individuals within a multi-cultural setting. Emphasis on understanding, serving, and managing in multi-racial, multi-ethnic, and multi-cultural settings.

CNSL 5163. Research. (3-0) Credit 3 semester hours. General orientation research course for master's degree candidates in counseling. The course considers the nature of research problems and techniques used by investigators in solving those problems. Study is made of types and methods of educational research, the collecting of data, analyzing and sharing of data with public. The student is expected to complete a research project or field study utilizing appropriate methods of educational research.

CNSL 5993. Independent Study. (3-0) Credit 3 semester hours. Readings, research, and/or field work on selected topics. Prerequisite: consent of advisor.

CUIN 5003. Foundations of Secondary Schools of the State and Nation. (3-0) Credit 3 semester hours. A university based course designed with a field component for graduate students seeking initial certification in secondary education. The course focuses on the internal and external factors which contribute to school culture. The student studies how teacher-teacher relationships, teacher-pupil relationships, and school-home relationships impact student learning. The student also investigates the

requirements, expectations, and constraints associated with teaching in Texas and understands his or her role in operating effectively as a teacher in Texas.

CUIN 5013. Developmental Characteristics of Secondary School Youth. (3-0) Credit 3 semester hours. A university based course designed with a field component for graduate students seeking initial certification in secondary education. The course focuses on the developmental characteristics of secondary school youth which can have an impact on the accomplishment of learner outcomes. Contemporary models of human growth and development are investigated with emphasis being placed on individual differences in physical, emotional, social and intellectual growth. An analysis of the needs of students with differences in culture, learning styles, self-concept, values, and family/peer/school relationships is accomplished.

CUIN 5023. Strategies for Planning and Assessing Instruction. (3.0) Credit 3 semester hours. A proficiency-driven course designed with a field component for graduate students seeking initial certification in secondary education. The course focuses on strategies documented as effective in planning learner centered instruction for students representing various learning levels/styles. Informal and formal assessment strategies which are designed to determine the degree to which learners are accomplishing in predetermined objectives are also analyzed. During the field experiences the student demonstrates that he/she can utilize the strategies in constructing learner centered lesson plans and assessment tools. Prerequisites CUIN 5003 and CUIN 5013.

CUIN 5033. Research-Based Methods for Classroom Instruction and Management. (3.0) Credit 3 semester hours. A proficiency-driven course designed with a field component for graduate students seeking initial certification in secondary education. The course focuses on effective teaching practices which have been documented as effective in creating a positive learner centered environment, managing individuals and groups through the learning process, and utilizing instructional strategies which maximize student participation in the learning process. During field experiences, the student demonstrates having the ability to utilize pre-planned strategies with students representing varying learning levels/styles. Prerequisites CUIN 5003 and CUIN 5013.

CUIN 5043. Post-Baccalaureate Internship: Phase I. (3.0) Credit 3 semester hours. A one semester internship for graduate students who are seeking initial certification in secondary education. The Phase I internship must be completed during the fall semester when the student works as a “teacher of record” under the guidance of an assigned mentor. Performances of the intern are evaluated by the assigned mentor, the building principal and an assigned university supervisor. A grade of “Incomplete” will be awarded at the end of the Phase I Internship with a final grade being awarded at the end of Phase II Internship.

CUIN 5053. Post-Baccalaureate Internship: Phase II (3.0) Credit 3 semester hours. A one semester internship for graduate students who are seeking initial certification in secondary education. The Phase II Internship must follow the completion of the Phase I Internship and must be completed during the spring semester when the student is employed as a “teacher of record” under the guidance of an assigned mentor. The performances of the student during the Phase II Internship is evaluated by the mentor, building principal, and university supervisor. Grades for the two semesters of internship (Phase I and Phase II) will be awarded at the end of Phase II.

CURR 5003. Theory and Dynamics of Curriculum and Instruction. (3-0) Credit 3 semester hours. A curriculum of theoretical and logical structures that exceeds the essential elements and promotes higher thinking skills, explores consideration of implications for bilingual, migrant and exceptional education. Expands integration of technology in influencing implementation, planning and evaluation of curriculum at all levels of teaching.

CURR 5133. Principles of Instructional Design. (3-0) Credit 3 semester hours. Development of competencies related to translating general and theoretical knowledge about learning and instruction into specifications for materials, devices, or settings.

CURR 5143. Managing Classroom Interaction. (3-0) Credit 3 semester hours. Identification of a practice with the skills and dynamics of instructional behavior. Examination of the predictability of student response behavior when strategies are selected according to pre-determined criteria.

CURR 5503. Curriculum Evaluation. (3-0) Credit 3 semester hours. An examination of the several procedures used to evaluate curricular materials and development activities. Formative and summative evaluation methodologies are compared and contrasted and the consequences of model evaluative systems demonstrated.

CURR 5993. Independent Study. (3-0) Credit 3 semester hours. Readings, research, and/or field work on selected topics. Prerequisite: consent of advisor.

ECED 5303. Development of the Young Child. (3-0) Credit 3 semester hours. A study of the sequential stages of growth and maturation of the young child to include physical, social, emotional and cognitive development.

ECED 5313. Foundations of Early Childhood Education. (3-0) Credit 3 semester hours. An overview of the historical, philosophical, and theoretical development of early childhood and its relationship to child development.

ECED 5323. Methods and Materials for Teaching Young Children. (3-0) Credit 3 semester hours. A study of the teaching strategies, techniques and materials designed to enhance learning experiences for young children.

ECED 5333. Assessment Techniques in Early Childhood Education. (3-0) Credit 3 semester hours. A study of evaluative instruments appropriate for the assessment of young children's intellectual, social and motor development. Practical experiences are provided in test administration, scoring, interpretation and utilization of results.

ECED 5343. Organization and Administration of Programs for Young Children. (3-0) Credit 3 semester hours. An examination of the organization and administration of early childhood programs with emphasis on early childhood. A study of the impact of legislation and professional organizations on program operations.

ECED 5353. Seminar in Early Childhood Education. (3-0) Credit 3 semester hours. An analysis of current research literature trends and issues in Early Childhood Education.

ECED 5363. Early Childhood Practicum. (3-0) Credit 3 semester hours. Planned observation and interaction experiences with young children in a classroom setting. Organized feedback sessions are provided in structured seminars.

EDFN 5103. Foundations of Educational Research. (3-0) Credit 3 semester hours. Basic concepts of research design, strategies of experimental, historical and descriptive research, and basic statistical procedures are introduced.

EDFN 5113. Psychology of Learning and Development. (3-0) Credit 3 semester hours. An analysis of mental processes involved in learning the developmental relationship of these processes. In-depth study of major theories which relate learning, development, and physiology.

EDFN 5123. Socio-Cultural Issues in Education. (3-0) Credit 3 semester hours. An analysis of historical, philosophical, and multi-cultural issues in American education and their implications for the setting of standards that govern educational policy and practice.

EDFN 5143. Advanced Educational Statistics. (3-0) Credit 3 semester hours. Computer applications and Statistical used in educational measurement and research design, analysis of variance, and introduction to non-parametric statistics. Prerequisite: EDFN 5103.

EDFN 5903. Thesis Research. (3-0) Credit 3 semester hours. Selection, preparation, and presentation of a research proposal for purposes of completing thesis requirement. Prerequisite: admission to candidacy and approval of thesis advisor.

EDFN 5923. Master's Seminar. (3-0) Credit 3 semester hours. Investigation and analysis of research in the field of curriculum and instruction. Major paper a requirement for this course. Prerequisite: EDFN 5103.

EDTC 5403. Audiovisual Materials in Instruction. (3-0) Credit 3 semester hours. Theoretical and practical experience in the use of instructional media, materials selection, evaluation, and equipment operation for classroom instruction.

EDTC 5423. Reference and Bibliography. (3-0) Credit 3 semester hours. The theory and principles underlying reference selection, information collection, and reference services. Theory and purpose of bibliography as form of access to information collection, introduction to communication, question-negotiation, and search strategy.

EDTC 5433. Acquisition and Cataloging of Materials and Information. (3-0) Credit 3 semester hours. Principles of acquisition, descriptive cataloging, classification, and subject analysis of print and non-print materials. Application of the Dewey Decimal and Library of Congress classification systems.

EDTC 5443. Local Production of Instructional Materials. (3-0) Credit 3 semester hours. the development of competencies related to translating specifications for instructional materials into prototype, final version, and/or mass-produced products.

EDTC 5453. Children and Young Adult Literature. (3-0) Credit 3 semester hours. Advanced study for librarians and teachers of books and other materials for children and young people. Wide reading of books and magazines and the examination of non-print materials.

EDTC 5463. School Media Centers. (3-0) Credit 3 semester hours. Study of the theoretical foundations and objectives of school libraries and media centers; factors to be considered in planning and developing a media center. Consideration of interpretation of media centers; administrative programs in technical services; problems in technical services; and professional literature.

EDTC 5473. Practicum. (3-0) Credit 3 semester hours. Identifying current trends of managing media centers and interfacing experience with theoretical and scientific concepts in public school setting.

ELED 5113. Teaching/Learning Styles In Elementary Classrooms. (3-0) Credit 3 semester hours. Study of effective instructional performances and effective student learning in elementary classrooms. Analysis of research findings and experiments related to teaching/learning situations.

ELED 5123. Studies In Elementary Education. (3-0) Credit 3 semester hours. Investigation of instructional problems, trends, and research related to the development of educational programs for elementary school children.

ELED 5133. Seminar In Elementary Education. (3-0) Credit 3 semester hours. Analysis of contemporary issues in elementary education; problems and challenges associated with teaching/learning and the education profession.

ELED 5143. Individualizing Instruction In Elementary Classrooms. (3-0) Credit 3 semester hours. Evaluation and creative ideas for educational software programs in computer instruction; self-paced evaluation techniques, logical reasoning activities and materials for diagnostic and prescriptive teaching in elementary classrooms.

ELED 5153. Classroom Communication. (3-0) Credit 3 semester hours. Study of the role of communication in the teaching/learning process in elementary classrooms. Analysis of the relationship between verbal and nonverbal messages, classroom management skills, instructional communication and student performances.

HLTH 5043. Alcohol and Drugs. (3-0) Credit 3 semester hours. Development and evaluation of educational approaches for primary and secondary prevention of alcohol and other drug abuse and misuse within populations in elementary and secondary schools, businesses, health agencies, higher education and general communities.

HLTH 5063. Human Behavior and Health Education. (3-0) Credit 3 semester hours. Analysis of social, psychological and cultural determinants of health related behaviors. Critical review of each factor for interpretation and application in a variety of settings, including classrooms, worksites, health care agencies, and higher education centers.

HLTH 5073. Epidemiology and Diseases. (3-0) Credit 3 semester hours. Epidemiologic methods for administrators, policy analysts, and education planners. Identification of and analysis factors influencing infections and chronic diseases in groups of people with a variety of community settings, including schools, businesses, industry, and the health care market.

HLTH 5133. Seminar- Selected Topics. (3-0) Credit 3 semester hours. Etiology, epidemiology and impact of health-related behaviors on illness and wellness within specific populations which may impact school, occupational and community health.

HLTH 5143. Medical Foundations for Health Professions. (3-0) Credit 3 semester hours. Medical and psychosocial approaches to disease detection, prevention and rehabilitation. Emphasis on current trends for the advancement of primary health in school groups, public communities, and special populations.

HLTH 5173. Nutrition and the Environment. (3-0) Credit 3 semester hours. Understanding natural principles underlying health issues related to human ecology, nutrition, and non-infectious disease control and population problems.

HLTH 5183. Contemporary Health (3-0) Credit 3 semester hours. Review of factors relating to selected high morbidity and mortality in urban and rural environments. Study of related psycho-social health problems faced by practicing health educators in a dynamic health care market involving school-based and community-based populations.

HLTH 5193. Community Health (3-0) Credit 3 semester hours. Examination of the mission, goals, and policies of community and public health. Current principles, practice models, functions, roles, issues, and policies are critically analyzed.

HLTH 5991-5992-5993. Independent Study. (0-0) Credit 1, 2, or 3 semester hours. Readings, research, and/or field work on selected topics. Prerequisite: consent of advisor.

PHED 5103. Psychology of Motor Learning. (3-0) Credit 3 semester hours. Learning process in motor skills as the foundation of teaching methods in physical education activities. Practical experience in testing theories.

PHED 5113. Supervision in Physical Education. (3-0) Credit 3 semester hours. Study of principles and practices of educational supervision and their application to physical education.

PHED 5123. Scientific Foundations of Physical Education. (3-0) Credit 3 semester hours. Study of the scientific foundations of physical activity as they relate to biological, psychological, sociological, and biomechanical factors in the teaching of physical education.

PHED 5133. Physical Education Curriculum. (3-0) Credit 3 semester hours. Study of activities, aims, objectives, and outcomes as they relate to courses and their construction. Development of a course of study based on individual student needs.

PHED 5203. Physiology of Muscular Exercises. (3-0) Credit 3 semester hours. Physiological effects of exercise upon the body. Basic physiological concepts and their relation to the total physical education program.

PHED 5303. Tests and Measurements. (3-0) Credit 3 semester hours. Design and methodologies for health education and physical education. Data collection, statistical applications, analyses, interpretation for evaluation and reporting. Prerequisites: Consent of advisor.

PHED 5343. Professional Preparation in Health, Physical Education, Recreation, and Dance. (3-0) Credit 3 semester hours. Focus on professional preparation for those students who are teachers and/or administrators of health, physical education, recreation, or dance.

PHED 5353. Mainstreaming in Health, Physical Education, Recreation, and Dance. (3-0) Credit 3 semester hours. Principles and methods of providing educational services for handicapped students in the least restrictive environment.

PHED 5503. Teaching Physical Education. (3-0) Credit 3 semester hours. A study of traditional and innovative teaching techniques in physical education, including the practical application of teaching styles.

PHED 5703. Kinesiology. (3-0) Credit 3 semester hours. Muscular and bone structure of the body in relation to the science of movement; joint mechanism and muscle action with special application to sports participation and training.

RDNG 5613. Teaching Reading in the Elementary Grades. (3-0) Credit 3 semester hours. Detailed consideration of problems involved in selection of content, grade placement, methods, and materials, and the evaluation of achievement.

RDNG 5623. Psychology of Reading and Reading Difficulties. (3-0) Credit 3 semester hours. An examination of social and psychological factors related to success and failure in learning to read.

RDNG 5633. Teaching Reading in Secondary Schools. (3-0) Credit 3 semester hours. Instructional approaches to reading in the secondary school. Planning, organizing, implementing, and evaluating instructional procedures and outcomes.

RDNG 5643. Diagnosis and Correction of Reading Difficulties. (3-0) Credit 3 semester hours. Diagnostic devices and techniques for identifying strengths and weaknesses in reading. Prescriptive techniques for overcoming difficulties in reading.

RDNG 5663. Clinical Experiences in Reading. (3-0) Credit 3 semester hours. Case study analysis, seminars, and field experiences in school classrooms. Prerequisite: Consent of instructor.

RDNG 5673. Issues, Problems and Trends in Reading. (3-0) Credit 3 semester hours. Study of historical, current and future issues, problems and trends in reading at the elementary and secondary school levels.

SCED 5503. Principles of Secondary Education. (3-0) Credit 3 semester hours. Origins, development and organization of the secondary school. Contemporary problems and trends in secondary education are identified and studied.

SCED 5513. Secondary School Curriculum. (3-0) Credit 3 semester hours. Characteristics and organization of curriculum and teaching in secondary schools. Relationships to socio-cultural influences in society and within the schools.

SPED 5203. Special Education Seminar. (3-0) Credit 3 semester hours. A seminar designed to investigate contemporary issues in the area of special education as well as to increase the students' familiarity with current literature and knowledge in the field.

SPED 5213. Introduction to Exceptional Children. (3-0) Credit 3 semester hours. An in-depth study of the various types of exceptional learners and their educational needs.

SPED 5223. Psychology of Retarded Children. (3-0) Credit 3 semester hours. Designed to provide the learner with an overview of various tests, learning characteristics and etiology of the exceptional individual.

SPED 5233. Language and Communication Problems. (3-0) Credit 3 semester hours. An overview of particular communication problems as they relate to the oral language skills of the exceptional learner. Prerequisites: SPED 5213; 5243, and consent of program coordinator.

SPED 5243. Methods for the Exceptional Learner. (3-0) Credit 3 semester hours. Deals with problems of instruction, methods of teaching retarded children and learning disabled, organization of special classes and curriculum development for the exceptional learner.

SPED 5263. Diagnostic and Prescriptive Techniques for the Exceptional Learner. (3-0) Credit 3 semester hours. Designed to provide the opportunity for students to experience and develop a descriptive orientation of the learning disabled student. Prerequisites: SPED 5213, 5243 5223, 5243, 5283 and consent of program coordinator.

SPED 5273. Learning Theory. (3-0) Credit 3 semester hours. An in-depth study of the various learning theories and an analysis of systematic approaches to learning. Prerequisites: SPED 5213, 5223, 5243, 5283 and consent of program coordinator.

SPED 5283. Curriculum Adjustment and the Exceptional Child. (3-0) Credit 3 semester hours. The experience of altering traditional curricula to mesh with the individual learning needs of the exceptional learner. Prerequisites: SPED 5213, 5243;and consent of program coordinator.

SPED 5343. Practicum. (3-0) Credit 3 semester hours. Direct experience with children referred to the special education laboratory for testing and evaluation. These referrals are related directly to public school problems.

SPED 5353. Individual Testing of the Exceptional Child. (3-0) Credit 3 semester hours. Familiarizes the learner with the administration and interpretation of individualized testing designed for the exceptional learner.

SUPV 5113. Principles of Supervision. (3-0) Credit 3 semester hours. Principles, practices and problems of the supervisory program; includes analysis of current research in the field.

SUPV 5213. The School Supervisor. (3-0) Credit 3 semester hours. A rationale for supervision, and techniques for the supervision of instructional personnel and programs with special emphasis on the clinical supervision cycle.

SUPV 5713. Problems in Supervision. (3-0) Credit 3 semester hours. The study and analysis of contemporary issues related to the supervisory function in an educational setting.

VOED 5103. Placement and Follow-Up. (3-0) Credit 3 semester hours. A study of various instruments, methods, and techniques used in determining occupational aptitudes and interests of students. Planning, organizing, and coordinating a program of job and vocational education placement. Development and coordination of student follow-up services.

VOED 5403. Occupational and Vocational Education. (3-0) Credit 3 semester hours. Methods of collecting, evaluating, cataloging and disseminating occupational and vocational education information.

VOED 5603. Organization and Administration. (3-0) Credit 3 semester hours. Analysis of skills and techniques of administering and supervising vocational programs in public schools. Rules and regulations for organizing and operating vocational education programs, including the financing of vocational programs using local, state, and federal funds.

VOED 5903. Planning and Organizing. (3-0) Credit 3 semester hours. Purposes and functions of a guidance program. Group guidance procedures, components of a vocational guidance program, and techniques of providing vocational guidance services for elementary and secondary students and adults.

VOED 5933. Problems. (3-0) Credit 3 semester hours. An in-depth study of the duties of the teacher coordinator of vocational programs. The identification of types of problems encountered, and the application of action-oriented problem-solving techniques. Problems encountered in both the school and the community are addressed.

VOED 5983. History and Principles. (3-0) Credit 3 semester hours. The historical development of vocational education. Course involves an analysis and discussion of the objectives of vocational education, types of vocational programs, services and activities.

College of Engineering

CHEG 5013. Advanced Reaction Engineering. (3-0) Credit 3 semester hours. Rates and mechanisms of chemical reactions. Thermo and catalytic reactions both homogeneous and heterogeneous with applications. Applications to design of new materials. Prerequisite: CHEG 3063 or equivalent.

CHEG 5023. Microelectronics Materials. (3-0) Credit 3 semester hours. Heterogeneous chemical reactions. Chemical engineering aspects of materials fabrication and processing. CVD thin film deposition techniques. Preparation of superconducting powders. Composites. Modeling and practical applications.

CHEG 5033. Environmental Processes. (3-0) Credit 3 semester hours. Fundamentals of environmental engineering, chemistry, physical-chemistry and transport properties. Energy and mass balances. Reactions and reactors. Biological processes. Bioremediation.

CHEG 5043. Remediation Technologies. (3-0) Credit 3 semester hours. Fundamentals of environmental remediation. Physical-chemical processes. Bioremediation. Stabilization and solidification. Thermal methods. Site characterization. Risk assessment. Containment. Remedial Alternatives Applications to real contaminated sites.

CINS 5003. Graduate Seminar and Project Research. (3-0) Credit 3 semester hours. Series of lectures given by faculty and by visiting computer and information scientists and information technologists. Prerequisite: Graduate standing and consent of the instructor.

CINS 5013. Information Resources Management. (3-0) Credit 3 semester hours. Topics include information systems analysis, design, application, operation, management, and methods for integrating information resources into a decision support framework. Prerequisite: Graduate standing and consent of the instructor.

CINS 5033. Database Management Systems. (3-0) Credit 3 semester hours. Fundamentals of database management systems, techniques for the design of databases, and principles of database administration. The course emphasizes theories of data modeling, database design, database application development, and database management. Topics include conceptual models, query languages, and centralized, distributed, and client/server architectures. Special importance is assigned to the design of databases and the development of client/server and web-based applications using modern software tools. Other topics include database integrity, security, error recovery, and concurrency control. Prerequisite: Graduate standing and consent of the instructor.

CINS 5043. Data Communications and Computer Networks. (3-0) Credit 3 semester hours. Abroad introduction to network technologies, architectures, services, and management necessary to meet business needs, including network and internet designs, applications, and an overview of the telecommunications industry. Prerequisite: Graduate standing and consent of the instructor.

CINS 5063. Data Structures and Algorithms. (3-0) Credit 3 semester hours. Advanced course in data structures with an emphasis on common applications such as pattern matching, data compression, and spell checking. The goals are to provide an insight into data structures, to show how to evaluate data structures, and to provide a basis for making wise choices of data structures in the development of software application systems. The course relates the principles of data structures to the implementation of commercial applications and widely used utilities such as diff (for finding the string edit distance), grep (for pattern matching), and compress (for data compression). Prerequisite: Graduate standing and consent of the instructor.

CINS 5073. Information Technology. (3-0) Credit 3 semester hours. Introductory graduate-level course for CIS majors. This course explores the "information technology (IT) infrastructure," that is, the complex system of computers, networks, software, and delivery goals which collectively form the platform for

assimilating and delivering information products and services to an organization and its customers, clients, and suppliers. Prerequisite: Graduate standing and consent of the instructor.

CINS 5103. Decision Support Systems. (3-0) Credit 3 semester hours. Use of decision support systems in business-related decision-making, an overview of the business environment, use models, user interfaces for decision support systems, and decision support systems examples. Prerequisite: Graduate standing and consent of the instructor.

CINS 5143. Advanced Database Management Systems. (3-0) Credit 3 semester hours. Topics related to database design and data management in a database environment, including data normalization, functional dependencies, database design, query language design, implementation constraints, data integrity and security, and distributed data processing. The emphasis is on the concepts and structures necessary to design and implement a database management system. Selected advanced topics such as distributed databases, object-oriented databases, real-time databases, and multimedia databases will be discussed. Because of the many advances in information technology and the database development techniques, new business needs and opportunities are constantly emerging and, with them, the need to manage new technologies and applications effectively. This course explores these new application areas and the management approaches needed to make them successful. Prerequisite: Graduate standing, Prerequisite: Graduate standing, COMP 4953 or CINS 5033, and consent of the instructor.

CINS 5173. Information Storage and Retrieval. (3-0) Credit 3 semester hours. Comprehensive coverage of components, applications, and issues of global information technology management for worldwide organizations. Prerequisite: Graduate standing and consent of the instructor.

CINS 5183. Software Engineering. (3-0) Credit 3 semester hours. Specifying software requirements and an overview of analysis and design techniques that can be used to structure applications. Topics in software requirements include interacting with end-users to determine needs and expectations, identifying functional requirements, and identifying performance requirements. Analysis techniques include prototyping, modeling, and simulation. Design topics include the system lifecycle, hardware and software trade-offs, subsystem definition and design, abstraction, information hiding, modularity, and reuse. Prerequisite: Graduate standing and consent of the instructor.

CINS 5213. Advanced Data Communications and Computer Networks. (3-0) Credit 3 semester hours. Topics related to the development of client-server based applications, including two-tier and multi-tier client-server concepts and programming, concurrency issues in the design of client and server programs, trade-offs of different architectures, the use of remote procedure calls, and broadcasting and multicasting. Prerequisite: Graduate standing, COMP 4123 or CINS 5043, and consent of the instructor.

CINS 5233. Distributed Computing and Parallel Processing. (3-0) Credit 3 semester hours. Comprehensive introduction to the field of parallel and distributed computing systems, including algorithms, architectures, networks, systems, theory, and applications. Distributed parallel computation models, and the design and analysis of parallel algorithms will be emphasized. Prerequisite: Graduate standing, COMP 5133, and consent of the instructor.

CINS 5273. Applied Artificial Intelligence and Expert Systems. (3-0) Credit 3 semester hours. Fundamentals of knowledge-based systems that use artificial intelligence technologies. Businesses are becoming increasingly knowledge-intensive; in particular, with the explosion of data available, there is an increasing need for systems that help people filter, summarize, and interpret large amounts of disparate kinds of data. At the same time, the enabling technologies such as database systems, networks, desktops, and artificial intelligence techniques have reached industrial-strength maturity, providing unprecedented opportunities for building powerful decision support systems. This course will provide abroad understanding of these technologies, the value the new technologies provide, how to recognize when they are useful, a methodology for evaluating the pros and cons of each technology in the context of real-world problems, and exposure to business cases where this methodology has been applied. Prerequisite: Graduate standing and consent of the instructor.

CINS 5303. E-Commerce. (3-0) Credit 3 semester hours. The evolution of electronic commerce, where business is conducted between organizations and individuals relying primarily on digital media and transmission. Participants will investigate the opportunities and challenges of exchanging goods and services over communications networks as well as the manner in which business relationships are being reshaped. Course activities are designed to provide both managerial and entrepreneurial assessments of anticipated advances in information technology with respect to business systems and electronic markets. Prerequisite: Graduate standing and consent of the instructor.

CINS 5323. Multimedia Applications. (3-0) Credit 3 semester hours. The background needed for the design and development of computer-based business systems that combine text, still images, sound, animation, and full-motion video. The course will examine hardware characteristics necessary for the development and execution of such systems, design methodologies used in planning these systems, and authoring languages used to create such systems. Students will be required to design, create, and present at least one multimedia system for evaluation by the class. Prerequisite: Graduate standing and consent of the instructor.

CINS 5333. Reverse Logistics. (3-0) Credit 3 semester hours. Concepts and methods associated with designing, planning, contracting, and overseeing information technology infrastructure and applications. Systems integration encompasses activities where hardware, software, networks, management, services, and training resources are obtained from a team of outside sources. This course is designed to assist students in developing the knowledge and skills needed to work with systems integration vendors and processes. The course familiarizes students with the legal issues related to preparing, distributing, and evaluating requests for proposal (RFPs) and subsequent integration contracting matters. Students will prepare and evaluate systems integration proposals. Prerequisite: Graduate standing and consent of the instructor.

CINS 5453. Object-Oriented Analysis and Design. (3-0) Credit 3 semester hours. An introduction to object-oriented software development using an object-oriented programming language such as C++. Emphasis is placed on both object-oriented design and efficient implementation of the design. Topics include principles of software engineering, management issues, prototyping, development, testing, debugging, and maintenance of software systems. The central theme is to build quality software through reuse. Prerequisite: Graduate standing and consent of the instructor.

CINS 5906. Master's Thesis. (6-0) Credit 6 semester hours. Offered on the letter-grade basis only. The equivalent of six lecture hours per week. Prerequisite: Graduate standing and consent of the thesis advisory committee and the graduate advisor.

CINS 5913. Master's Project. (3-0) Credit 3 semester hours. Offered on the letter-grade basis only. The equivalent of three lecture hours per week. Prerequisite: Graduate standing and consent of the project advisory committee and the graduate advisor.

CINS 5983. Special Topics in Computer Information Systems. (3-0) Credit 3 semester hours. Special topics in computer information systems or a special interest subject that is offered infrequently. Several different topics may be taught in one semester, such as Information Security or Data Warehousing. Prerequisite: Graduate standing and consent of the instructor and the graduate advisor.

CINS 5993. Independent Study. (3-0) Credit 3 semester hours. Individual studies in advanced computer science and technology. Prerequisite: Graduate standing and consent of the instructor and the graduate advisor.

COMP 5003. Graduate Seminar and Project Research. (3-0) Credit 3 semester hours. Series of lectures given by faculty and by visiting computer and information scientists and information technologists. Prerequisite: Graduate standing and consent of the instructor.

COMP 5113. Fundamentals and Concepts of Programming Languages. (3-0) Credit 3 semester hours. Study of the principles that form the basis of programming language design. Research topics in high-level

languages including data abstraction, parameterization, scoping, generics, exception handling, parallelism, and concurrency. Additional topics include alternative language designs (imperative, functional, descriptive, object-oriented, and data flow designs) and an overview of interfacing with support environments. Prerequisite: Graduate standing, COMP 4113, and consent of the instructor

COMP 5123. Advanced Computer Architecture. (3-0) Credit 3 semester hours. New technological developments, including details of multiprocessor systems and specialized machines. The main focus is on the quantitative analysis and cost-performance tradeoffs in instruction set, pipeline, and memory design. Descriptions of real systems and their performance data are also given. Topics covered include quantitative performance measures, instruction set design, pipelining, vector processing, memory organization, input/output methods, and an introduction to parallel processing. Prerequisite: Graduate standing, COMP 3043, and consent of the instructor

COMP 5133. Advanced Operating Systems. (3-0) Credit 3 semester hours. Theoretical and practical aspects of operating systems, including an overview of system software, time-sharing and multiprogramming operating systems, network operating systems and the Internet, virtual memory management, inter-process communication and synchronization, tile organization, and case studies. Other advanced topics and examples, and simulation techniques used in performance evaluation. Prerequisite: Graduate standing, COMP 3063, and consent of the instructor.

COMP 5143. Advanced Database Management Systems. (3-0) Credit 3 semester hours. Topics related to database design and data management in a database environment, including data normalization, functional dependencies, database design, query language design, implementation constraints, data integrity and security, and distributed data processing. The emphasis is on the concepts and structures necessary to design and implement a database management system. Selected advanced topics such as distributed databases, object-oriented databases, real-time databases, and multimedia databases will be discussed. Because of the many advances in information technology and the database development techniques, new business needs and opportunities are constantly emerging and, with them, the need to manage new technologies and applications effectively. This course explores these new application areas and the management approaches needed to make them successful. Prerequisite: Graduate standing, COMP 4953 or CINS 5033, and consent of the instructor

COMP 5153. Design and Analysis of Algorithms. (3-0) Credit 3 semester hours. Introduction to algorithm design and analysis, computational complexity, and NP-completeness theory. The course will emphasize how to design and choose appropriate algorithms and data structures to solve a given problem efficiently. Design methods covered will include divide-and-conquer techniques, greedy methods, and dynamic programming. Problem domains covered will include string matching, polynomials and matrices, graph theory, optimal trees, and NP-hard problems. Prerequisite: Graduate standing, COMP3053, and consent of the instructor.

COMP 5183. Software Engineering. (3-0) Credit 3 semester hours. Specifying software requirements and an overview of analysis and design techniques that can be used to structure applications. Topics in software requirements include interacting with end-users to determine needs and expectations, identifying functional requirements, and identifying performance requirements. Analysis techniques include prototyping, modeling, and simulation. Design topics include the system lifecycle, hardware and software trade-offs, subsystem definition and design, abstraction, information hiding, modularity, and reuse. Prerequisite: Graduate standing and consent of the instructor.

COMP 5213. Advanced Data Communications and Computer Networks. (3-0) Credit 3 semester hours. Topics related to the development of client-server based applications, including two-tier and multi-tier client-server concepts and programming, concurrency issues in the design of client and server programs, trade-offs of different architectures, the use of remote procedure calls, and broadcasting and multicasting. Prerequisite: Graduate standing, COMP 4123 or CINS 5043, and consent of the instructor.

COMP 5223. Artificial Intelligence and Expert Systems. (3-0) Credit 3 semester hours. Topics in knowledge-based systems and machine learning, including an in-depth engineering approach to artificial

neural networks. Topics include different types of network architectures and applications, and their properties and behavior, with a particular emphasis on general concepts of network topologies. Prerequisite: Graduate standing and consent of the instructor and the graduate advisor.

COMP 5233. Distributed Computing and Parallel Processing. (3-0) Credit 3 semester hours. Comprehensive introduction to the field of parallel and distributed computing systems, including algorithms, architectures, networks, systems, theory, and applications. Distributed parallel computation models, and the design and analysis of parallel algorithms will be emphasized. Prerequisite: Graduate standing, COMP 5133, and consent of the instructor.

COMP 5243. Numerical Analysis. (3-0) Credit 3 semester hours. Analysis of algorithms and solutions utilizing numeric methods, including linear and nonlinear systems, matrix inversion and eigenvalues, polynomial approximations, quadratic interpolation, least squares, and finite differences. Emphasis is placed on robust mathematical software and its interaction with computer hardware and languages. Prerequisite: Graduate standing, COMP 5153, and consent of the instructor.

COMP 5253. Theory of Computation. (3-0) Credit 3 semester hours. Models of computation, complexity theory, intractable problems, complete problems, recursive function theory, incompleteness, formal theory of program semantics and correctness, and logics of programs. Prerequisite: Graduate standing, COMP 3053 or 5153, and consent of the instructor.

COMP 5263. Computer Graphics. (3-0) Credit 3 semester hours. Topics in computer graphics and geometric modeling, including B-spline curves and surfaces, solid modeling, radiosity, morphing, animation, simulation, subdivision, fractals, wavelets, and other selected topics. Prerequisite: Graduate standing and consent of the instructor.

COMP 5413. Object-Oriented Analysis and Design Methodology. (3-0) Credit 3 semester hours. Design and analysis methods for developing high-quality object-oriented systems. Topics include object-oriented classes, attributes, methods, and relations to other classes, objects, classifications and inheritance, encapsulation, polymorphism, and object-oriented analysis, design, and programming. Prerequisite: Graduate standing and consent of the instructor.

COMP 5423. Software Engineering Processes. (3-0) Credit 3 semester hours. Engineering of complex systems that have a strong software component. Topics include deriving and allocating requirements, system and software architectures, systems analysis and design, integration, interface management, configuration management, quality, verification and validation, reliability, and risk. Prerequisite: Graduate standing, COMP 5183, and consent of the instructor.

COMP 5433. Software Project Planning and Management. (3-0) Credit 3 semester hours. Methods for successful management of a software development project. This includes planning, scheduling, tracking, cost and size estimating, risk management, quality engineering, and process improvement. The course is centered on the concept of a software engineering process and includes discussion of life-cycle models for software development. Prerequisite: Graduate standing, COMP 5183, and consent of the instructor.

COMP 5443. Advanced Software Quality Assurance. (3-0) Credit 3 semester hours. The relationship of software testing to quality is examined with an emphasis on testing techniques and the role of testing in the validation of system requirements. Topics include module and unit testing, integration, code inspection, peer reviews, verification and validation, statistical testing methods, preventing and detecting errors, selecting and implementing project metrics, and defining test plans and strategies that assure conformance to system requirements. Testing principles, formal models of testing, and performance monitoring and measurement are also examined. Prerequisite: Graduate standing, COMP 5183, and consent of the instructor.

COMP 5463. Human Computer Interaction and Interface Design. (3-0) Credit 3 semester hours. A research-oriented course featuring in-depth analyses of selected current topics with an emphasis on

problems related to computer systems, artificial intelligence, and human-computer interaction and interface design. Prerequisite: Graduate standing, COMP 5213, and consent of the instructor.

COMP 5906. Master's Thesis. (6-0) Credit 6 semester hours. Offered on the letter-grade basis only. The equivalent of six lecture hours per week. Prerequisite: Graduate standing and consent of the thesis advisory committee and the graduate advisor.

COMP 5913. Master's Project. (3-0) Credit 3 semester hours. Offered on the letter-grade basis only. The equivalent of three lecture hours per week. Prerequisite: Graduate standing and consent of the project advisory committee and the graduate advisor.

COMP 5983. Special Topics in Computer Science. (3-0) Credit 3 semester hours. Exposure to new and emerging concepts and technologies. Prerequisite: Graduate standing and consent of the instructor and the graduate advisor.

COMP 5993. Independent Study. (3-0) Credit 3 semester hours. Individual studies in advanced computer science and technology. Prerequisite: Graduate standing and consent of the instructor and the graduate advisor.

CVEG 5123. Structural Dynamics. (3-0) Credit 3 semester hours. Single and multidegree systems, linear nonlinear systems, damped or forced random vibrations, self-introduced vibrations, numerical and phase plane solutions, modal analysis, formulation by flexibility and stiffness matrices, response spectra, and computer applications.

CVEG 5143. Hazardous Waste Management. (3-0) Credit 3 semester hours. Environmental legislation, regulations concerning the identification, storage, transport, and disposal of hazardous wastes. Treatment processes; control mechanisms; landfill technology and disposal practices.

CVEG 5153. Biological Wastewater Treatment. (3-0) Credit 3 semester hours. Course on the fundamentals and on selected design aspects of biological wastewater treatment. The need and objectives of wastewater treatment are introduced starting with an overview of the federal water pollution control acts and of the major physical chemical-biological characteristics of waste streams.

CVEG 5163. Air Pollution Engineering. (3-0). The nature of the air pollution problem and its effects on the public at large. Present legal and engineering controls to combat pollution. Techniques of air sampling and testing.

CVEG 5173. Finite Element Analysis. (3-0) Credit 3 semester hours. Using numerical integration, Galerkin-weighted residual and variation approaches to formulate and solve one-and-two dimensional problems in solid mechanics, fluid flow, heat transfer, and electro-magnetics.

ELEG 5043: Computer Network. (3-0) Credit 3 semester hours. Fundamental Communications Network concepts. Architectures for access and internetworking. Data and multimedia transmission techniques, protocols; switched and shared media networks. Routing, error and flow control, TCP/IP and other Internet protocols. New developments in next generation Internet.

ELEG 5063. Advanced Semiconductor Devices. (3-0) Credit 3 semester hours. Development of mathematical analysis and systematic modeling of solid state devices; relationship of measurable electrical and optical characteristics to structural and material properties of solid devices. p-n junctions, bipolar and unipolar devices, MOSFETs, IMPATT diodes; utilization of these models in IC design consideration; radiation effects.

ELEG 5073. Statistical Communication Theory. (3-0) Credit 3 semester hours. Concepts of probability and random processes necessary for advanced study of communication, stochastic control and other electrical engineering problems involving uncertainty, coding of information over a noisy channel; inclusion of additive

and multiplicative gaussian channels; limits on rates at which information can be coded and transmitted over noisy channels; application to elementary detection and estimation problems.

ELEG 5083. Advanced Digital Processing. (3-0) Credit 3 semester hours. Selected topics in digital signal processing such as digital speech processing, multidimensional digital signal processing, spectrum estimation, and error analysis.

ELEG 5093. Digital Image Processing. (3-0) Credit 3 semester hours. Fundamental of Image processing, image coding, compression, enhancement and restoration. Image reconstruction from projections and partial information.

ELEG 5133. Information Theory. (3-0) Credit 3 semester hours. Definition of a measure of information and study of its properties; introduction to channel capacity and error-free communications over noisy channels, rate distortion theory, error detection and correction codes.

ELEG 5153. Solid State for Engineers. (3-0) Credit 3 semester hours. Quantum theory applied to electronic mechanical and chemical properties of perfect crystals. Theory will be related to spectroscopic and diffraction experiment. Imperfections in crystal and glassy substances.

ELEG 5173. VLSI Design. (3-0) Credit 3 semester hours. MOS devices, circuits and digital logic; layout methods; CAD tools for MOSFET and Bipolar ICs; circuit simulation; timing considerations; layout and timing effects.

ELEG 5183. Computer Architecture. (3-0) Credit 3 semester hours. Computer interconnection structures, internal and external memory, input/output, operating systems, computer arithmetic, instruction sets, CPU structure and function, control unit operation, micro programmed control, parallel organization, and RISC.

ELEG 5223. Embedded and Real-Time Systems. (3-0) Credit 3 semester hours. Designed for graduate computer science and electrical engineering students. Methodologies and technologies for behavioral synthesis, system synthesis, and real-time issues in embedded systems. Topics include behavioral synthesis, hardware/software codesign, interface synthesis, scheduling real-time constraints, real-time specification and modeling, transformation and estimations during synthesis and design optimization, concurrency, real-time OS, and embedded processors. Design for low power, verification, and debugging

ELEG 5233. Mobile and Wireless Networked Computing Systems. (3-0) Credit 3 semester hours. Designed for graduate computer science and electrical engineering students. Interdisciplinary course covering mobile computing, wireless networking, and multimedia processing techniques for computing systems of ubiquitous transport and processing of multimedia information. Topics include wireless and cellular fundamentals, network mobility management, low-power portable node architecture, mobile IP, wireless TCP, middleware and operating system issues, and context-aware adaptive applications.

ELEG 5243. Advanced Broadband Communication Systems. (3-0) Credit 3 semester hours. Advanced testing and analysis techniques of various high-speed communication systems. Detailed study of the different types of xDSLs, the DSLAM Issues. Packet Switching and Circuit Switching. International Issues and xDSL. xDSL Standards and Standard related Issues with more Emphasis on ADSL, HDSL. xDSL Migration Issues and Special Topics of Interests. Students will be expected to research and present various topics of interests in class. Projects are expected from the students at the end of the semester. Other special topics of interest will be covered especially as they relate to xDSLs. Prerequisite: ELEG 4323 or equivalent, Graduate Standing or permission of Instructor.

ELEG 5253. Advanced Mixed Signal Techniques. (3-0) Credit 3 semester hours. Advanced areas of analog mixed signals. Advanced testing and analysis techniques of various analog mixed signal integrated circuits and systems. Advanced Considerations in the issues involved in the layout and design of analog ICs. Students will be expected to research and present various topics of interests in class. Projects are

expected from the students at the end of the semester. Other special topics of interest will be covered especially as they relate to Power Management Produc. (PMP) issues.

ELEG 5263. Integrated Circuit Engineering. (3-0) Credit 3 semester hours. Physics of devices and process for high density integrated circuits. CMOS technology, fabrication technology, process and device simulation using SUPREM and PISCES, integrated circuits mask layout, inverters, buffers, logic circuits, and clocking.

ELEG 5283. Network Performance Analysis. (3-0) Credit 3 semester hours. Telecommunications traffic models, arrival and service time distributions, Poisson and Erlang formulas. Topological design algorithms. Delay and blocking models for packet switched networks, calculation of delay and blocking probability. Routing, relaying and flow control algorithms. delay and cost minimization, throughput optimization. Multiple access schemes.

ELEG 5913. Engineering Project. (3-0) Credit 3 semester hours. An engineering design and analysis investigation at the master's level. Topic to be decided between student and advisor and should be relevant to students specialty area. A written project report is required to be presented, defended orally and submitted to the faculty advisory committee for approval.

ELEG 5966. Research. (6-0) Credit 6 semester hours. Engineering research under the supervision of graduate advisor.

ELEG 5993. Independent Study. (3-0) Credit 3 semester hours. Reading, research, and/or field work on selected topics. Prerequisite: consent of advisor.

ELEG 5996. Thesis. (6-0) Credit 6 semester hours. A candidate for the Master of Science in Electrical Engineering is required to perform a study, a design of investigation, under the direction of a faculty advisory committee. A written thesis is required to be presented, defended orally and submitted to the faculty advisory committee for approval.

GNEG 5010. Research Seminar. (1-0) Credit 0 semester hours. Current research/project in a wide range of fields presented by guest lecturers, faculty or students. Discussion period at the end of each presentation will permit the students to learn more about research methods and presentation techniques.

GNEG 5033. Engineering Probability and Statistics. (3-0) Credit 3 semester hours. Theory of permutations, combinations; statistical principles of analysis of random data probability as a basis of engineering design.

GNEG 5053. Engineering Instrumentation and Information Systems. (3-0) Credit 3 semester hours. Transducer theory and operations; operational amplifiers and feedback control in analog systems; A-D converters for digital systems information processing retrieval, and management.

GNEG 5063. Engineering Analysis I. (3-0) Credit 3 semester hours. Boundary value problems in various engineering disciplines using Maxwell's equations and nonlinear partial differential equations.

GNEG 5073. Engineering Analysis II. (3-0) Credit 3 semester hours. Complex variable theory in engineering applications using techniques, including conformal mapping, control systems, and signal processing.

GNEG 5086. Thesis. (0-0) Credit 3 semester hours. A candidate for the Master Science in Engineering is required to perform a study, design or investigation, under the direction of a faculty advisory committee. A written thesis is required to be presented, defended orally and submitted to the faculty advisory committee for approval.

GNEG 5133. Engineering Numerical Methods. (3-0) Credit 3 semester hours. Numerical methods in engineering includes fundamental numerical techniques involving recursion relationships, numerical

quadratures, etc., applied to engineering problems. Emphasis will be placed on the solution of advanced engineering problems involving ordinary and partial differential equations. Proven and efficient finite methods will be covered with emphasis on engineering conceptualization and formulation. An introduction to finite elements analysis will also be given.

GNEG 5193. Special Topics. (3-0) Credit 3 semester hours. Special topics in engineering relating to materials, renewable and non-renewable resources, environmental and energy fields are selected and discussed in detail. Considers all aspects of planning, design fabrication, development and implementation.

GNEG 5203. Graduate Internship. (0-0) Credit 3 semester hours. A realistic experience in engineering to enhance the student's professional abilities. Students work on significant projects with industry firms or governmental agencies involving decision-making responsibility. Course requires oral and written report.

MCEG 5023. Advanced Thermodynamics. (3-0) Credit 3 semester hours. Theories of thermodynamics and their application to the more involved problems in engineering practice or design. Topics include advanced power cycles, superconductivity, thermodynamic relations, chemical thermodynamics and phase equilibrium.

MCEG 5163. Advanced Engineering Fluid Dynamics. (3-0) Credit 3 semester hours. A Comprehensive study of fluid mechanics and dynamics is considered. This includes Potential flow, Stokes flow, Oseen flow, other inviscid flow, Eckman Row, and other viscous flows such as Boundary Layer Analysis. An introduction to perturbation to theory will also be given.

MCEG 5183. Computer Integrated Manufacturing. (3-0) Credit 3 semester hours. A total integration of manufacturing, management, strategic planning, finance, and the effective use of computer technology in the control of the production process.

MCEG 5223. Advanced Heat Transfer. (3-0) Credit 3 semester hours. An advanced study of heat and mass diffusion, convection, conjugate heat transfer, heat exchangers two-phase heat transfer, micro-scale heat and mass transfer, and thermal radiation. Lumped, integral, differential, and numerical analysis will be included and a term project will be required.

MCEG 5253. Advanced Engineering Materials. (3-0) Credit 3 semester hours. Qualitative and quantitative relationships between microstructure and mechanical properties. Studies of dislocation theory, elasticity, plasticity, brittle and ductile fracture, fatigue and creep, design criteria and statistical aspects of failure.

MCEG 5333. Computational Fluid Dynamics. (3-0) Credit 3 semester hours. Potential flow theory. Application of numerical methods and the digital computer to inviscid flow analysis. Application of vortex lattice, panel element, and boundary element methods to incompressible and compressible three dimensional aerodynamic flow problems. Wings and Wing-body analysis and incorporation of boundary integration for complete modeling.

School of Juvenile Justice and Psychology

JJUS 5113. Foundations of Criminal Justice. (3-0) Credit 3 semester hours. An in-depth examination of the history and origin of the American criminal justice system as it relates to contemporary issues in the United States.

JJUS 5123. Foundations of Juvenile Justice. (3-0) Credit 3 semester hours. An examination of the juvenile justice system: History, structure, and interrelationships among law enforcement, juvenile and adult courts, and juvenile corrections. Includes an exploration of federal, state, county, and local laws and programs; emphasizes case and statutory law, constitutional procedures, and the philosophy of *parens patriae*. Required of all MSJJ students.

JJUS 5223. Substance Abuse. (3-0) Credit 3 semester hours. Provides a critical examination of various policy responses to the “drug problem” in the United States based upon a review of selected empirical and theoretical studies. Includes an overview of drug usage by youth and adults and the relationship between drug usage and juvenile crime.

JJUS 5233. Community Structure and Problems. (3-0) Credit 3 semester hours. Explores political and management structures and their relationships to a variety of community factors, including: Community size and makeup; social stratification or levels of visibility between those of lower, middle, and higher socioeconomic status; and relative availability of goods and services, including those of helping agencies. Additionally, the relationships between race, ethnic, gender diversity and delinquency will be examined. Finally, political, social policy, and organizational behavior, as they affect community structures, poverty, unemployment, crime, racism, ethnocentrism, and sexism will be examined.

JJUS 5243. Community Building and Organizing. (3-0) Credit 3 semester hours. Includes an understanding of theories, methods of analysis, and techniques of intervention employed in pursuing community change. By studying juvenile justice agencies, child helping programs and organizations in the community, a special emphasis is placed on juvenile crime prevention. Techniques for the empowerment of people, problem solving, community building, discovering resources within the community and issues of volunteering are addressed.

JJUS 5253. Domestic and Family Violence. (3-0) Credit 3 semester hours. Addresses types of family violence by examining the extent of the problem, factors contributing to violence, and the consequences of family violence upon the individual, family, community, and society. Emphasis is placed on prevention techniques, non-violent conflict resolution strategies, and programs and services for training and interventions.

JJUS 5413. Economic Life and Juvenile Crime. (3-0) Credit 3 semester hours. Provides a foundation of economic analysis as it applies to juvenile crime and delinquency; elements of supply/demand, elasticity and economic choice theory, production, cost and output determination under different market conditions, resource pricing, labor market and job search are examined. Additionally, issues of national income, output determination, unemployment, inflation and elements of monetary and fiscal policies, income distribution and poverty are addressed.

JJUS 5423. Conflict Mediation/Resolution. (3-0) Credit 3 semester hours. Examines the nature and uses of mediation as a conflict resolution method while taking into consideration the adversarial legal system. The course expands upon the variety of dispute resolution methods applicable to settings in families, neighborhoods, classrooms and juvenile justice agencies.

JJUS 5433. Counseling. (3-0) Credit 3 semester hours. An in-depth evaluation of counseling as it is applied in the juvenile justice and juvenile correction settings. Emphasizes a psycho-social approach to the study of behavior with priority given to immediacy. Explores various treatment models, interviewing, interpersonal communication, and crisis intervention.

JJUS 5523. Management of Juvenile Justice Organizations. (3-0) Credit 3 semester hours. An examination of management and leadership principles as they apply to juvenile justice organizations and agencies. A special focus is placed on the study of government and nonprofit agencies.

JJUS 5763. Theories of Delinquency. (3-0) Credit 3 semester hours. An in-depth analysis of selected theories of crime causation. Readings will include theories chosen from the sociological, economic, psychological, and biological literature. Required of all MSJJ students.

JJUS 5773. Juvenile Law and Practice. (3-0) Credit 3 semester hours. An examination of juvenile law. The course is designed to give the student a better understanding of the law as it relates to the juvenile justice system and its process. Special attention is placed on Texas and U.S. Supreme Court cases.

JJUS 5783. Ethics. (3-0) Credit 3 semester hours. The analytical and normative inquiry into the philosophical foundations of decisions. Emphasis is placed on understanding dilemmas faced by juvenile justice professionals.

JJUS 5943. Research Methods. (3-0) Credit 3 semester hours. Includes defining and specifying research problems; developing and testing hypotheses; the logic of causal interference; learning to use the variety of research designs; sampling procedures; the collection, processing; and storing of research data; and the ethics of research. Prerequisites: JJUS 5123 and 5763. Required of all MSJJ students.

JJUS 5953. Special Topics in Juvenile Justice. (3-0) Credit 3 semester hours. A seminar designed to allow exploration into a wide array of juvenile justice topics as determined by the instructor.

JJUS 5963. Applied Statistical Methods and Computing. (3-0) Credit 3 semester hours. A study of descriptive and inferential statistics, measures of central tendency and variability, estimation, hypothesis testing, analysis of variance, simple and multiple regression and nonparametric methods. Students learn the use and value of each statistic while using SPSS as a problem-solving tool. Prerequisites: JJUS 5123, 5763 and 5943. Required of all MSJJ students.

JJUS 5973. Policy Analysis. (3-0) Credit 3 semester hours. The development of policy and an understanding of the framework for thinking through policy issues which relate to problems in juvenile justice. The class also examines resource allocation methods, cost benefit analysis, issues related to management and policy implementation.

JJUS 5986. Thesis. (6-0) Credit 6 semester hours. Independent and original research leading to an acceptable master's thesis.

JJUS 7113. Juvenile Justice Issues and Practice. (3-0) Credit 3 semester hours. Includes the history of juvenile justice, an overview of juvenile justice agencies and process, and an introduction to issues and trends in the field of juvenile justice. Introduces major questions and problems within the field of juvenile justice and juvenile crime prevention. Prerequisites: Admission to doctoral program.

JJUS 7623. Seminar in Grant Writing. (3-0) Credit 3 semester hours. Develops skills needed to become successful grant writers. Delves into methods of discovering funding sources. Explains problem definition and formulation, identifying target populations and risk factors, provision of background literature, goals and objectives, development of study design, budgeting, staffing and developing job descriptions and evaluative strategies. Prerequisites: Admission to doctoral program.

JJUS 7643. Management and Administration. (3-0) Credit 3 semester hours. Examination of management and administrative thought and practice as these relate to public agencies and private organizations of juvenile justice and youth and child service. Prerequisites: Admission to doctoral program.

JJUS 7653. Seminar on Juvenile Corrections. (3-0) Credit 3 semester hours. Examination of juvenile corrections in Texas and the nation, including the Texas Youth Commission, the Texas Juvenile Probation

Commission, county probation departments, juvenile parole, and private agencies. Discusses historical and national juvenile correctional trends. Prerequisites: Admission to doctoral program.

JJUS 7661. Juvenile Justice Statistics Lab. (0-0) Credit 1 semester hour. A one hour course which must be taken in conjunction with JJUS 7963 Advanced Statistical Techniques in Juvenile Justice I. Prerequisites: Admission to doctoral program, concurrent enrollment in JJUS 7963.

JJUS 7673. The Juvenile Offender and Youth Gangs. (3-0) Credit 3 semester hours. Explores the nature and extent of juvenile crime. Also considers the socialization of children, the creation of childhood and crime as social constructs, and the etiology of juvenile offending. Prerequisites: Admission to doctoral program.

JJUS 7683. Philosophy of Punishment. (3-0) Credit 3 semester hours. Concentrates on questions of personal blame and individual, moral, and legal accountability. Compares classical views of punishment with the restorative justice perspective. Aspects of punishment considered are definitions of punishment, philosophical justifications for punishment, and punishment as a component of culture. Reviews the implications for criminal and civil liability of key concepts such as free will, voluntary action, omission, negligence, recklessness, compulsion, insanity, and excuse. Seeks guidance from penal and civil codes, judicial decisions, legal doctrines, and philosophical perspectives. Prerequisites: Admission to doctoral program.

JJUS 7693. Qualitative Methods in Social Science. (3-0) Credit 3 semester hours. Familiarizes students with the nature and utility of qualitative field work in various areas of criminological research, emphasizing areas of juvenile justice. Prerequisites: Admission to doctoral program.

JJUS 7753. Demographics and Juvenile Justice. (3-0) Credit 3 semester hours. Delves into value systems of major minority groups and disenfranchised persons in the United States. Considers over-representation of these groups as victims of juvenile crime and in Juvenile Justice system processing, and their under-representation in the ranks of professionals and practitioners in the juvenile justice system. Also deals with strategies of change promotion and discusses the ecology of juvenile crime. Prerequisites: Admission to doctoral program.

JJUS 7763. Seminar on Juvenile Processing by Police and Courts. (3-0) Credit 3 semester hours. Considers the processing of juvenile offenders by the juvenile justice system, with a special emphasis upon the juvenile offender's contacts with police officials and with the criminal courts. Compares and contrasts the processing of accused juveniles with the processing of accused adults. Prerequisites: Admission to doctoral program.

JJUS 7773. Theories of Crime and Delinquency. (3-0) Credit 3 semester hours. Examines the historical development of theories of crime and delinquency. Deals with explanations of the etiology of crime which derive from the paradigms of the varied social, psychological, and biological disciplines. Prerequisites: Admission to doctoral program and JJUS 5763 or equivalent.

JJUS 7783. Legal Aspects of Juvenile Justice. (3-0) Credit 3 semester hours. Includes a study of the legal issues which commonly face administrators, managers, and employees of the juvenile justice system. Delves into public employment law, civil rights laws, and juvenile laws relating to the efficient functioning of agencies, and protections from lawsuits. Considers federal law and U. S. Supreme Court decisions relating to the legal rights of children as well as to the functioning of the juvenile justice system. Covers substantive and procedural issues relating to juvenile crime and delinquency. Compares and contrasts legal factors relating to juveniles with those relating to adults. Prerequisites: Admission to doctoral program.

JJUS 7853. Prevention and Treatment of Crime and Delinquency. (3-0) Credit 3 semester hours. Exploration and explanation of the theoretical development of juvenile crime prevention and treatment. The historical growth of juvenile crime prevention and models of juvenile crime control, community action programs, mentoring programs, and technology systems are examples of topics treated. Prerequisites: Admission to doctoral program.

JJUS 7863. Policy Analysis and Program Evaluation. (3-0) Credit 3 semester hours. Explores theories and methods of organizational change with suggested applications to agencies and organizations related to the juvenile justice and criminal justice systems. Identifies methods of developing a continuous capacity for change in juvenile justice and criminal justice agencies. Discusses evaluation methodologies. Prerequisites: Admission to doctoral program.

JJUS 7873. Advanced Seminar in Crime and Delinquency Theory. (3-0) Credit 3 semester hours. Emphasizes analytical, critical evaluation of theory, particularly contemporary versions. Assumes that the student is knowledgeable of each of the major arguments for the causes and correlates of crime. Theory development, theory integration and techniques of theory construction will be examined. Prerequisites: Admission to doctoral program and JJUS 7773.

JJUS 7943. Advanced Research Methods I. (3-0) Credit 3 semester hours. Examines research designs most useful to juvenile justice problems. The primary focus is on quasi-experimental and survey methodologies, with discussion of data collection methods and construction of questionnaires, as well as validity and reliability. Prerequisite: Admission to doctoral program and JJUS 5943 or equivalent.

JJUS 7953. Advanced Research Methods II. (3-0) Credit 3 semester hours. Examines research design problems in juvenile justice at an advanced level; use of sophisticated classical research designs and data-gathering techniques; analysis of problems related to sampling theory and procedures; application of mathematical models to problems in research design and analysis; use of techniques permitting causal inferences. Prerequisites: Admission to doctoral program and JJUS 7943.

JJUS 7963. Advanced Statistical Techniques I. (3-0) Credit 3 semester hours. Discusses nonparametric and parametric statistical techniques including various ordinal tests, multiple regression, logistic regression, discriminate analysis, multivariate analysis of variance, canonical correlation, factor analysis, cluster analysis, and multidimensional scaling. Prerequisite: Admission to doctoral program and JJUS 5963 or equivalent.

JJUS 7973. Advanced Statistical Techniques II. (3-0) Credit 3 semester hours. Includes a survey of reliability analysis, loglinear, and logit loglinear analysis, nonlinear, weighted and two stage least-squares regression, probit analysis, time-series and survival analysis, and Cox regression. Prerequisite: Admission to doctoral program and JJUS 7963.

JJUS 8913. Dissertation I. (3-0) Credit 3 semester hours. Independent and original research leading to an acceptable doctoral dissertation. May be repeated. Prerequisite or corequisite: Advancement to doctoral candidacy.

JJUS 8923. Dissertation II. (3-0) Credit 3 semester hours. Independent and original research leading to an acceptable doctoral dissertation. May be repeated. Prerequisite or corequisite: Advancement to doctoral candidacy and JJUS 8913.

JJUS 8933. Dissertation III. (3-0) Credit 3 semester hours. Independent and original research leading to an acceptable doctoral dissertation. May be repeated. Prerequisite or corequisite: Advancement to doctoral candidacy and JJUS 8923.

JJUS 8943. Dissertation IV. (3-0) Credit 3 semester hours. Independent and original research leading to an acceptable doctoral dissertation. May be repeated. Prerequisite or corequisite: Advancement to doctoral candidacy and JJUS 8933.

JPSY 5113. Psychology and the Juvenile Law. (3-0) Credit 3 semester hours. Reviews the various areas, and ways, in which psychology interacts with the law and, in particular, the juvenile justice system. Explores topics such as psychological and psychiatric testimony; civil commitment; the rights of mental patients; competency to stand trial; the insanity defense; the antisocial personality; child custody disputes and determinations; the psychology of the courtroom; and legal rules and regulations governing the practice

of psychology. Considers the utility and the limitations of psychological expertise in relation to the legal system. Required of all MSJFP students.

JPSY 5123. Psychology of Crime and Delinquency. (3-0) Credit 3 semester hours. Focuses on the major psychological theories of criminal and aggressive behavior as they apply to juvenile delinquency. Viewpoints from cognitive, psychodynamic, psychoanalytic, behavioral, social learning, descriptive, and development psychologies are discussed and compared with current psychodiagnostic classification systems. Case examples are used to illustrate the various theories. Required of all MSJFP students.

JPSY 5223. Substance Abuse. (3-0) Credit 3 semester hours. Provides a critical examination of various policy responses to the “drug program” in the United States based upon a review of selected empirical and theoretical studies. Includes an overview of drug usage by youth and adults and interrelationships between drug usage and juvenile crime.

JPSY 5233. Violence and Aggression. (3-0) Credit 3 semester hours. Critical evaluation and examination of violence and aggression, their origins and determinants, and their impact on the individual and society. Application to the field of forensic psychology will be emphasized through the liberal use of clinical and research material.

JPSY 5253. Domestic and Family Violence. (3-0) Credit 3 semester hours. Addresses types of family violence by examining the extent of the problem, factors contributing to violence, and the consequences of family violence upon the individual, family, community, and society. Emphasis is placed on prevention techniques, non-violent conflict resolution strategies, and programs and services for training and intervention.

JPSY 5263. Psychology and Treatment of the Juvenile Offender. (3-0) Credit 3 semester hours. Addresses the psychological factors leading to the causes, assessment, classification, and treatment of juvenile delinquency. Examines both psychodynamic and developmental approaches, emphasizing neurotic, constitutional and psychopathological factors contributing to delinquency. Reviews the major psychological treatment approaches, with relevant case studies presented for illustrative detail. Analyzes legal and institutional responses to juvenile crime from the perspective of learning theory and developmental psychology. Discusses the role of the psychologist in the juvenile justice system.

JPSY 5413. Behavior Modification and Learning Theory. (3-0) Credit 3 semester hours. Examines various psychological learning theories. Addresses principles of behavior modification, operationalizing and assessing behavior, specific behavior therapy techniques, the design and empirical evaluation of behavior change programs, and the application of behavior therapy to treat clinical disorders in youth.

JPSY 5423. Conflict Mediation/Resolution. (3.0) Credit 3 semester hours. Examines the nature and uses of mediation as a conflict resolution method while taking into consideration the adversarial legal system. The course expands upon the variety of dispute resolution methods applicable to settings in families, neighborhoods, classrooms and juvenile justice agencies.

JPSY 5433. Counseling. (3.0) Credit 3 semester hours. An-in-depth evaluation of counseling as it is applied in the juvenile justice and juvenile correction settings. Emphasizes a psycho-social approach to the study of behavior with priority given to immediacy. Explores various treatment models, interviewing, interpersonal communication, and crisis intervention.

JPSY 5443. Group Dynamics and Group Treatment. (3-0) Credit 3 semester hours. Facilitates the understanding of the dynamics of small groups and larger organizations, emphasizing groups formed for the purpose of psychotherapy and rehabilitation of offenders, as well as the group dynamics of institutions designed to work with delinquent populations. Topics include leadership, role specialization, group formation and development, composition and goals, group violence, group resistance to change, and those factors that facilitate positive growth within groups.

JPSY 5453. Childhood Psychopathology. (3-0) Credit 3 semester hours. A focus on the psychological treatment and prevention of select examples of childhood psychopathology. Emphasis will be placed on those disorders that result in contact with the criminal justice system. Child disorders will be selected from among the following diagnostic categories; conduct disorders, attention deficit disorders, borderline, and schizophrenic disorders. Emphasis will be placed on children who grow up under unusually stressful conditions or experience forms of serious psychological trauma early in life.

JPSY 5523. Introduction to Neuropsychology. (3-0) Credit 3 semester hours. Surveys the field of neuropsychology, including its relevant underpinnings, its place within traditional and forensic settings, and practical applications in the areas of assessment and rehabilitation of brain injury. This introduction examines brain-behavior correlates, psychological tests employed in the evaluation of nervous system trauma, and the common syndromes affiliated with such injury.

JPSY 5533. Social Psychology and the Legal System. (3-0) Credit 3 semester hours. Applies social psychological knowledge to the juvenile justice system. Places special focus on topics such as social psychology of justice institutions, environmental psychology, socialization into roles and identity, collective behavior, research on juries, attitude formation and change, and criminal identification.

JPSY 5763. Developmental Psychology. (3-0) Credit 3 semester hours. Critical analyses of psychological development throughout the life span. Both cognitive and personality development will be considered from various theoretical perspectives as well as from empirical findings. Particular attention will be paid to the development of aggression in various states. Required of all MSJFP students.

JPSY 5773. Psychology Seminar. (3-0) Credit 3 semester hours. Provides an opportunity for exploration of areas of forensic psychology not covered in other courses. The instructor, who may use projects and/or research articles, chooses topics.

JPSY 5843. Personality Assessment I. (3-0) Credit 3 semester hours. Intelligence and Cognition. Provides practical experience in the evaluation of cognitive and intellectual functioning in children, adolescents, and adults. Focuses on the administration, scoring and interpretation of instruments such as the WAIS-R, the WISC-R, the WPPSI, and the Stanford Binet. Discusses general issues such as the nature of human intelligence and its measurement with explicit linkage to issues in forensic psychology. Required of externship option.

JPSY 5853. Personality Assessment II. (3-0) Credit 3 semester hours. Objective Personality Assessment. Provides advanced experience in the administration and interpretation of objective personality tests such as the MMPI, MCMI, and CPI. Surveys the literature regarding the development and validity of objective measures of personality. Forensic applications of objective personality measures are discussed. Prerequisite: JPSY 5843. Required of externship option.

JPSY 5863. Clinical Interviewing. (3-0) Credit 3 semester hours. Centers on the clinical interview as a means of gathering relevant life data, defining problems, and resolving conflicts. Surveys the theory and use of the interview, particularly as related to various counseling theories.

JPSY 5943. Research Methods. (3-0) Credit 3 semester hours. Includes defining and specifying research problems; developing and testing hypotheses; the logic of causal inference; learning to use the variety of research designs; sampling procedures; the collection, processing, and storing of research data, and the ethics of research. Required of thesis option for MSJFP students.

JPSY 5963. Applied Statistical Methods and Computing. (3-0) Credit 3 semester hours. A study of descriptive and inferential statistics, measures of central tendency and variability, estimation, hypothesis testing, analysis of variance, simple and multiple regressions and nonparametric methods. Students learn the use and value of each statistic while using SPSS as a problem solving tool. Prerequisite: JPSY 5943. Required of thesis option for MSJFP students.

JPSY 5773. Psychology Seminar in Selected Topics. (3-0) Credit 3 semester hours. This course is designed to provide students instruction in developing areas of forensic psychology.

JPSY 5973. Field Work in Psychology. (3-0) Credit 3 semester hours. Provides supervised experience assisting psychologists in the assessment, management, and treatment of patients. Students work in an applied institutional setting, such as a juvenile facility, special treatment clinic, hospital, or rehabilitation setting. Training includes interviewing and taking case histories, observations, staff and case conferences. This field work course provides supervision and experience with emotionally disturbed pre-delinquent and delinquent children in institutional, school, and community settings. Develops skills in evaluation and treatment of such youths. Field work training is supplemented by conferences with a faculty advisor. Prerequisites: completion of a minimum of 12 graduate credits in the degree including JPSY 5843, 5853. Required of externship option.

JPSY 5983. Thesis. (3-0) Credit 3 semester hours. Independent and original research leading to an acceptable master's thesis. Required of thesis option.

College of Nursing

NURS 5013. Theoretical Foundations of Nursing. (3-0) Credit 3 semester hours. Presents theoretical foundations for nursing. Examines strategies for implementation of various theories in nursing practice and other health care disciplines. Core Course. Prerequisite: Admission to the program.

NURS 5022. Transcultural Family Health Care in Rural and Urban Settings. (2-0) Credit 2 semester hours. Explores the cultural dimension of health care delivery in urban and rural settings. Family theories, assessment instruments and therapeutic intervention strategies will be explored. Emphasis is placed on examining concepts including wellness, health promotion, epidemiology, case management, economics, and health care financing for vulnerable/minority populations. Core Course.

NURS 5023. Advanced Pharmacology. (3-0) Credit 3 semester hours. Provides a comprehensive understanding of the therapeutic use of major drug classifications for clients of all ages. Emphasis is on the application of drug therapy to the promotion of health and the treatment of disease. The analysis of advanced pharmacodynamic and pharmacokinetic principle. Advanced Practice Core Course.

NURS 5033. Advanced Pathophysiology. (3-0) Credit 3 semester hours. Advanced study of physiological and pathological processes at biochemical, cellular, organ and system levels. Course content includes biologic variations and susceptibility to pathology across different ethnic groups and specific populations. Advanced Practice Core Course.

NURS 5042. Role Theory and Ethics in Advanced Practice Nursing (2-0) Credit 2 semester hours. Role theory is utilized for analyzing the dimensions of the role of the APN in management of health care problems for vulnerable/minority individuals, families, and urban/rural communities. Ethical and legal decision-making models are explored to promote role transition and integration. Advanced Practice Core Course. Prerequisite: Admission to the Program.

NURS 5133. Clinical Research. (3-0) Credit 3 semester hours. The course focuses on the use of research methodologies to analyze nursing practice problems for a population of diverse ethnic and socio-economic backgrounds. The interrelationship between theory, practice and evidenced-based research, and the use of nursing knowledge for the improvement of clinical outcomes is emphasized. Review of major research designs, methods, and ethical requirements of scientific inquiry are addressed. Core Course. Prerequisite or Corequisite: Theoretical Foundations of Nursing.

NURS 5214. Advanced Health Assessment with Practicum. (2-8) Credit 4 semester hours. Builds upon basic physical assessment and history taking skills by increasing the depth and breadth of student knowledge related to the principles and techniques of interviewing, screening, and physical assessment across the lifespan. Multiple types of clinical applications are utilized to expand students' knowledge and proficiency in family health assessment techniques with vulnerable/minority populations. A structured clinical laboratory and/or 8 hour clinical practicum per week in an urban and rural setting is a course requirement. Advanced Practice Course. Prerequisite: Undergraduate health assessment course.

NURS 5215. Primary Health Care for the Childbearing/Childrearing Family with Practicum. (2-12) Credit 5 semester hours. Integrates family theories and their applications to provide primary health care to individuals and families in childbearing and childrearing life events. The course addresses concepts related to growth and development, psychosocial stages and tasks, in the spiritually and culturally diverse expectant family. It also focuses on primary nursing interventions to address identified needs of childbearing/childrearing families in urban and rural communities. Nurse Practitioner Specialty Course. Prerequisite: Advanced Pathophysiology, Advanced Pharmacology, Advanced Health Assessment, and Urban/Rural Primary Health Care.

NURS 5245. Primary Health Care for the Adult and Elderly with Practicum (2-12) Credit 5 semester hours. The course provides the opportunity for students to synthesize advanced knowledge and clinical skills in direct care to underserved urban and rural adults and the elderly in a variety of clinical settings.

Illness prevention, health maintenance measures, and treatment regimens that utilize and interpret common diagnostic and laboratory tests are integral components. Supervised clinical practice is required to promote role integration as a Primary Health Care Nurse Practitioner. Nurse Practitioner Specialty Course. Prerequisite: Admission to candidacy for graduate degree and Primary Health Care for the Childbearing/Childrearing Family with Practicum.

NURS 5253. Urban/rural Primary Health Care. (3-0) Credit 3 semester hours. This is a theoretical course that focuses on the interdisciplinary approach to applying principles and concepts of primary health care to meet the needs of urban and/or rural populations. Opportunities are provided to theories of public health, community health nursing and primary health care. Emphasis is placed on community assessment, problem identification, and mobilization of communities to promote wellness within an interdisciplinary framework. Nurse Practitioner Specialty Course. Prerequisite: Admission to the Program.

NURS 5255. Advanced Clinical Practicum and Seminar. (0-20) Credit 5 semester hours. In this synthesis practicum, the student uses theoretical, scientific, and current clinical knowledge for the assessment and management of health and illness in selected vulnerable populations. This practicum and seminar incorporates health promotion, disease prevention, and management of common acute and chronic health problems in adults and children. Seminar topics will include management of complex diseases, role implementation, research utilization, decision-making, consultation and referral for APN practice. Nurse Practitioner Specialty Course. Prerequisite: NURS 5253, NURS 5215, NURS 5245.

NURS 5713. Health Policy. (3-0) Credit 3 semester hours. The course focuses on the development of health care policy. Current, local, state, and national issues influencing health policies are reviewed. Health care delivery models are explored as well as the concepts of power, political action, activism, networking. Major health policy issues facing advanced practice nursing in the 21st century are considered. Core Course.

NURS 5723. Family Violence: Impact on Health Care System (3-0) Credit 3 semester hours. Explores the prevalence of violence and abuse in families and the impact of violence and abuse on the health care system. Focuses on the research findings related to prevention, assessment, and intervention with offenders, victims and families.

NURS 5733. Women and Depression (3-0) Credit 3 semester hours. Addresses the nature of the problem, family issues, intervention, prevention, treatment and recovery in order to enable the student to better understand, recognize, assess, and treat problems of depression in women.

NURS 5743. Writing for Publication. (3-0) Credit 3 semester hours. Designed to help students understand the publication process and to improve scholarly writing abilities.

NURS 5753. HIV/AIDS Issues and Challenges. (3-0) Credit 3 semester hours. Emphasis on the social, economic, psychological, ethical, and legal issues associated with living with HIV and caring for persons with HIV.

NURS 5763. Financial Management in Advanced Nursing Practice. (3-0) Credit 3 semester hours. The course focuses on health care financing at the local, state and national levels as well as the concepts of reimbursement, contract, negotiation, and partnerships in practice. Cost effective analysis is explored as a tool to examine cost and outcomes for the care of high risk and vulnerable populations. Advanced Practice Core Course.

NURS 5803. Thesis. Proposal Writing. (3-0) Credit 3 semester hours. Concepts of research techniques and designs are explored. A research proposal is developed.

NURS 5903. Thesis. (3-0) Credit 3 semester hours. Application of research skills to thoroughly develop thesis on topic approved by advisor. Prerequisite: Nursing 5803. May be repeated for 3 credit hours.

NURS 5983. Special Topics. (3-0) Credit 3 semester hours. Exploration of a single topic not covered in the graduate curriculum (i.e. curriculum development, curriculum evaluation, and skills practicum) but related to Health Care and/or Nursing. The course may be repeated for credit with a different topic, to a maximum of 6 credits. Prerequisite: Consent of instructor.

NURS 5991-5993. Independent Study. (0-0) Credit 1-3 semester hours. Provides an opportunity for the student to engage in independent study in an area of interest.