

ECON 4550. Law and Economics. 3 hours. Introduction to the mutual interaction between legal systems and economic activity. Topics include an introduction to legal systems and institutions, legal analysis, application of economic concepts to various legal doctrines, contracts, torts, criminal law, constitutional law, regulation and antitrust. Emphasis is placed on using economic theory to develop and test hypotheses regarding the effects of laws on incentives and economic behavior, the allocation of resources, and the distribution of income. Prerequisite(s): ECON 1100.

ECON 4560. Economic Damages in Litigation. 3 hours. The growing role of economics in assessing damages in corporate litigation proceedings—typically termed forensic economics. Particular emphasis is given to case studies developed from recent industry activity in which students serve as the residing economic experts and are responsible for issuing an expert report setting forth their damages estimates and analyses. Prerequisite(s): ECON 3550, ECON 3560, ECON 4630.

ECON 4600. Economic Development. 3 hours. General analysis and survey of development theories, and problems and policies involved with those countries that have not yet attained the level of economic well-being and integration observed in the United States. Prerequisite(s): ECON 1100 and ECON 1110, or consent of department. May not be repeated at the graduate level as ECON 5700.

ECON 4630. Research Methods for Economists. 3 hours. (3;1) Research methodology for business and the social sciences. Topics include descriptive statistics, basic probability theory, discrete and continuous probability distributions, hypothesis testing and introductory regression techniques. Emphasis is placed on economics applications. A lab experience provides students with real world experience with topics they are exposed to in the lectures. Designed to prepare economics students for econometrics course work. Prerequisite(s): MATH 1100. May not be repeated at the graduate level as ECON 5630.

ECON 4650. Urban and Regional Economics. 3 hours. Uses economic analysis to understand the development of cities and regions and how economic activity in the areas is organized. Explores the economics of transportation and urban problems such as poverty, segregation, crime and congestion. Prerequisite(s): ECON 3550. May not be repeated at the graduate level as ECON 5750.

ECON 4850. International Trade. 3 hours. Examines the nature and theoretical foundations of modern trade between nations. Topics include patterns of international trade and production, welfare implications of trade, impacts of tariffs and quotas, balance of trade and balance of payments issues. Analysis of trade implications of international monetary systems, multinational corporations, exchange rates and economic implications of political action. Prerequisite(s): ECON 1100 and ECON 1110, or consent of department. May not be repeated at the graduate level as ECON 5850.

ECON 4870. Introduction to Econometrics. 3 hours. Focus on simple and multiple regression using ordinary least squares (OLS). Topics include linear and intrinsically linear regression models; estimation under ideal and non-ideal conditions; linear hypothesis testing; multicollinearity and models with dummy variables. Usually offered fall and spring semesters. Prerequisite(s): ECON 4630 or consent of department. May not be repeated at the graduate level as ECON 5640.

ECON 4875. Empirical Linear Modeling. 3 hours. Develops the tools necessary to analyze, interpret and develop empirical applications of econometric estimation procedures. Exploration of an assortment of applied problems that are typically encountered in quantitative research with particular attention given to the examination of real-world, economic and other business-related phenomena. Particular attention is given to developing proficiency in the following four areas: organizing and manipulating data, estimating linear regression models, interpreting econometric results and computer output, and working with computer software. Prerequisite(s): ECON 4870.

ECON 4900-ECON 4910. Special Problems. 1–3 hours each.

ECON 4920. Cooperative Education in Economics. 1–3 hours. Supervised work in a job directly related to the student's major, professional field of study or career objective. Prerequisite(s): 12 semester hours credit in economics; student must meet employer's requirements and have consent of department chair. Pass/no pass only.

ECON 4951. Honors College Capstone Thesis. 3 hours. Major research project prepared by the student under the supervision of a faculty member and presented in standard thesis format. An oral defense is required of each student for successful completion of the thesis. Prerequisite(s): completion of at least 6 hours in honors courses; completion of at least 12 hours in the major department in which the thesis is prepared; approval of the department chair and the dean of the school or college in which the thesis is prepared; approval of the dean of the Honors College. May be substituted for HNRS 4000.

Educational Administration and Supervision

see *Graduate Catalog*

Educational Curriculum and Instruction

see *Graduate Catalog*

Educational Foundations

see Teacher Education and Administration

Educational Psychology

Development and Family Studies, DFST

DFST 1013 (TECA 1354). Human Development. 3 hours. Introduction to the theories and processes of physical, cognitive and social development of the individual from conception until death. Suitable for non-majors; DFST majors should take in their first year. *Satisfies the Social and Behavioral Sciences requirement of the University Core Curriculum.*

DFST 1023. Assessment and Observation. 3 hours. Methods in observation and reporting of child development. Developmental assessment of infants, children and adolescents. Methods, reading and reporting of research in human development and family studies. DFST majors should take in their first year.

DFST 2033 (TECA 1303). Parenting in Diverse Families. 3 hours. Commonalities and differences in parenting, caregiving and family life are emphasized from systems, ecological and cross-cultural perspectives. Parenting and caregiving in diverse family forms and cultures are studied in relation to adult-child interactions, parent/school/community relations, family roles, laws, and parenting skills. *Satisfies a portion of the Understanding the Human Community requirement of the University Core Curriculum.*

DFST 2313. Courtship and Marriage. 3 hours. The study of dating, courtship and marriage relationships.

DFST 2900. Special Problems. 1–3 hours. Open to lower-level students capable of developing a problem independently. Problems are chosen by the student and developed through conferences with the instructor.

DFST 3113. Infant and Toddler Development. 3 hours. The growth and development of the child from conception to three years, including the influence of the family and environment.

DFST 3123. Child Development. 3 hours. Basic principles of development and learning; physical, cognitive, language, social and emotional development in early and middle childhood (ages 3 to 10 years). May require some observation and case study.

DFST 3213. Infant and Toddler Education and Intervention. 3 hours. Focus on roles of professionals and parents/caregivers in fostering individual infant and toddler development through appropriate interactions and care, safe and healthy environments, and developmental intervention. Fifteen hours field observation with infant and toddlers required. Course has been approved as fulfilling competencies for Early Intervention Specialist Credential. Prerequisite(s): DFST 3113 or equivalent.

DFST 3313. Interpersonal Relationships. 3 hours. Study of interpersonal relationships across the life span in a variety of contexts.

DFST 3423. Family, School and Community. 3 hours. Analyzing family, school and community resources and needs as related to the family life cycle; child welfare and education, ecological approach; and exploration of careers related to children and families. Strategies to improve communication and collaboration are emphasized with a focus on family types, cultures, economic conditions, school systems, community services, political forces, advocacy groups and other factors that impact young children and their families. Fifteen hours a term/semester in field work arranged. Prerequisite(s): or senior standing.

DFST 4011. Prepracticum. 1 hour. Provides a bridge from theory to professional practice. Determining career goals and assuming professional ethics, roles and responsibilities are emphasized. Preparation and placement for an in-depth practicum for FCS student teaching is included. A grade of C or better in this course is a requirement for registration in DFST 4023, Practicum. Prerequisite(s): junior or senior standing.

DFST 4023. Practicum. 3 hours. The practicum requires a minimum of 150 clock hours of in-depth experience with an approved agency or research related to development and/or family studies, plus seminar. Emphasis is placed on application of knowledge and skills to actual job roles and responsibilities. Prerequisite(s): DFST 1023, DFST 4011. Students must have a minimum 2.45 overall grade point average, completion of 90 hours or more, and have received a grade of C or better in DFST 4011, Prepracticum, and have the practicum site approved the previous term/semester by prepracticum instructor. May be repeated for a total of 6 hours.

DFST 4133. Adolescent Development. 3 hours. Theories and characteristics of physical, cognitive and social development between 11 and 20 years of age. Effects of family, school, community and other factors on adolescent development are also addressed.

DFST 4223. School-Age and Adolescent Programs. 3 hours. The components in before and after school child care and related programs that are developmentally appropriate and benefit children aged 5 through adolescence are explored. These include planning, implementing and evaluating activities, facilities, programs, staff, budgets and other aspects necessary for providing health services for children and adolescents.

DFST 4233. Guidance of Children and Youth. 3 hours. Best practices in individual and group guidance and management of children from birth through adolescence. Focus on behavior in the context of family, culture and social practices. Requires 15 hours of observation of individual and group activities in an approved setting, to include 3 hours of interaction with infants, children, or youth. Prerequisite(s): DFST 3123.

DFST 4253. Administration of Programs for Children, Youth and Families. 3 hours. Analysis of programs, personnel policies, facility administration and related topics for teachers and administrators who work with children, youth and families. Prerequisite(s): course in child development.

DFST 4323. Family Law and Public Policy. 3 hours. Laws and public policies as they relate to and affect the family. Prerequisite(s): junior or senior standing; DFST 3323.

DFST 4353. Advanced Family Studies. 3 hours. Exploration of current research and theory as it applies to family systems in social contexts. Prerequisite(s): junior or senior standing; DFST 3323.

DFST 4413. Family Life Education. 3 hours. The practice and process of family life education and training of professionals in the child development and family field. Curriculum and program development and evaluation. Teaching strategies and professional responsibilities. Prerequisite(s): DFST 2033 and DFST 3323.

DFST 4433. Family Resource Management. 3 hours. Application of principles of family resource management includes goal setting; decision making; and time, energy, financial, and consumer management.

DFST 4800-DFST 4810. Studies in Development and Family Studies. 1–3 hours. Organized classes for specific program needs and student interests. Prerequisite(s): consent of department. Limited-offering basis. May be repeated for credit.

DFST 4900. Special Problems. 1–3 hours. Open to advanced students capable of developing a problem independently. Problems chosen by student and developed through conferences with the instructor.

DFST 4951. Honors College Capstone Thesis. 3 hours. Major research project prepared by the student under the supervision of a faculty member and presented in standard thesis format. An oral defense is required of each student for successful completion of the thesis. Prerequisite(s): completion of at least 6 hours in honors courses; completion of at least 12 hours in the major department in which the thesis is prepared; approval of the department chair and the dean of the school or college in which the thesis is prepared; approval of the dean of the Honors College. May be substituted for HNRS 4000.

Educational Psychology – see *Graduate Catalog*

Special Education, EDSP

The following special education courses are included in the generic special education service delivery endorsement for the elementary and secondary teaching certificates (EDSP 3210, EDSP 3420, EDSP 3500, EDSP 4110, EDSP 4320, EDSP 4330 and EDSP 4340).

EDSP 2500. Human Exceptionality. 3 hours. An examination of intellectual, physical and social-behavioral exceptionalities across the life span. Students explore educational, cultural, economic, and political perspectives of exceptionalities. Attention is also given to viewing exceptionalities from various disciplines. *Satisfies a portion of the Understanding the Human Community requirement of the University Core Curriculum.*

EDSP 3210. Educational Aspects of Exceptional Learners. 3 hours. Overview of the unique physical, cognitive and behavioral needs of exceptional learners. The teacher's role in identification and referral procedures and implementation of effective educational practices as required by federal and state law are examined.

EDSP 3220. Learning Disabilities: Characteristics, Identification and Intervention. 3 hours. An examination is made of the typical characteristics associated with learning disabilities and identification procedures utilized. Emphasis is on the development of appropriate intervention programs. Prerequisite(s): EDSP 3210 and EDSP 3300 or consent of department.

EDSP 3240. Family Communication and Collaboration for Exceptional Learners. 3 hours. (2;1) Analysis of collaboration and communication models and strategies used in working with families, caregivers and professionals concerned about students with exceptionalities. Focus on the changing definition of family, community resources, advocacy groups, political forces, legal mandates and other factors are addressed that may impact students and their families. 15 hours per term/semester of field-work is arranged.

EDSP 3300. Special Education Practicum I. 3 hours. (1;6) Practical experience in field sites (90 hours: 70 hours field experience and 20 hours classroom). Cognitive, affective and psychomotor objectives for observing behaviors, assisting in planning for instruction and participating in diagnostic processes. Professional development is emphasized. Prerequisite(s): 60 hours of undergraduate credit, overall GPA 2.75, all sections of THEA must be passed.

EDSP 3410. Mental Retardation: Characteristics, Identification and Intervention. 3 hours. An examination is made of the typical characteristics associated with mental retardation and identification procedures utilized. Emphasis

is on the development of appropriate intervention programs. Prerequisite(s): EDSP 3210 and EDSP 3300 or consent of department.

EDSP 3420. Behavioral Disorders: Characteristics, Identification and Intervention. 3 hours. An examination is made of the typical characteristics associated with severe behavior problems and procedures for identification. Emphasis is on the development of appropriate intervention programs. Prerequisite(s): EDSP 3210 and EDSP 3300 or consent of department.

EDSP 4110. Student Teaching in Special Education. 3 hours. Teaching under supervision. See "Student Teaching Program" under College of Education section in the *Undergraduate Catalog* for details. Prerequisite(s): EDSP 3210, EDSP 3220, EDSP 3300, EDSP 3410, EDSP 3420, EDSP 4320, EDSP 4330 and EDSP 4340; or consent of department. Pass/no pass only.

EDSP 4320. Educational Assessment and Evaluation of Exceptional Learners. 3 hours. Examines a variety of assessment and evaluation strategies that are appropriate for special and general education settings. Knowledge of basic testing procedures and terminology as related to the exceptional learner. Interpretation and utilization of test data in developing individual education plans. Introduction to curriculum-based assessment. Field experiences include administration of academic and teacher-made assessments. Prerequisite(s): EDSP 3210 or equivalent and EDSP 3420.

EDSP 4330. Advanced Educational Strategies for Exceptional Learners. 3 hours. Advanced educational strategies and interventions that promote academic performance of exceptional learners across a variety of settings and situations. Includes an emphasis on instructional use of computers and technology in the classroom. Prerequisite(s): EDSP 3210 or equivalent and EDSP 3240.

EDSP 4340. Classroom and Behavioral Management Strategies for Exceptional Learners. 3 hours. Approaches to behavioral management of exceptional learners across a variety of educational settings. Implementation of individualized techniques including applied behavioral analysis, as well as larger-group strategies, to foster positive behavioral, social and emotional growth. Special attention to the development of behavioral intervention plans and positive behavioral supports for students with challenging behaviors. Prerequisite(s): EDSP 3210 or equivalent and EDSP 3240.

EDSP 4350. Strategies to Support Diverse Learners in General Education. 3 hours. Examination of the roles of various professionals in the successful inclusion of students with disabilities in the general education classroom. Focus on consultation models, practices and principles with an emphasis on collaboration, cooperative learning and inclusion. Provides an overview of assessment techniques applicable for all learners in the general education classroom. Prerequisite(s): EDSP 3210, or equivalent.

EDSP 4360. Transition Education and Services for Exceptional Learners. 3 hours. Transition education and services for individuals with disabilities across the life span with emphasis on the post-secondary years. Examines the theory and practice of transition planning from school to community living, post-secondary education and employment. Legislative history and practical applications of skills such as transition assessment, job development and job placement are emphasized. Prerequisite(s): EDSP 3210, EDSP 3240 and EDSP 4320.

EDSP 4900-EDSP 4910. Special Problems. 1–3 hours each.

EDSP 4951. Honors College Capstone Thesis. 3 hours. Major research project prepared by the student under the supervision of a faculty member and presented in standard thesis format. An oral defense is required of each student for successful completion of the thesis. Prerequisite(s): completion of at least 6 hours in honors courses; completion of at least 12 hours in the major department in which the thesis is prepared; approval of the department chair and the dean of the school or college in which the thesis is prepared; approval of the dean of the Honors College. May be substituted for HNRS 4000.

Electrical Engineering

Electrical Engineering, EENG

EENG 1910. Project I: Learning to Learn. 3 hours. (2:2) Learning to Learn (L2L) is based on sound cognitive and pedagogical techniques that improve learning outcomes and make lifelong learning habitual. Students develop an understanding of how engineering is learned and how they can facilitate and develop the lifelong learning process, both individually and in teams. Topics covered include consciousness and self-awareness, knowledge representation, cognition, learning styles, memory, language, reading, effective verbal and written communication, project-based learning, critical thinking, problem solving and creativity, design process, globalization and contemporary issues, professionalism, and ethics. Prerequisite(s): electrical engineering major or pre-major status.

EENG 1920. Project II: Introduction to Electrical Engineering. 2 hours. Provides students the foundation necessary for the successful execution of electrical engineering design projects. The design process embodies the steps required to take an idea from concept to successful design. These steps include the requirements specification, architectural model, concept generation and evaluation, feasibility study, functional decomposition, design, testing, an overview of ethical and legal issues, and maintenance. Technical design tools such as MATLAB, VHDL and Spice software, critical to designing a project, are introduced. Small projects using these design tools are implemented. A final project requires team work, an oral presentation and a written project report. Prerequisite(s): MATH 1710 and EENG 1910.

EENG 2610. Circuit Analysis. 3 hours. Introduction to electrical elements, sources and interconnects. Ohm's law, Kirchoff's law, superposition and Thevenin's theorems are introduced. The resistive circuit, OP Amp, RL, RC circuits, Sinusoidal analysis. Prerequisite(s): MATH 1720. Corequisite(s): PHYS 2220/2240.

EENG 2620. Signals and Systems. 3 hours. Elementary concepts of continuous-time and discrete-time signals and systems. Linear time-invariant (LTI) systems, impulse response, convolution, Fourier series, Fourier transforms and frequency-domain analysis of LTI systems. Laplace transforms, z-transforms and rational function descriptions of LTI systems. Prerequisite(s): EENG 2610; and MATH 3310 or MATH 2730. (Same as CSCE 3010.)

EENG 2710. Digital Logic Design. 3 hours. Digital computers and digital information processing systems; Boolean algebra, principles and methodology of logic

design; machine language programming; register transfer logic; microprocessor hardware, software and interfacing; fundamentals of circuits and systems; computer organization and control; memory systems, arithmetic unit design. Prerequisite(s): MATH 1710.

EENG 2900. Special Problems. 1–3 hours. Individualized instruction in theoretical or experimental problems in electrical engineering. For elective credit only. Prerequisite(s): consent of instructor. May be repeated for credit.

EENG 2910. Project III: Digital System Design. 2 hours. Digital system design projects that provide students substantial experience in logic analysis, design, logic synthesis in VHDL, and testing. Project documentation including all the phases of project cycle from requirement analysis to testing as well as a project presentation providing the students an opportunity to enhance their communication and presentation skills, are essential components of this course. Instructor may choose to include a mini-project for breadboard implementation with discrete components as a part of this course. Prerequisite(s): EENG 2710.

EENG 2920. Project IV: Analog Circuit Design. 2 hours. Students learn to use basic electrical engineering lab equipment, to build and test simple circuits in the lab and to design and analyze circuits using CAD software tools. Includes simulation and design experiments and a final comprehensive design project to complement the circuit analysis course. Prerequisite(s): EENG 1920 and EENG 2610.

EENG 3410. Engineering Electromagnetics. 3 hours. Electromagnetic theory as applied to electrical engineering: vector calculus; electrostatics and magnetostatics; Maxwell's equations, including Poynting's theorem and boundary conditions; uniform plane-wave propagation; transmission lines – TEM modes, including treatment of general, lossless line, and pulse propagation; introduction to guided waves; introduction to radiation and scattering concepts. Prerequisite(s): EENG 2610 and MATH 3310.

EENG 3510. Electronics I (Devices and Materials). 3 hours. Introduction to contemporary electronic devices, terminal characteristics of active semiconductor devices, and models of the BJT and MOSFET in cutoff and saturation region are introduced. Incremental and DC models of junction diodes, bipolar transistors (BJTs), and metal-oxide semiconductor field effect transistors (MOSFETs) are studied to design single and multistage amplifiers. Prerequisite(s): EENG 2610.

EENG 3520. Electronics II. 3 hours. Concepts, analysis and design of electronic circuits and systems are introduced. Topics include principle of DC biasing, small signal analysis, frequency response, feedback amplifiers, active filters, non-linear op-amp applications and oscillators. Prerequisite(s): EENG 3510.

EENG 3710. Computer Organization. 3 hours. Principles of computer system organization, instruction sets, computer arithmetic, data and control paths, memory hierarchies. Prerequisite(s): CSCE 1020 and EENG 2710.

EENG 3810. Communications Systems. 3 hours. Introduction to the concepts of transmission of information via communication channels. Amplitude and angle modulation for the transmission of continuous-time signals. Analog-to-digital conversion and pulse code modulation. Transmission of digital data. Introduction to random signals