DANC 499. Honors. 1-3 credits each semester. Offered fall and spring. Repeatable for a maximum of 6 credits.

Economics

College of Business

ECON 200. Introduction to Macroeconomics. 3 credits. Offered fall, spring and summer.

Behavior of systems at the national and international levels. Topics include the methodology of economics as a social science, supply and demand, definition and measurement of important macroeconomic variables, and theoretical models of growth, inflation, interest rates, unemployment, business cycles, stabilization policy, exchange rates and the balance of payments. Not open to students who are enrolled in or who have received credit for ECON 332.

ECON 201. Principles of Economics (Micro). 3 credits. Offered fall, spring and summer.

Topics covered include supply and demand, consumer choice, economics of the firm and industry, production costs, distribution theory, international trade, comparative economic systems, and the philosophy of economics. Not open to students who are enrolled in or who have received credit for ECON 331.

ECON 222. Contemporary Economic Issues and Policy Alternatives. 3 credits. Offered to be announced.

Application of elementary economic theory to current economic issues. Special emphasis is placed on public policy alternatives. Prerequisites: ECON 200 and ECON 201 or equivalent.

ECON 301. Economics in Transition. 3 credits. Offered spring.

A study of the evolution and operation of the post-Soviet Union economy. Special emphasis is given to the new independent states and their market reforms and foreign economic policies. Prerequisites: ECON 201 and ECON 200.

ECON 302. History of Economic Thought. 3 credits. Offered spring.

Major contributions within the history of economic thought are studied in relation to both the historical circumstances within which they arose and the role each played in shaping contemporary, competing economic doctrines. Prerequisites: ECON 201 and ECON 200.

ECON 305. Environmental Economics. 3 credits. Offered fall.

An analysis of the problems of the environment, their causes and alternative proposed methods of solution. Air and water pollution will be stressed as case studies of environmental problems. Prerequisite: ECON 201.

ECON 306. The Economics of Women and The Family. 3 credits. Offered fall.

Examines facts and theories pertaining to the various economic roles of women in America. The economics of marriage, divorce and childbearing are examined as are empirical and theoretical explanations of occupational and wage differentials between the sexes. Prerequisite: ECON 201.

ECON 307. Economics of Aging. 3 credits. Offered to be announced.

Application of the theoretical and empirical tools of modern micro- and macro-economics analyses to the circumstances of older people in American society. Among the topics studied are retirement from paid employment, sources and distribution of income among the elderly, and spending patterns of the elderly. The role of public policies like Social Security is an important thread throughout the course. Prerequisite: Six credits in economics.

ECON 310. Economic History of the United States. 3 credits. Offered to be announced.

A survey of the economic growth and development of the United States from Colonial times to the present. Prerequisites: ECON 201 and ECON 200.

ECON 312. Comparative Economic Systems. 3 credits. Offered fall.

An examination of the distinguishing characteristics, institutions and performances of the various types of major economic systems in the world today. Prerequisites: ECON 201 and ECON 200.
ECON/FIN 325. Money and Banking. 3 credits. Offered summer.
Examines the economic role of money, banking and monetary policy within current institutional settings and under alternative theories explaining the interrelationships between money, the financial system and economic activity. Prerequisites: ECON 201 and GECON 200.

ECON 326. Public Finance. 3 credits. Offered fall.
Introduction to the field of public finance including theories and principles of taxation, government expenditure, public debt and fiscal administration. Studies interrelationships between federal, state and local finance, shifting and incidence of tax, and the burden of public debt. Prerequisites: ECON 201 and GECON 200.

ECON 327. Game Theory. 3 credits. Offered once a year.
Examines interdependent decision making in economics and other social sciences and covers both non-cooperative and cooperative games. Topics may include applications of game theory to industrial organization, law and economics, public choice, political economy, evolutionary biology, international affairs, and theories of justice. Prerequisites: GECON 200 and ECON 201 or permission of the instructor.

ECON 331. Intermediate Microeconomic Theory. 3 credits. Offered fall and spring.
Intermediate analysis of the determination of price, resource allocation and product distribution in a free enterprise economy. Prerequisites: ECON 201, GECON 200, and MATH 205 or MATH 235.

ECON 332. Intermediate Macroeconomic Theory. 3 credits. Offered fall and spring.
Intermediate-level analysis of the major approaches to the determination of economic aggregates with emphasis given to structuring a common analytic framework. Prerequisites: ECON 201, GECON 200, and MATH 205 or MATH 235.

ECON 340. Economics of Natural Resources. 3 credits. Offered fall.
Emphasizes availability of exhaustible resources and optimum utilization rates. Examines questions of intertemporal allocation and costs of growth. Prerequisites: ECON 201 and GECON 200.

ECON 345. Industrial Organization. 3 credits. Offered fall and spring.
An examination of contemporary U.S. industrial concentration both in the aggregate and within particular industries with emphasis on public policy implications. Alternative theories of the firm are considered in relation to different market structures. Prerequisites: ECON 201 and GECON 200.

ECON 360. Labor Economics. 3 credits. Offered fall.
Study of the economics of labor markets. Attention is given to the structure and operation of labor markets, wage determination, employment, unions, and contemporary labor problems and policies. Prerequisites: ECON 201 and GECON 200.

ECON 365. Economic Development. 3 credits. Offered fall.
A study of the characteristics of under-development, theories of economic development and the underlying causes for varying standards of living among the world's people. Considerable time will be spent on studying social and cultural factors that influence economic growth and their potential effect on the economic progress of the less-developed countries. Prerequisites: ECON 201 and GECON 200.

ECON 370. International Trade and Trade Policies. 3 credits. Offered fall.
An examination of the classical and modern theories of international trade, the effects of such trade on the domestic economy, the effects of barriers to free trade and an appraisal of U.S. commercial policy since 1948. Prerequisites: ECON 201 and GECON 200.

ECON/FIN 372. International Finance and Payments. 3 credits. Offered fall, spring and summer.
Examines international financial markets, instruments and institutions; determination of spot and forward exchange rates, interest arbitrage, hedging and speculation; and alternative policies for achieving equilibrium in international payments. Prerequisites: ECON 201 and GECON 200.

ECON 382. Urban Economics. 3 credits. Offered spring.
A detailed examination of the economic aspects of urbanization with emphasis on metropolitan land use and location theory. Urban problems considered include housing, poverty, labor markets and municipal finances. Prerequisites: ECON 201 and GECON 200.

ECON 385. Econometrics. 3 credits. Offered fall and spring.
Course discusses construction of models based on economic theory including identification of variables, development and testing of hypothesis for single- and multi-equation systems. Prerequisites: ECON 201, GECON 200, COB 191 or MATH 220, and MATH 205 or MATH 235.

ECON 394. Economics Internship. 3 credits. Offered fall, spring and summer.
Academic credit for an approved internship experience. Registration for the course must be concurrent with the internship. An application showing how all requirements for the internship will be met must be approved prior to registration. May be taken on a credit/no credit basis only. Prerequisites: ECON 201 and GECON 200.

ECON 400. Advanced Topics in Economics. 3 credits. Offering to be announced.
Examination of special topics in theoretical or applied economics not covered in the current economics curriculum. Specific topics to be determined by the instructor. Prerequisites: ECON 331 and ECON 332 or permission of instructor.

ECON 401. Senior Assessment in Economics. 0 credits. Offered fall and spring.
Students participate in testing, interviews and other assessment activities as approved by the economics program. Grades will be assigned on a credit/no credit basis. Prerequisites: ECON 331, ECON 332, ECON 395 and senior standing.

ECON 405. Political Economy. 3 credits. Offered spring.
Evaluation and critique of mainstream and nontraditional economic paradigms. The interaction of economics and politics in the United States as it affects the distribution of wealth and domestic and international economic policies. Prerequisites: ECON 201, GECON 200, and junior or senior standing.

ECON 426. Theory of Public Choice. 3 credits. Offered spring.
Examines the justification for and nature of public sector activity in a market-based mixed economy. Emphasis is placed on theories of market failure, voting models, conditions of production and provision in the public sector, and models of bureaucratic behavior. Prerequisite: ECON 326 or ECON 331.

ECON 430. Monetary Theory. 3 credits. Offered spring.
Examines alternative theories of the relationships between money, interest rates, price levels, employment and output in order to assess the effectiveness of monetary policy for economic stabilization. Prerequisites: ECON 332 and either MATH 205 or MATH 235.

ECON 431. Advanced Microeconomic Theory. 3 credits. Offered fall.
Examines theories of general equilibrium and the distribution of income, welfare economics, capital theory and information theory. Prerequisites: ECON 331, ECON 332 and either MATH 205 or MATH 235.

ECON 432. Advanced Macroeconomics. 3 credits. Offered fall.
Study of macroeconomics at an advanced level. Topics will normally include, but are not limited to, long-run models of economic growth and short-run models of economic fluctuations. Alternative policies for improving economic performance will be identified and evaluated. Prerequisites: ECON 332, and MATH 205 or MATH 235.

ECON 455. Economics of Regulated Industries. 3 credits. Offered fall.
A study of the rationale, methods and impact on industry behavior of government regulations including public utility regulation and antitrust policies relating to monopoly and competition in the United States. Prerequisite: ECON 331 or ECON 345. Prerequisite or corequisite: ECON 385.

ECON 460. Human Resources. 3 credits. Offered fall.
Examines the role of education and training in enhancing productive skills, employment opportunities and income. Also focuses on American employment and health and welfare policies that relate to the labor market, giving attention to empirical studies. Prerequisite: ECON 306, ECON 331, ECON 332 or ECON 360.

ECON 475. Regional Economics. 3 credits. Offered spring.
Study of local and subnational economics viewed as integral parts of a unified system. Emphasis will be given to the basic economic forces associated with regional growth and decline and related public policy considerations. Prerequisites: ECON 200 and ECON 201.

ECON 484. Mathematical Economics. 3 credits. Offering to be announced.
Course employs techniques of differentiation and integration for microeconomic and macroeconomic analysis at the intermediate level. Prerequisites: ECON 331, ECON 332, and MATH 205 or MATH 235.

ECON 485. Advanced Econometrics. 3 credits. Offered spring.
Theory and application of statistical techniques to study empirical relationships among economic variables. Students will use econometrics to develop forecasts of economic activity, to estimate limited dependent variable and simultaneous equation models, and to model various time-series processes. Prerequisite: ECON 385.

ECON 487. Economic Consulting. 3 credits. Offered fall.
A research-oriented, senior-level course that provides students an opportunity to integrate theoretical knowledge, quantitative techniques and writing skills through research on a set of simulated consulting projects. Prerequisites: ECON 331, ECON 332, ECON 395 and senior standing.

http://www.jmu.edu/catalog/12
ECON 488. Senior Capstone Seminar in Economics. 3 credits. Offered fall and spring.
This course is a writing-intensive seminar offering a student the opportunity to integrate many of his/her undergraduate studies in economics. Its substantive content will emphasize applying the methods of theoretical and empirical analyses employed by all economists. The seminar will be structured so as to contain embedded assessment measures of the learning objectives specified by the department of economics, including those related to command of basic economic theory and of quantitative methods used in quantifying empirical relationships and testing hypothesis. Prerequisites: Senior standing and completion of each of the following courses with a grade of at least ‘C’: ECON 331, ECON 332 and ECON 385.

ECON 490. Special Studies in Economics. 1-3 credits each semester. Offered fall, spring and summer.
Designed to give capable students in economics an opportunity to complete independent study under faculty supervision. Admission by recommendation of the instructor and written permission of the director of economics prior to registration. May not be used toward fulfillment of the 400-level requirement for a major in economics.

ECON 499. Honors. Year course. 6 credits. Offered fall and spring.
See catalog section “Graduation with Honors.”

Education

College of Education

EDUC 100. The Study of the Future: An Interdisciplinary Approach. 3 credits.
Introduces the students to an interdisciplinary study of the future within the context of education. Various topic areas, such as population, science/technology, lifestyle, economics, international relations, energy and religion will explored in terms of future trends and how education responds to those trends and their impacts.

EDUC 150. Information in Contemporary Society. 3 credits.
Concerns the individual’s need for information, especially that which will assist in solving problems related to everyday needs and interests and with the agencies and resources which can help to meet those needs. Will not count as social science course for teacher licensure.

EDUC 300. Foundations of American Education. 3 credits. Offered fall and spring.
A study of the practices and issues that affect American education. Consideration is given to such topics as philosophical approaches to education, history of American education, and the organizational and cultural aspects of schools which influence educational practices.

EDUC 310. Teaching in a Diverse Society. 3 credits.
This course will examine how personal and professional values, attitudes, beliefs and behaviors affect teaching and learning. The pre-service teachers will develop an understanding of similar and unique characteristics of individual learners and their families. Prerequisites: EDUC 310.

EDUC/EXED 312. Field Experience in Special Education and Diversity. 1 credit.
Students devote 30 clock hours to activities in school and nonschool settings that emphasize diversity of individuals and families. Corequisite: EDUC 310.

EDUC 370. Instructional Technology. 3 credits.
Principles and procedures of a teaching/learning process designed to provide reliable, effective instruction to learners through systematic application of instructional technology. Includes selecting, producing, evaluating and utilizing nonprint media and equipment for application to instructional process.

EDUC 381. Field Experience in English as a Second Language. 3 credits.
The course provides supervised field experiences in working with English as a Second Language students, NK-12. Preservice teachers will demonstrate competencies developed in the English as a Second Language endorsement program and in consultation with a field supervisor. Prerequisite: Completion of ESL minor requirements.

EDUC 401. Problems in Education. 1-3 credits.
Workshop experiences for the development and training of teachers. Prerequisites: EDUC 380 and permission of the program coordinator.

EDUC 418. School Discipline and Classroom Management. 1 credit.
Theory and practices in classroom management and discipline, including specific models and the various legal aspects will be examined.

EDUC 430. General Education Curriculum K-12 Overview. 1 credit.
This course will provide an overview of curriculum in grades K-12. An understanding of objectives, content, materials and trends associated with curriculum will be addressed. Corequisites: READ 430, MIED 330 and EDUX 410.

EDUC 480. Student Teaching. 3-12 credits.
Enables students to apply, in the public school classrooms and the comprehensive child development programs, those skills and attitudes acquired in all components of teacher education. Under the guidance of university supervisors, students are provided activities designed to familiarize them with the classroom teacher's role. Prerequisites: GSPSYC 180, PSYC 270, EDUC 380, appropriate methods courses and permission of the coordinator of field experiences.

EDUC 490. Special Topics in Education. 1-4 credits.
In-depth examination of selected topics which are of current importance in the field of education. Offered only with approval of School of Education director. May be repeated for credit when course content changes. Prerequisites: At least junior standing and consent of the instructor.

EDUC 499 A, B, C. Honors. 1-6 credits.
Independent research topic initiated and completed by qualified upper-division students. See catalog descriptions entitled "Graduation with Distinction" and "Graduation with Honors.”

Elementary Education

College of Education

ELED 308. Child Development: Birth Through Adolescence. 3 credits.
Skills for observing, recording and interpreting the behavior of children ages three through 12 will be developed so that adult intervention and guidance is appropriate and meaningful. Prerequisites: GSPSYC 180 and admission to teacher education. Corequisites: ELED 310, ELED 311 and READ 368.

ELED 310. Diversity in Elementary Education with Service Learning. 3 credits.
This course guides students in critically examining their own perspectives regarding diversity in our society. Through this course, students will expand their awareness and understanding of individuals and groups apparently different from themselves. Students will explore pedagogical issues and practices in the classroom that embrace the whole community of learners and their families. Prerequisite: Admission to teacher education. Corequisites: ELED 372, ELED 308, ELED 311 and READ 368.

ELED 311. Practicum with a Focus on Learners and Learning. 3 credits.
This field experience and seminar support the study of child development and learning in an organized environment. Through direct observation and interactions with children in a classroom setting, candidates will examine and reflect on how children develop and learn. Candidates will explore how their own personal attitudes, assumptions and behaviors toward students and their families are influenced by class, cultural and linguistic backgrounds. Prerequisite: Admission to teacher education. Corequisites: ELED 372, ELED 308, ELED 310 and READ 368.

ELED 411. Practicum with a Focus on Curriculum Integration and Guiding Behavior. 3 credits.
This course provides opportunities for a classroom or a mentor teacher with whom to practice the teaching of reading, math, science and social studies. The accompanying seminar explores the integration and construction of meaningful curriculum in elementary education contexts and supports students in their ongoing professional development. Prerequisite: ELED 311. Corequisites: READ 436, ELED 432, ELED 433 and ELED 434.

ELED 432. Children and Science. 3 credits.
This course is taught in collaboration with science methods professors. Knowledge of cognitive development as applied to the selection of content and methodology for elementary learners will be examined. Prerequisites: ELED 308, ELED 309, ELED 310, ELED 311 and READ 368. Corequisites: READ 436, ELED 411, ELED 433 and ELED 434.

ELED 433. Children and Mathematics: Number, Operations, Algebraic and Geometric Reasoning. 3 credits.
The first of two courses that provides students with knowledge, skills and understanding of design and implement for effective, developmentally appropriate mathematics instruction for grades PreK-6. Emphasis is on children's mathematical learning and pre-numerical stages through the acquisition of...
ENGR 301. Engineering Bridge Course for Transfer Students. 3 credits.
This course provides transfer students with an introduction to the JMU engineering program. The purpose is to familiarize our students with our curriculum and sustainability vision. The course will also provide design instruction while introducing transfer students to the specific software tools and machine tools they will use over the remainder of their curriculum. Prerequisite: Permission of the instructor.

ENGR 311. Thermal-Fluids I. 4 credits.
The first course of a two-part sequence focuses on the fundamental principles of thermodynamics, heat transfer and fluid mechanics in a unified approach. Coverage includes the 1st law of thermodynamics, basic heat transfer, and fluid statics. Wide-ranging applications of these principles to thermal-fluid systems across engineering disciplines are emphasized. An included laboratory component provides reinforcement of course material through experiments and computational modeling. Prerequisites: PHYS 240/140L. Grade of “C-” or better in MATH 237. Grade of “C-” or better in MATH 238.

ENGR 312. Thermal-Fluids II. 4 credits.
The second of a two-part sequence focuses on the fundamental principles of thermodynamics, heat transfer and fluid mechanics in a unified approach. Covers topics of the second law of thermodynamics, transient heat transfer and fluid motion. Applications of principles to thermal-fluid systems across engineering disciplines are emphasized. An included laboratory component provides reinforcement of course material through experiments and computational modeling. Prerequisite: Grade of “C-” or better in ENGR 311.

ENGR 313. Circuits and Instrumentation. 4 credits.
This course presents the fundamentals of circuit analysis and measurement of physical phenomena. Circuit related topics include Ohm’s law, Kirchoff’s laws, complex impedance analysis, Laplace techniques and an introduction to AC circuits. Instrumentation topics include A/D conversion and common instruments such as strain gauges, thermocouples and accelerometers. Laboratory investigations will provide exposure to common electronics laboratory equipment, tools and measurement techniques. Prerequisites: PHYS 250/150L. Grade of “C-” or better in MATH 238.

ENGR 314. Materials and Mechanics. 4 credits.
The course explores the governing principles of materials science and mechanics of materials with an emphasis on materials selection in the engineering design process. Topics include process-structure-property relationships, crystalline structures, mechanical properties, strength of materials, mechanical design, failure mechanisms, and an introduction to materials processing. Prerequisites: PHYS 240/140L. Grade of “C-” or better in ENGR 312.

ENGR 322. Engineering Management II: Engineering Project Management. 3 credits.
This is the second of a two-course sequence introducing students to management of technology. The course will include general business functions (management, finance, accounting, and operations), systems analysis skills, and project management skills. Students will develop an understanding and appreciation for the importance of technology and innovation in organizations. Prerequisite: Grade of “C-” or better in ENGR 321.

ENGR 331. Engineering Design III. 3 credits.
This course is third in the six-course developmental design sequence. This project-based course provides instruction in life-cycle analysis, sustainability (environmental, social, technical, economic), design and construction, failure analysis and problem solving. Prerequisite: Grade of “C-” or better in ENGR 322. Grade of “C-” or better in ENGR 231. Grade of “C-” or better in ENGR 232. Grade of “C-” or better in ENGR 331. Grade of “C-” or better in ENGR 332. Grade of “C-” or better in ENGR 333. Grade of “C-” or better in ENGR 331.

ENGR 332. Engineering Design IV. 3 credits.
This course is fourth in the six-course 10-credit developmental design sequence. This project-based course provides instruction in holistic design principles, aesthetics and human interface in design, structured and unstructured problem solving, collaborative design, design and communications, product modeling, and analytical prototyping. Prerequisite: Grade of “C-” or better in ENGR 331.

ENGR 360. Water in Africa. 4 credits.
This course has a three-part focus: cross cultural training, promoting health in developing countries, and using appropriate technologies for eradicating water-related illnesses. Project teams use course content as the foundation for developing and implementing service projects. This course is a service-learning course and addresses issues of social justice in West Africa.

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ENGR 411. Fundamentals of Sustainable Engineering and Design. 3 credits.
This course is the first in a two-course sequence that provides a foundation in evaluating sustainable design and engineered systems. The material presented is a prerequisite for understanding the environmental, social and economic impacts of design and technology. The topics may be covered in a developmental manner in both courses, integrating the economic, environmental, social and technical components throughout. Prerequisites: CHEM 131/131L, 132/132L or 133/133L, MATH 231 OR 232 OR 235.

ENGR 412. Sustainable Engineering and Design II. 3 credits.
This course is the second in a two-course sequence that provides a foundation in evaluating sustainable design and engineered systems. The material presented furthered the understanding of the environmental, social, and economic impacts of design and technology by exploring the relationships between industrial and ecological systems. Prerequisites: Grade of "C-" or better in ENGR 312.

ENGR 413. Systems Analysis. 3 credits.
This course focuses on the concepts of systems thinking and analysis for complex engineered systems. Students will develop basic knowledge and tools to identify a system, decompose it into parts, define interactions, perform analysis and apply control measures if necessary. Application of computational tools and mathematical modeling will be emphasized. Prerequisites: Grade of "C-" or better in ENGR 431.

ENGR 431. Engineering Design V. 3 credits.
This course is the fifth in the six-course 10-credit developmental design sequence. This project-based course provides instruction in collaborative project management, holistic design evaluation, social and community sustainability, design testing and marketing, principles of design marketing and accounting, problem solving analyses, software tools, project management, and testing and analysis of prototypes. Prerequisite: Grade of "C-" or better in ENGR 432.

ENGR 432. Engineering Design VI. 3 credits.
This course is the sixth in the six-course 10-credit developmental design sequence. This project-based course provides instruction in collaborative design practices, capstone design project completion, holistic design analysis and design accounting and manufacturing. Prerequisite: Grade of "C-" or better in ENGR 431.

ENGR 472. Biological Treatment Processes and Reactor Design. 3 credits.
For engineering and environmental science students interested in biological reactor design. Water, wastewater and air treatment are emphasized. Students must be proficient in mathematics, chemistry and thermal sciences. Quantitative relationships are derived for characterizing water quality, designing biological reactors and modeling treatment systems. Systems are described by mass and energy balances that relate pollutant removal efficiency to process input parameters. Prerequisites: CHEM 131, CHEM 131L, and either MATH 231 or MATH 235.

ENGR 474. Physical Chemical Treatment Processes. 3 credits.
For engineering and environmental science students interested in physical/chemical waste treatment. Wastewater, groundwater, air and hazardous waste treatment is emphasized. Students must be proficient in mathematics, chemistry and thermal sciences. Quantitative relationships are derived for characterizing wastes, designing treatment processes, and modeling treatment systems. Systems are described by mass and energy balances that relate pollutant removal efficiency to process input parameters. Prerequisites: CHEM 131, CHEM 131L, and either MATH 231 or MATH 235.

ENGR 476. Principles of Chemical Processes. 3 credits. (Offered fall.
An introduction to basic principles used in chemical, petroleum and environmental engineering. Emphasis on formulating and solving material and energy balances for simple and complex systems. Quantitative models and equilibrium concepts for chemical process systems will be developed and applied to assess product quality, economics, safety, and environmental issues. For students interested in careers in graduate studies in chemical, environmental, biochemical, and petrochemical engineering.

ENGR 478. Water Resources Engineering. 3 credits. (Offered fall and spring.
This course will provide an introduction to basic engineering principles used in both water supply management and water excess management. Hydrologic and hydraulic processes will be investigated using the fundamentals of fluid mechanics. Specific emphasis will be placed on water sources flows, distribution and control. Prerequisite: ENGR 311.

ENGR 480. Advanced Projects in Engineering. 1-4 credits.
Research projects, design projects or special topics in engineering which are of interest to the upper-division student. May be repeated for credit when course content changes. Projects or topics selected may dictate prerequisites. Students should consult the instructor prior to enrolling in the course. Prerequisite: Permission of instructor.

ENGR 499A. Honors Engineering Design IV. 3 credits. (Offered spring.
Engineering 499A is fourth in the six-course 10-credit developmental design sequence and first in the three-course 6-credit Honors Capstone project. This project-based course provides instruction in (1) Holistic design principles 2) Aesthetics and human interface in design; 3) Structured and unstructured problem solving, 4) Collaborative design, 5) Writing and communications, 6) Product modeling and Analytical prototyping.

ENGR 499B. Honors Engineering Design V. 3 credits. (Offered fall.
ENGR 499B is the fifth in the six-course, ten-credit developmental design sequence and second in the three-course, six-credit Honors Capstone project. This project-based course provides instruction in collaborative project management; holistic design evaluation; social and community sustainability; design testing and marketing; principles of design marketing and accounting; problem solving analyses; software tools; project management; and testing and analysis of prototypes.

ENGR 499C. Honors Engineering Design VI. 3 credits. (Offered spring.
Engineering 499C is the sixth in the six-course, ten-credit developmental design sequence and third in the three-course, six-credit Honors Capstone project. This project-based course provides instruction in collaborative design practices; capstone design project completion; holistic design analysis; and design accounting and manufacturing.

English

Department of English

ENG 221. Literature/Culture/Ideas. 3 credits. Offered every semester.
This course will take a thematic approach to literature by examining multiple literary texts that engage with a common course theme concerned with the human experience. Themes address cultural, political, social, religious or philosophical aspects. Ideas through literature. Specific topics will vary. Prerequisite: ENG 222. Genres(s). 3 credits.

ENG 236. Survey of English Literature: Eighteenth Century to Modern. 3 credits. Offered fall and spring.
A general survey presented chronologically.

ENG 238. Survey of American Literature: From the Beginning to the Civil War. 3 credits. Offered fall and spring.
A general survey presented chronologically.

ENG 247. Survey of American Literature: From the Beginning to the Civil War. 3 credits. Offered fall and spring.
A general survey presented chronologically.

ENG 248. Survey of American Literature: From the Civil War to the Modern Period. 3 credits. Offered fall and spring.
A general survey presented chronologically.

ENG 260. Survey of African-American Literature. 3 credits. Offered fall and spring.
Survey of literature by African-American authors from the 18th century to the present.

ENG/WRTC 290. Intermediate Composition. 3 credits. Offered fall and spring.
This course stresses the argumentative and persuasive essay as well as grammar and usage. Prerequisites: WRTC 103 or equivalent and junior or senior standing, or permission of instructor.

ENG 293. Exploring Careers in English. 2 credits.
An introduction to academic and career opportunities in English. Students will research and shape academic and career interests, with particular attention to articulating the relationship between the reading, writing and analytical skills they develop as majors and their long-term career plans. Does not count as an English elective.

ENG 294. Internship in English. 1-3 credits. Offered fall and spring.
Provides English majors with work experience in career fields they are interested in pursuing. A journal, internship report, research paper, bibliography and evaluation from the intern provider are required. Does not count as an English elective. Prerequisites: Major or minor status and...
Aristotle to Eliot. Formerly ENG 425.

ENG 386. Contemporary Critical Theory. 3 credits. Offered once a year. Study of the major debates in current critical discourse. Formerly ENG 426.

ENG/MWMST 386. Women's Literature. 3 credits. A study of literature by women.

ENG 389. Feminist Literary Theory. 3 credits. Offered every two years. An intensive study of a variety of feminist critical approaches and their applications to literature. Formerly ENG 467.

ENG/MWMST 370. Queer Literature. 3 credits. An exploration of texts and issues in literature written by and about lesbian, gay, bisexual, transgender and queer writers, including critical and theoretical issues as well as questions of canon. Text studied may include fiction, poetry, drama, essays and memoirs written primarily, but not exclusively, in the 20th century.

ENG 371. Literature and the Environment. 3 credits. A critical examination of literature's representation of the interconnections between human beings, non-human beings and the environment.

ENG 372. Ecocriticism and Environmental Ethics. 3 credits. Offered once a year. This course will examine ecocriticism, which investigates the interconnections between language, literature, ethics and the environment. A further exploration of environmental ethics will allow students to identify ideas about the purpose and appropriate use of landscape, wilderness and animals. Formerly ENG 471.

ENG 375. Irish and Anglo-Irish Literature. 3 credits. Offered every two years. A study of the works of Irish or Anglo-Irish writers.

ENG 376. Introduction to Scottish Literature. 3 credits. Offered biannually. An overview of Scottish literature, with an emphasis on fiction, from the Romantic period to the present. Emphasis on the problems of nation, identity and the politics of language and tradition in "minority literature."

ENG 377. Introduction to African Literature. 3 credits. Offered once a year. An introduction to African literature, tracing its changes over time. Examination of African literary theoretical concepts, literary genres (both oral and written), as well as an examination of Africa's contribution to familiar genres of written and oral literature.

ENG 378. Studies in South Asian Literature. 3 credits. Offered once a year. A study of selected works of South Asian literature. Formerly ENG 427.

ENG 379. Literature and Empire. 3 credits. Offered once a year. The course is designed as an overview of writings from regions of the world that were formerly colonized by Britain. It examines the colonial, nationalist and postcolonial shaping of individual and collective identities through literature, the intersections of race, gender and nation; the crafting of a new idiom in English in response to both political and literary histories, and the significance of choices of genre and form.

ENG 381. An Introduction to Film to 1960. 3 credits. Offered fall. An analysis of film from its beginnings to the modernism of the 1950s and early 1960s.

ENG 382. An Introduction to Film Since 1960. 3 credits. An analysis of world cinema from early modernism through the present.

ENG 383. Major Film Genres. 3 credits. Offered spring odd years. The literary and critical study of film genres.

ENG 384. Major Film Directors. 3 credits. Offered spring every year. Literary or critical study of several major directors.

ENG 391. Introduction to Creative Writing – Nonfiction. 3 credits. Offered fall and spring. A basic workshop in reading and writing works of creative nonfiction.

ENG 392. Introduction to Creative Writing – Poetry. 3 credits. Offered fall and spring. A basic workshop in reading and writing poetry.

ENG 393. Introduction to Creative Writing – Fiction. 3 credits. Offered fall and spring. A basic workshop in reading and writing fiction. May be repeated for credit when course content changes.

ENG/WRTC 396. Advanced Composition. 3 credits. Offered fall and spring. Extensive exercises in expository writing, with emphasis on rhetorical types of composition, designed to develop sophistication of style in the student's writing.

ENG 397. Texts for Teachers 1. 3 credits. Offered once a year. An examination of selected poems and plays of particular relevance to students enrolled in the secondary education pre-professional licensure program. (This course satisfies the genre requirement for the pre-professional licensure program.) Formerly ENG 440.

ENG 398. Texts for Teachers II. 3 credits. Offered once a year. An examination of selected fiction and non-fiction of particular relevance to students enrolled in the secondary education pre-professional licensure program. (This course satisfies the period requirement for the pre-professional licensure program.) Formerly ENG 441.

ENG 401. Advanced Studies in Medieval Literature. 3 credits. Offered once a year. Advanced literary and philological study of non-British Medieval or British Medieval texts written in cross-cultural dialogue with those written circa 500-1480 C.E. in Old Irish, Old Norse/Icelandic, Old French, Old and Middle High German, Old Castilian, Classical and Medieval Latin, and Arabic. Readings in the original or in translation. Topics may be determined by period or geography, culture or politics, theme or genre. Course may be repeated as topic changes.

ENG 402. Advanced Studies in British Literature Before 1700. 3 credits. Offered once a year. British literatures written prior to 1700, both within and without the British Isles. Topics may include Anglo-Saxon and Anglo-Norman literature, vernacular literature, neo-Latin literature, Chaucer, late-medieval literature, Tudor and early modern literature, Shakespeare, Milton, and seventeenth-century literature. May be repeated as course topic changes.

ENG 403. Advanced Studies in British Literature After 1700. 3 credits. Offered once a year. Advanced study of British literatures dating from 1700 to the present. Topics may focus on a particular period of literature (eighteenth century, Romantic, Victorian, Modernist, or contemporary), or topics may focus on a genre or them that engages multiple periods. Course may be repeated as topic changes.

ENG 405. Advanced Studies in Anglophone Literature. 3 credits. Offered once a year. Anglophone (English-speaking) literature from around the globe (including the Caribbean, Canada, Ireland, Australasia, Africa or India), in which identification with a particular nation, colonial status or imperial power is problematic or no longer applicable. Topic may focus on a particular theme or event, genre, time frame, formal or stylistic trend, author or set of authors, issue, or problem. May be repeated as topic changes.

ENG 407. Advanced Studies in American Literature. 3 credits. Offered once a year. Study of literature(s) of the United States and North America, from the Colonial Period through the 21st Century. May include writing in multiple genres: narrative prose, poetry, drama, nonfiction. Topics may be historically delimited or thematically organized; specific sections may focus on a group of authors, a literary movement, a historical moment, or a broad theoretical question. Course may be repeated as topic changes.

ENG 408. Advanced Studies in African-American Literature. 3 credits. Offered once a year. Study of literature produced by African-Americans, from the Colonial Period through the 21st Century. May include writing in multiple genres: narrative prose, poetry, drama, nonfiction. Topics may be historically delimited or thematically organized; specific sections may focus on a group of authors, a literary movement, a historical moment or a broad theoretical question. Course may be repeated as topic changes.

ENG 410. Advanced Studies in Author. 3 credits. Offered every year. Study of the works of one (or two) British, American or Anglophone writers. May be repeated for credit when course content changes.

ENG 412. Special Topic Seminar. 3 credits. Offered fall and spring. Study of a literary school, movement, genre or some other significant literary or linguistic topic. May be repeated for credit when course content changes; credit may not be earned in both ENG 412 and ENG 512 unless course content changes.

ENG 413. Advanced Studies in Literature and Ideas. 3 credits. Offered once a year. Advanced study of the literary treatment of an organizing theme, which may be framed broadly as part of the human experience or within a tradition of studies in the humanities. Course content may include pertinent readings from other disciplines. Possible themes: love, death, nature, evil, the comic spirit. May be repeated as course topic changes.

ENG 414. Advanced Studies in Genre. 3 credits. Offered once a year. Advanced study of works drawn from a specific literary or film genre or subgenre or a small, related set of (sub)genres. May be repeated as course topic changes.


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Detailed literary, bibliographical, political and cultural analysis of the material features of texts as physical objects. Topics may include the relation between a book’s physical features and its intellectual contexts; the production, dissemination and receptions of texts; the history of manuscript, print and digital text technologies; the material history of reading and of literacy, and so forth. May be repeated as course topic changes.

ENG 417. Advanced Studies in Linguistics and the English Language. 3 credits.

Advanced study of a particular topic in English linguistics or in English language studies. Course may focus on a particular subfield or linguistics, on particular linguistic theories, on an application of linguistic theory to literary studies or to other related fields, or on specific structural, historical, cultural, or other aspects of the English language. May be repeated as topic changes.


Advanced study of a topic or debate within contemporary critical theoretical or cultural studies discourses in the humanities. Course may be repeated as topic changes.

ENG 423. Advanced Studies in Gender and Sexuality in Literature. 3 credits.

Advanced study of a topic using a gender and sexuality studies approach to literary texts. This course will explore how gender and sexuality and their representation in literature are shaped by social, cultural, historical and political contexts. Course may be repeated as topic changes.

ENG 426. Advanced Studies in Comparative Literature. 3 credits.

Comparative study of selected world literature. May be repeated as course topic changes.

ENG 431. Advanced Studies in Caribbean Literature. 3 credits. Offered once every two years.

Studies in the literary achievement of novelists, poets and dramatists of the Caribbean. May be repeated as course topic changes.

ENG 432. Advanced Studies in African Literature. 3 credits. Offered once a year.

A study of selected works by African writers, focused by theme, geography or genre. May be repeated for credit when content varies.

ENG 433. Studies in Arabic Literature. 3 credits.

A study of Arabic writers. May be repeated for credit when content varies.

ENG/SPAN 434. Advanced Studies in Latin American Literature in Translation. 3 credits.

This course will study Latin American literature in translation. The course will focus on the work of major Spanish-American authors. May be repeated as course content changes.

ENG/FR 435. Studies in French Literature. 3 credits.

A study of selected works of French literature. Instruction is in English. May be repeated for credit when course content changes.

ENG/GER 436. Studies in German Literature. 3 credits.

A study of selected works of German literature. Instruction is in English. May be repeated for credit when course content changes.

ENG/ITAL 437. Studies in Italian Literature. 3 credits.

A study of selected works of Italian literature. Instruction is in English. May be repeated for credit when course content changes.

ENG/RUS 438. Studies in Russian Literature. 3 credits.

A study of selected works of Russian literature. Instruction is in English. May be repeated for credit when course content changes.

ENG/SPAN 439. Advanced Studies in Major Authors of Literature in Spanish in Translation. 3 credits. Offered periodically.

This course will study the work of both Peninsular and Latin American authors in translation. The course will focus on major Spanish-speaking authors and their work, both in Latin America and in Spain. May be repeated as course content changes.

ENG/THEA 447. Advanced Playwriting. 3 credits.

An advanced workshop with emphasis on developing full-length dramatic material. Prerequisite: ENG/THEA 347.

ENG 450. The Open Studio: An Interdisciplinary Approach to Creative Arts. 3 credits.

Introduction to the interdisciplinary studio through discussion of the history of interdisciplinary art and exposure to contemporary examples from dance, theatre, music, creative writing, visual art, film and video. Emphasis on production of original work that evidences the use of another media or collaborative work by artists from different disciplines. Prerequisites: Permission of the instructor(s) and advanced skill level in one or more of the creative arts.

ENG 453L. Film Adaptations. 3 credits.

The study of the process of adapting literature into feature films. Consideration is given to the original literary work, as well as to the changes undergone in its adaptation to film. (Taught in London). Prerequisites: SMAD 301; for non-majors: ENG 381 or admission to the cross disciplinary minor in creative writing, or permission of the instructor.

ENG/WMST 466. Advanced Studies in Women’s Literature. 3 credits.

Advanced study of women’s literary achievements in several cultural and historical contexts. May be focused by theme. May be repeated as course content varies. Prerequisite: ENG 368 or ENG 369.

ENG 483. Narrative Form. 3 credits.

The study, development and practice of narrative craft. Prerequisite: ENG 393 or permission of the instructor.

ENG 484. Poetic Craft and Creativity. 3 credits.

The study, development and practice of poetic craft. Prerequisite: ENG 392 or permission of the instructor.

ENG 490. Special Studies in English, 3 credits.

Independent study for students with high academic standing. Students may select work in (1) a literary type, period or author, (2) imaginative writing, or (3) linguistics. Approval of department head required; may be repeated for credit when course content changes.

ENG 493. Advanced Creative Nonfiction. 3 credits. Offered once a year.

An advanced workshop in the writing of creative non-fiction narrative, with emphasis on point of view, form and style. Prerequisite: ENG 391 or ENG 392 or ENG 393 or ENG 396; or permission of the instructor.

ENG 494. Advanced Poetry Writing. 3 credits.

An advanced workshop with emphasis on developing sound poetic form, voice and vision. Prerequisite: ENG 392 or permission of the instructor.

ENG 495. Advanced Fiction Writing. 3 credits.

An advanced workshop with emphasis on developing sound narrative prose form, style and vision. May be repeated for credit when course content changes. Prerequisite: ENG 393 or permission of instructor.

ENG 496. Advanced Topics in Creative Writing. 3 credits.

Study of a specific and concentrated aspect of creative writing. Topics will vary semester to semester. May be repeated for credit when the topic changes. Prerequisite: ENG 391, ENG 392 or ENG 393, as appropriate to course content.

ENG 499. Honors. 6 credits. Year course.

See catalog section “Graduation with Honors.”

Environment

Cross Disciplinary Studies

ENV 200. Environmental Systems Theory. 3 credits. Offered every other fall.

Explores three aspects of understanding the environment. First, the kind of problem the environment is and the thinking strategies that will best yield insights and understanding. Second, how humans create and/or respond to environmental issues and crises. Third, examination of past environmental changes and how humans have been affected by and responded to those changes. Final synthesis explores what we can and cannot do practically to respond to future changes. Does not satisfy elective credit or count as credit for the environmental management or environmental studies minor for geology or earth science majors.

ENV 400. Capstone Seminar in Environmental Problem Solving. 3 credits.

Offered spring only.

Integrates perspectives from three environment programs: environmental management, environmental science and environmental studies. The course is team taught using a case-study approach to environmental issues, emphasizing teamwork and student initiative. Topics vary. Prerequisites: Completion of 15 hours in declared environment minor or permission of instructor. Students wishing to complete more than one of the environmental minors (environmental studies, environmental science, environmental management) may receive dual credit for ENV 400.

Environmental Management

College of Integrated Science and Technology

ENV M 480. Selected Topics in Environmental Management. 1-4 credits.

Topics in environmental management which are of interest to the upper-division student but not otherwise covered in the regular course offerings. Offered only with the approval of the director. May be repeated for credit
when course content changes. Students should consult the instructor prior to enrolling. Prerequisite: Junior or senior standing in environmental management program. Topic selected may dictate additional prerequisites.

ENVM 491, 492. Senior Thesis/Project I and II. 3 credits each. Offered by arrangement.

In this two-course sequence, the student performs an independent research and/or an engineering project to identify and analyze an environmental management problem and develop a practical solution. May be taken to satisfy the requirements set forth by the Honors program. Prerequisite: Senior standing in environmental management program.

### Exceptional Education

**College of Education**

EXED 200. Foundations of Exceptional Education. 3 credits.

This course is designed to support study of the historical perspectives, models, theories, philosophies, and trends that provide the basis for exceptional education practice. The status of persons with ELNs, legislative and judicial mandates and current regulation related to individuals with ELNs, and the "rights and responsibilities" of various stakeholders as they relate to exceptionality will be stressed. The role of culture, environment, family and exceptionality will be explored.

EXED 202. Field Experiences in Special Education. 3 credits.

Provides students with supervised experiences with persons with disabilities. Placement are made in various settings including schools, institutions and recreational programs. Prerequisite: EXED 200 and permission of the instructor.

EXED 300. Educational Technology for Students with Disabilities. 1 credit.

An introduction to instructional technology for persons with disabilities. The role of assistive technology in the educational process is investigated. Students are exposed to a variety of instructional programs and equipment. Federal and state guidelines, interdisciplinary team functioning, and program, as well as equipment selection, are addressed. Prerequisite: Teaching and non-teaching minors only.

EXED 302. Mentoring Children and Youth with Mild Disabilities. 2 credits.

The course will provide students with the knowledge and skills to engage in mentoring of children and youth with learning disabilities and attentional disorders. Students will focus on increasing their understanding of self-awareness related to living with a disability, effective compensatory learning strategies and self-advocacy skills. Prerequisite: Because of the purpose of this course is to increase self-awareness and mentoring skills related to understanding disabilities, it is open only to students who are registered with the Office of Disability Services.

EXED 303. Foundations of Classroom and Behavior Management. 3 credits.

This course was designed to provide students with an understanding of and skill to apply classroom and behavior management techniques and interventions, including techniques that promote emotional well-being and teach and maintain behavioral conduct and skills consistent with norms, standards, and rules of the educational environment. Diverse approaches for classroom and behavior management based upon behavioral, cognitive, affective, social and ecological theory and practice will be learned. Students enrolled in teacher education only. Prerequisite: EXED 200.

EXED 306. Lifespan Issues for Individuals with Disabilities. 3 credits.

This course examines how issues such as legal mandates and policies, self-advocacy, family involvement, educational services, transition, and interagency collaboration impact individuals with disabilities and their families from birth through postsecondary life. The students will be challenged to compare and analyze needs and services available and accessed by individuals with disabilities. Prerequisite: For special education non-teaching minors and students in the chronic illness concentration.

EXED 312. Field Experience in Special Education and Diversity. 1 credit.

Students devote 30 clock hours to activities in school and non-school settings that emphasize diversity of individuals and families. Prerequisite: Teaching and non-teaching minors only; Corequisite: EDUC 310.

EXED 320. Survey of Learning Disabilities. 3 credits. Offered fall and spring.

A detailed study of the theories, characteristics, etiology and needs of individuals with learning disabilities including ADHD. Focus will be on causation and terminology as well as historical perspectives and current trends related to practices in identification and treatment of learning disabilities. Prerequisite: EXED 200 and non-teaching minors only.

EXED 330. Survey of Intellectual Disabilities. 3 credits. Offered fall and spring.

A detailed study of the characteristics, diagnosis, treatment, and education of individuals with intellectual disabilities. Medical aspects and implications of support needs are addressed as well as educational settings, resources, and instructional techniques designed to facilitate integration for individuals with intellectual disabilities. Prerequisite: EXED 200 and non-teaching minors only.

EXED 341. Characteristics of Learners with Disabilities Accessing the General Curriculum. 4 credits.

This course was designed to cover definitions, characteristics, and legal and medical aspects of children and youth with disabilities relative to age, level of severity, and developmental manifestations. Family, cultural, socioeconomic, environment and developmental issues related to the education of persons with disabilities will be explored. Knowledge of developmental, learning and behavioral supports, as well as ethical issues and standards of professional behavior will be emphasized. Prerequisites: PSYC160 and EXED 200. Corequisites: EXED 376, MAED 430 and READ 430.

EXED 375. Overview Study of Autism Spectrum Disorders. 3 credits.

This course is designed to provide an overview of the current issues involved in working with children who have been identified as having an autism spectrum disorder. Areas addressed will include learning characteristics, current research and factors involved with causation, assessment and diagnosis. We will discuss positive behavioral supports; social skills development; sensory processing, motor planning and sensory integration; and communication and language development. We will review current research related to the evaluation, planning, instruction and supports for students with a disability on the autism spectrum. A range of institutional methodologies and techniques will be emphasized throughout the course. Students cannot earn credit for both EXED 416 and EXED 375.

EXED 376. Initial Practicum for Special Education Pre-Professional Preparation. 1 credit.

This course is a practicum experience that will provide an opportunity to observe the teaching and learning of general curriculum in mathematics and reading. Students will have the opportunity to practice, one-on-one, some of the instructional and management techniques presented in EXED 303, MAED 430 and READ 430 as well as reflect on the implications for persons with exceptional learning needs as covered in EXED 200 and SPED 341. Prerequisites: EXED 200 and EXED 303. Corequisites: MAED 430, READ 430 and EXED 341.

EXED 401. Issues in Exceptional Education. 1-3 credits.

Considers current problems and issues in special education as they relate to the professional education of teachers. EXED Teaching and non-teaching minors only with permission of instructor.

EXED 403. Models of Service Delivery for Exceptional Learners. 2 credits.

This course was designed to provide an overview of the structure and organization of general education classrooms and other instructional settings representing the continuum of educational and support services for learners who are gifted/talented, second language speakers and/or who have disabilities. Students will also learn of the school and community resources available to support the learning of individuals with exceptional learning needs. Prerequisites: EDUC 300 and EXED 200.

EXED 416. Overview and Assessment of Autism Disorders. 3 credits.

This course is designed to provide an overview of the current issues involving working with children who have been identified as having an autism spectrum disorder. Areas covered in-depth will include learning characteristics, current research and factors involved with causation, assessment and diagnosis. We will discuss positive behavioral supports; social skills development; sensory processing, motor planning and sensory integration; and communication and language development as these will be covered in much greater depth in other courses. A range of institutional methodologies and techniques will be emphasized throughout the course.

EXED 417. Communication, Language and Sensory Issues of Autism. 3 credits.

This course is designed to provide an in-depth study of the current issues involved in working with children who have been identified as having an autism spectrum disorder. We will discuss only briefly learning characteristics, current research and factors involved with causation, assessment and diagnosis, and positive behavioral supports to set the stage. The bulk of our time will be spent exploring...
social skills development; sensory processing, motor planning and sensory integration; and communication and language development. We will consider a range of institutional methodologies and techniques for providing instruction, support and generalization of skills in these areas.


This course is designed to provide an in-depth look at the behavioral challenges those with a disability in the autism spectrum might face and display. Areas addressed will include behavioral characteristics, current research and factors related to behavioral challenges in this population, positive behavioral supports, Functional Behavioral Plan Development, implementation and monitoring. We will cover data collection in relation to assessment and monitoring behaviors. We will review social skills development, sensory processing, motor planning and sensory integration, and communication and language development as these are covered in much greater depth in other courses. A range of institutional methodologies and techniques will be emphasized throughout the course. Prerequisites: EXED 416 and EXED 417.

**EXED 420. Developing and Managing the Special Education Instructional Program.** 1 credit.

This course explores the practical skills and strategies needed to develop and implement programming for K-12 special education students. Skills will be applicable in consultative, self-contained, resource and integrated settings.

**EXED 430. Practicum in General Education Methods.** 2 credits.

This practicum experience is designed to enhance understanding of the scope and sequence of the general education curriculum, explore the impact of state curriculum standards and provide an opportunity to observe teaching methods in language arts and mathematics.

**EXED 431. Assistive Technology for Individuals with Sensory Impairments.** 2 credits.

This course is designed to heighten the awareness of participants to specific technology and resources available to enhance and improve the abilities of individuals with sensory impairments to succeed in school, daily living activities and employment. This course is delivered via a distance education format. Prerequisite or corequisite: EXED 435.

**EXED 432. Braille Code.** 3 credits.

This course provides instruction in the development, use and application of the Braille literary code and its implications for educational/literacy programs for students with visual disabilities. Students will develop the skills to read and write contracted and uncontracted Braille, while acquiring instructional methodologies for teaching children who are blind to read and write. Sources of Braille materials for educational purposes are identified. This course is delivered via a distance education format. Prerequisite or corequisite: EXED 435.

**EXED 433. Orientation and Mobility for Students with Visual Impairments.** 2 credits.

This course provides the foundation for understanding the components and essence of orientation and mobility. It establishes how the need for independent travel by individuals with visual impairments created the field of Orientation and Mobility; explores the philosophy and history of orientation and mobility including cane instruction, dog guides and methods of travel; and addresses techniques in developing orientation skills and basic mobility instruction. Motor and concept skill development are emphasized. This course is delivered via a distance education format. Prerequisite or corequisite: EXED 435.

**EXED 434. Curriculum and Assessment for Students with Visual Impairments.** 3 credits.

This course provides students with knowledge and understanding of the educational assessment of students with visual impairments and additional disabilities including deaf-blindness. Students practice assessing and planning educational programs for students with visual impairments. Also covered in this course are assessment technology for students with visual impairments; determination of learning needs and appropriate learning media; and the relationship of assessment, IEP development, and placement. This course is delivered via a distance education format. Prerequisite or corequisite: EXED 435.

**EXED 435. Characteristics of Students with Visual Impairments.** 1 credit.

This course provides an overview of the characteristics of and services to persons with visual impairments, including the impact of visual impairments on infants’ and children’s growth and development, child and adolescent emotional and social development, and family interaction patterns. It considers the evaluative, conceptual, psycho-social and physical implications of a visual impairment. This course is delivered via a distance education format.

**EXED 440. Classroom Management and Professional Collaboration.** 3 credits.

A focus on techniques used to manage the behavior of students. Emphasized are strategies used to prevent inappropriate behavior from occurring and/or worsening. Other interventions are taught such as techniques for working with others (e.g., parents, teachers, administrators) who may provide behavior management assistance to teachers and administrators.

**EXED 441. Functional Applications of Low Tech Assistive Technology.** 2 credits.

This course will focus on functional applications of low-technology solutions within the areas of self-care; mobility and transfer; communication; stability and support; sports, recreation, and leisure; and academic and work environments. The course will include exploration and opportunities to design and create low-tech devices for children and adults. Prerequisite: EXED 300.

**EXED 442. Computer Technology and Individuals with Disabilities.** 3 credits.

This course is designed to increase students’ awareness and understanding of computer technology and its implications for individuals with disabilities. It will examine the accessibility of standard computer hardware and software as well as explore available assistive technologies designed to enhance computer accessibility and the functional capabilities of individuals with disabilities. Laboratory and demonstration experiences will enable students to better utilize devices and software in a variety of settings. Prerequisite: EXED 300, EXED 441 or permission of the instructor.

**EXED 443. Assistive Technology Use for Individuals with Disabilities.** 2 credits.

This course is designed to enhance students’ awareness and understanding of the range of assistive technologies available and their instructional implications for individuals with disabilities. Laboratory and demonstration experiences will enable students to select and utilize devices and software in settings serving individuals with disabilities. Prerequisite: EXED 300.

**EXED 450. Principles of Specialized Reading Instruction.** 3 credits.

This course will focus on the acquisition and development of reading skills for students with disabilities. Content includes: characteristics of students with reading disabilities; informal assessment strategies; relationship of oral language to reading; stage-development of reading skills; research-based instructional methods; principles of specialized reading instruction; scientifically-based reading programs for students with disabilities; and collaboration to support reading development. Prerequisite: READ 430. Corequisite: EXED 476.

**EXED 455. Collaborative Teaching for Learners with Disabilities.** 3 credits.

Students in this course will gain knowledge and practice skills in consultation, case management, and collaboration with individuals, families, educators, related service providers, and other human service professionals. An overview of collaborative processes, collaborative models for supporting the education of students with disabilities and for effective management of paraprofessionals will be studied. Prerequisite: EXED 200 and Exceptional Education Non-teaching minors only.

**EXED 460. Differentiation of Instruction and Academic Collaboration.** 3 credits.

This course assists preservice teachers in using their understanding of exceptional learners and learning to accommodate the diversity of students in the general education classroom. In addition, preservice teachers will explore the roles of teachers and how general and special education teachers collaborate to meet the needs of exceptional students. Teaching education students only.

**EXED 465. Perspectives of Early Childhood Special Education.** 3 credits.

This course is designed to provide the student with an overview of educational programming and service delivery for children with developmental delays and/or disabilities, ages 0-5. Particular attention is given to federal legislation, historical perspective and current recommended practice in programming educational services for young children with delays and/or disabilities.

**EXED 474. Assessment and Evaluation for Management of Instruction and Behavior.** 4 credits.

This course was designed to provide study and application of the foundations of assessment and evaluation related to management of instruction and behavior of individuals with ELNs. The course emphasizes issues and skills in selection, administration, interpretation and use of a variety of tools and techniques in all stages of the decision making process for instruction and behavior management. Application of this new knowledge and skill will be through case-studies and direct assessment. Prerequisites: EXED 200, EXED 341, PSY 270. Corequisite: EXED 476.

**EXED 475. Building Instructional Programs and Plans for Learners with Disabilities.** 3 credits.

Designed for exploration of practical skills and strategies in development and use of programming to meet the academic and behavioral needs of students with disabilities accessing the K-12 general curriculum. Skills will be applicable in a variety of settings and service delivery models. Includes purposes and procedures involved in the development of IEPs and the selection or design of CBA to plan and evaluate instruction in academics, social behaviors, and life skills. Prerequisites: EXED 200 and EXED 341.
EXED 476. Practicum in Assessment and Instructional Planning. 2 credits. This practicum is designed to provide a structured supervised experience assessing learning, planning and delivery of instruction to students with disabilities accessing the general education curriculum, and gathering data to make decisions about the effectiveness of instruction. Application of skills in planning direct instruction, creating instructional materials, collecting performance data, managing behavior and developing social skills will be emphasized. Prerequisites: EXED 302, EXED 341, READ 430, MAED 430.

EXED 484. Instructional Methods for Learners with Disabilities. 3 credits.

This course is designed to teach specialized methods for teaching academic skills to individuals with disabilities accessing the K-12 general curriculum. Emphasis is on evidence-based instructional approaches that are effective for persons with disabilities. Focus is on specific remedial methods for reading and writing appropriate for the cognitive level of the learner and parallel to the supports and scaffolds used in the general curriculum. Prerequisite: EXED 474. Corequisite: EXED 486.

EXED 485. Systematic Behavioral Support and Interventions. 3 credits. Offered spring.

Designed for application and evaluation of group management techniques and individual interventions that teach and maintain emotional, behavioral and social skills. Systematic behavioral interventions to support the behavior and learning of individuals with disabilities accessing the general education curriculum (positive behavioral supports, functional assessments of behavior, teaching social skills) are studied. Data collection procedures to inform practice are examined. Prerequisites: EXED 440, EXED 341.

EXED 486. Supervised Clinical Practice with Methods and Individualized Behavior Support. 3 credits.

This practicum provides a structured supervised experience in selecting and using specialized methods for teaching academic skills, group management techniques and individual interventions that teach and maintain emotional, behavioral and social skills instruction to students with disabilities, and gathering data to make decisions about the effectiveness of intervention. Students will also have the opportunity to refine knowledge and skill application from previous program work. Prerequisites: EXED 440, EXED 341, EXED 474. Corequisites: EXED 484.

EXED 490. Special Studies in Special Education. 1-3 credits each semester. Designed to allow the student to complete independent study under faculty supervision. Prerequisite: Permission of the department head.

EXED 499. Honors. 6 credits. See catalog section “Graduation with Honors.”

Family Studies
Department of Social Work

FAM 133. The Contemporary Family. 3 credits. Offered fall and/or spring.

Concepts of variations in forms and lifestyles of families. Consideration is given to the family life cycle and the interdependency between the family and society.

FAM 300. Child Development. 3 credits. Offered on a rotating basis.

A study of the factors influencing the physical, cognitive, social and emotional growth of the young child. Emphasis is given to the importance of family relations and development of observational skills. Prerequisite: GPSYC 101, GPSYC 160 or equivalent.

FAM 330. Family Relations. 3 credits. Offered on a rotating basis.

A study of the structures, functions and dynamics of contemporary families with consideration of diverse cultural definitions and contexts. Prerequisite: FAM 133 or SOCI 276.

FAM 335. Parent-Child Relationships Across the Lifespan. 3 credits.

Offered on a rotating basis.

Focuses on intergenerational caregiving and interactions across the lifespan and generations. Uses a developmental framework to explore family life as the territory in which people fulfill relational responsibilities to children and parents while simultaneously attending to independent life stage challenges. Prerequisite: FAM 133 or SOCI 276.

FAM/GERN/NPS/SOWK 375. Grant Writing for Agencies. 3 credits.

Offered on a rotating basis.

Emphasizing active learning, this course teaches the basics of grant and proposal writing. Efficient research, persuasive prose and the importance of relationships are stressed. Private and corporate philanthropy and government grants are examined.

FAM/SOWK 386. Youth Empowerment Strategies (YES). 3 credits. Offered fall and/or spring.

Students learn to use group activities that include the creative arts, low ropes and self-discovery in youth empowerment. The goal is to help youth build life skills and make informed decisions. Prior to beginning work with youth, students complete 25 hours of training.

FAM 400. Issues and Applications. 3 credits. Offered on a rotating basis. This seminar is designed to integrate and apply knowledge from the student’s major and the family studies minor. A substantial, in-depth individualized project will strengthen the student’s capabilities in research, information access and self-directed learning. Prerequisites: FAM 133 or SOCI 278, three additional courses in the family studies minor, and junior or senior standing.

FAM 487. Special Topics in Family Studies. 3 credits. Offered on a rotating basis. Examination of selected topics that are of current importance to family studies. Course may be repeated for credit. Prerequisites: FAM 133 or SOCI 276.

FAM 490. Special Studies in Family Studies. 1-3 credits.

The course is designed to give capable students in family studies an opportunity to complete independent study under faculty supervision. Course may be repeated for credit. Prerequisites: FAM 133 or SOCI 278 and two additional courses in the family studies minor or permission of the instructor.

Finance

College of Business

FIN 210. Principles of Real Estate. 3 credits.

Emphasizes industry principles and economic factors influencing the real estate business. Subjects include contracts, deeds, valuation, financing and subdivision development.

FIN 250. Introduction to Quantitative Finance. 3 credits. Offered spring.

The purpose of this course is to provide a broad introduction to the markets and instruments of engineered finance. The focus of the course is to expose students to the properties and uses of the array of non-traditional financial instruments that are increasingly trading in both the exchange and over-the-counter markets. Prerequisite: Minimum grade of “C” in MATH 235, MATH 236, ECON 201 and GECON 200.

FIN 301. Principles of Finance. 3 credits. Offered fall and spring.

The purpose of this course is to provide a foundation in the principles and tools of finance, which include financial analysis; the time value of money; capital budgeting; and capital structure. Open to students with a B.S. or B.A. economics major with a concentration in finance as well as students majoring in health sciences. Not open to students who are required to take COB 300. Prerequisites: Junior standing and COB 241.

FIN 302. Spreadsheet Skills in Finance. 1 credit. Offered fall and spring.

The purpose of this course is to offer experience with the spreadsheet applications in finance, including financial functions, statistical functions, reference functions, ActiveX, PivotTables and macros. Prerequisite: FIN 380. Open only to finance majors.

FIN/ECON 325. Money and Banking. 3 credits.

The purpose of this course is to examine the economic role of money, banking, and monetary policy within current institutional settings and under alternative theories explaining the interrelationships between money, the financial system and economic activity. Prerequisites: ECON 201 and GECON 200.

FIN/MATH 328. Time Series Analysis. 3 credits.

The purpose of this course is to examine regression and exponential smoothing methods for forecasting nonseasonal and seasonal time series, stochastic processes, and Box-Jenkins’ autoregressive and moving average models. Prerequisites: MATH 238 and MATH 318.

FIN 345. Finance for the Non-Financial Manager. 3 credits. Offered fall and spring.

The purpose of this course is to build a foundation of theoretical concepts and analytical techniques to aid management decisions on financial problems. Topics include: working capital and fixed asset management for profit expansion. Prerequisites: ECON 244, junior standing (60 hours) and a cumulative 2.0 grade point average in all courses taken at JMU. Restricted to non-college of business majors.

FIN 355. International Financial Management. 3 credits. Offered spring.

The purpose of this course is to provide a comprehensive examination of the investing and financing decisions of a multinational business entity. Particular emphasis is on global financial markets and instruments, exchange-rate risk management, short-term and long-term financing for multinational firms, and

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