customer service and billing, and electronic commerce. Prerequisites: CIS 320, SMAD 356, and ISAT 340 or equivalent.

CS 474. Database Design and Application. 3 credits. Offered spring. Students study database design and management with emphasis placed on data definition languages, data manipulation languages, query languages and management of the database environment. Prerequisite: CS 238 and CS 345 or equivalent.

CS 475. Distributed Database Management. 3 credits. Offered spring. Students learn the concepts of client-server architectures and other aspects that arise in the design of distributed database systems. Prerequisite: CS 474.

CS 476. Database Administration. 3 credits. Offered spring. Students learn to administer a database by manipulating physical and logical components of a database management system. Topics include creation of an instance, managing of tables, indexes, privileges, profiles and roles. Prerequisite: CS 474.

CS 480. Selected Topics in Computer Science. 1-3 credits. Offered as demand warrants. Topics in computer science which are of interest but not otherwise covered in the regular computer science offerings of the department. Offered only with the approval of the department head; may be repeated for credit when course content changes. Prerequisite: CS 239. Topics selected may dictate further prerequisites; students should consult the instructor prior to enrolling for course.

CS 482. Selected Topics in Information Security. 1-3 credits. Offered spring. Topics in information security. Offered only with the approval of the department head; may be repeated for credit when course content changes. Prerequisite: CS 240 and CS 350. Topics selected may dictate further prerequisites; students should consult the instructor prior to enrolling for course.

CS 488. Computer Graphics Applications. 3 credits. Offered as demand warrants. This course develops a computer graphics application package based on standard graphics functions as well as attributes of a graphical user interface. It includes experience in applying interactive computer graphics techniques to industrial problems. Prerequisites: CS 240 and CS 350.

CS 497. Independent Study. 1-3 credits. Offered fall and spring. An advanced course to give independent study experience under faculty supervision. May be taken multiple times for credit, but no more than three credits may be used in the computer science program graduation requirements. Prerequisites: Junior standing, major in computer science and permission of the program coordinator.

CS 499. Honors. 5 credits. Offered fall and spring. Year course. See catalog section "Graduation with Honors."

Continuing Education

Outreach and Engagement

CE 490. Special Studies in Continuing Education. 1-3 credits. This course is designed to allow exploration of current topics of interest including various trends and issues in a given field of study.

Criminal Justice

Department of Justice Studies

CRJU 215 Introduction to Criminal Justice. 3 credits. An introduction to the development of the American criminal justice system from early English beginnings to the present in its three dimensions: police, courts and corrections.

CRJU 225. Ethics in Criminal Justice. 3 credits. Offered once a year. This class offers an overview of ethical issues in the various branches of the criminal justice system and reviews approaches to establishing and using ethical practices.

CRJU 301. Special Topics in Criminal Justice. 3 credits. This course provides an examination of topics that are of current interest in the field of criminal justice. The class may be repeated for credit when course content changes.

CRJU 321. Criminalistics. 3 credits. Offered once a year. This course introduces student to crime scene investigation and the major disciplines of modern forensic science. Topics include an examination of the historical background of forensic science in the criminal justice system, an assessment of general principles of the current practice of forensic science, examination of the role of expert testimony and likely interaction(s) of the forensic scientist with other individuals and components of the criminal justice system. Prerequisite: CRJU 215.

CRJU/SOCI 325. Criminology. 3 credits. Offered fall and spring. Study of the extent, causes and possible deterrents to crime including murder, assault, white-collar offenses and organized crime with attention to the role of the victim and policy implications.

CRJU 328. Criminal Procedure. 3 credits. Study of the criminal justice process from arrest through appeal with emphasis upon the rights of the accused including due process, the right to counsel, search and seizure, and the privilege against self-incrimination. Prerequisite: CRJU 215.

CRJU 329. Criminal Investigation and Evidence. 3 credits. Characteristics, legal aspects, organizational objectives, theories and systematic procedure of criminal investigation. Includes a survey of the investigative function, interviewing witnesses, interrogation, physical evidence, the investigation of common serious offenses and the principles of evidence, including the legal rules controlling the presentation of evidence in court.

CRJU 335. Law Enforcement. 3 credits. Offered once a year. This course provides students with an overview of the practice of law enforcement, the legal and social issues associated with this work in the United States. Prerequisite: CRJU 215.

CRJU 337. Courts and the Judiciary. 3 credits. Offered once a year. This class offers students an in depth introduction to the workings of the Court system in the United States. Prerequisite: CRJU 215.

CRJU 340. Administration of Justice. 3 credits. Offered once a year. This course is designed to identify unique challenges to administrators of criminal justice organizations. The structures, functions, and processes in the administration of criminal justice organizations is examined. Topics of interest include a variety of public management theories, the role of leadership, and communication as it relates to criminal justice organization. Prerequisites: CRJU 215.

CRJU 401. Internship in Criminal Justice. 4 credits. Offered each semester as requested. This course allows students to receive academic credit for work experienced in an agency or organization related to the criminal justice minor. Students should consult the director of the criminal justice minor for assistance in arranging approved internships.

CRJU 496. Internship in Criminal Justice. 4 credits. Offered each semester as requested. Provides students with an opportunity for experiential learning in an agency setting. Research paper required. Prerequisite: Permission of instructor.

Dance

School of Theatre and Dance

DANC 110. Associate Group Dance Repertory I (0, 4). 1 credit. Offered fall. Introduction to group dance experiences through rehearsal, performance, dance technique training and technical theatre practice. Prerequisites: Permission of the instructor and concurrent enrollment in a dance technique course.

DANC 140. Elementary Modern Dance (0, 4). 2 credits. Offered fall and spring. Emphasis on modern dance technique and fundamentals of improvisation and choreography. May be repeated for credit.

DANC 142. Elementary Ballet (0, 4). 2 credits. Offered fall and spring. Fundamentals of ballet technique, basic vocabulary and combinations. May be repeated for credit.

DANC 143. International Folk Dance (0, 4). 2 credits. Traditional folk dance steps and international folk dances. Emphasis on dances from eastern and western Europe, Mexico and Israel. May be repeated for credit.

DANC 144. Ballroom Dance (0, 4). 2 credits. Ballroom dance skills including steps, styling and leading, and following for American and Latin ballroom dance forms. May be repeated for credit.

DANC 146. Jazz Dance (0, 4). 2 credits. Offered fall. Fundamentals of jazz technique, basic vocabulary and combinations. May be repeated for credit.

DANC 147. Tap Dance (0, 4). 2 credits. Offered fall. Fundamentals of tap dance, basic vocabulary and combinations. May be repeated for credit.
DANC/THEA 171. Performance Production. 3 credits. Offered fall and spring. An introduction to the methods of the production of scenery, properties, costumes, lighting, sound and performance management for theatre and dance performance. Instruction in the skills required for the operation of associated tools and equipment and instruction in the skills required for the operation of lighting and sound equipment will be taught. Students are required to complete a main stage running crew assignment as a component of this course.

DANC 210. Associate Group Dance Repertory II (0, 4). 1 credit. Offered spring. Practice in group dance experiences through rehearsal, performance, dance technique training and technical theatre practice. Prerequisites: DANC 110 or the equivalent and concurrent enrollment in a dance technique course.

DANC 211. Contemporary Dance Ensemble Repertory I (0, 4). 2 credits. Offered fall and spring. Introduction to a modern dance ensemble with performance, choreographic and technical theatre experiences. May be repeated for credit. Prerequisites: Permission of the instructor and concurrent enrollment in a dance technique course.

DANC 212. Virginia Repertory Dance Company I (0, 4). 2 credits. Offered fall and spring. Rehearsal, performance and technical theatre experiences in a modern dance company. May be repeated for credit. Prerequisites: Permission of the instructor and concurrent enrollment in a dance technique course.

DANC 240. Intermediate Modern Dance I (0, 4). 2 credits. Offered fall and spring. Intermediate skills in modern dance technique. May be repeated for credit. Prerequisite: DANC 140 or permission of the instructor.

DANC 242. Intermediate Ballet I (0, 4). 2 credits. Offered fall and spring. Intermediate skills in ballet technique. May be repeated for credit. Prerequisite: DANC 142 or permission of the instructor.

DANC 245. Dance Improvisation (0, 4). 2 credits. Offered fall. Development of individual and group and environmental awareness; extension of individual movement vocabulary; and theory and exploration of the inter-relationships of the visual and theatre arts through structured improvisation.

DANC 246. Intermediate Jazz. 2 credits. Offered spring. Intermediate skills in jazz dance technique, vocabulary and movement combinations. May be repeated for credit. Prerequisite: DANC 146 or permission of the instructor.

DANC 247. Intermediate Tap. 2 credits. Offered once every other year. Intermediate skills in tap dance technique, vocabulary and models of sequencing. May be repeated for credit. Prerequisite: DANC 147 or permission of instructor.

DANC 248. History of Dance: Renaissance Through the 20th Century. 3 credits. Offered spring. A survey of dance history in Western civilization from the Renaissance to the present. Emphasis is on the dance idioms of ballet and modern.

DANC 311. Contemporary Dance Ensemble Repertory II (0, 4). 2 credits. Offered fall and spring. Intermediate-level experiences in performance, choreography and technical theatre with a modern dance ensemble. May be repeated for credit. Prerequisites: DANC 211 or the equivalent and concurrent enrollment in a dance technique course.

DANC 312. Virginia Repertory Dance Company II (0, 4). 2 credits. Offered fall and spring. Advanced rehearsal, performance and technical theatre experience in a modern dance company. May be repeated for credit. Prerequisites: Permission of the instructor and concurrent enrollment in a dance technique course.

DANC 320. Anatomy and Somatic Studies for the Dancer. 3 credits. Offered fall. An introduction to the structure and function of the human body, along with an overview of contemporary bodywork theories and techniques essential to the education of dancers. Emphasis will be on the application of knowledge within the context of dance technique.

DANC 325. Dance in Community. 2 credits. Offered spring. This course introduces students to the use of creative movement and dance in community settings. Emphasis is on concepts and skills utilized in designing and implementing movement experiences for diverse populations.

DANC 340. Intermediate Modern Dance II (0, 4). 2 credits. Offered fall and spring. Modern dance technique on an accelerated intermediate level. May be repeated for credit. Prerequisite: DANC 240 or permission of the instructor.

DANC 342. Intermediate Ballet II (0, 4). 2 credits. Offered fall and spring. Ballet technique on an accelerated intermediate level. May be repeated for credit. Prerequisite: DANC 242 or permission of the instructor.

DANC 345. Dance Composition I (2, 2). 3 credits. Offered spring. Introductory studies of dance composition with focus on the learning and development of choreographic techniques and styles. Compositional movement studies and solo/duet dances will be utilized for exploring and developing the student's individual creativity. Prerequisite: DANC 245 or permission of the instructor.

DANC 346. Intermediate Jazz II/Musical Theater Styles. 2 credits. Offered fall and spring. A continuation of the jazz dance techniques in the dance program at the upper-intermediate level. Primary focus of this class will be on the study and training of historic and contemporary musical theatre jazz movement. May be repeated for credit. Prerequisite: DANC 246 or permission of instructor.

DANC 390. New Directions in Dance. 1-3 credits. Offered once a year. Study of selected timely topics in dance. May be repeated when course content changes. See MyMadison for current topic.

DANC 411. Contemporary Dance Ensemble Repertory III (0, 4). 2 credits. Offered fall and spring. Advanced-level experiences in performance, choreography and technical theatre with a modern dance ensemble. May be repeated for credit. Prerequisites: DANC 311 or the equivalent and concurrent enrollment in a dance technique course.

DANC 412. Virginia Repertory Dance Company III (0, 4). 2 credits. Offered fall and spring. Advanced rehearsal, performance and technical theatre experience in a modern dance company for the professional level dancer. May be repeated for credit. Prerequisites: Permission of the instructor and concurrent enrollment in a dance technique course.

DANC 440. Advanced Modern Dance (0, 4). 2 credits. Offered fall and spring. Modern dance technique on an advanced level. May be repeated for credit. Prerequisite: DANC 340 or the equivalent.

DANC 442. Advanced Ballet (0, 4). 2 credits. Offered fall and spring. Ballet technique on an advanced level. May be repeated for credit. Prerequisite: DANC 342 or the equivalent.

DANC 445. Dance Composition II (2, 2). 3 credits. Offered fall. Dance composition study involving the development and use of complex choreographic structures with emphasis on creating small and large group dance compositions, as well as the exploration of contemporary choreographic styles and techniques. Prerequisite: DANC 345 or permission of the instructor.

DANC 446. Advanced Jazz. 2 credits. Offered spring. A continuation of the dance technique in the dance program. Advanced skills in jazz technique with special emphasis on the development of performance skills. May be repeated for credit.

DANC 449. The Dance Professional. 3 credits. Offered fall. Introduction to the professional dance world through lectures, discussions and research. Emphasis will be placed on the preparation of skills and materials necessary to pursue dance as a career. Contemporary dance trends and issues will also be explored.

DANC 450. The Open Studio: An Interdisciplinary Approach to Creative Arts. 3 credits. Offered once every other year. 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.

DANC/THEA 471. Stage Management. 3 credits. Offered once every other year. Study and analysis of stage management. Consideration given to the methods and strategies for successful stage management for theatre, dance and other performances. Emphasis on developing management and organizational skills. Prerequisite: DANC 171.

DANC 479. Methods of Teaching Dance. 3 credits. Offered spring. An introduction to the theory and practice of teaching dance. Course will provide introductory level teaching experiences and will encourage the development of the student's personal educational philosophy.

DANC 490. Special Studies in Dance. 1-3 credits each semester. Offered fall and spring. Designed to give superior students in dance an opportunity to complete independent study and/or research under faculty supervision. May be repeated for credit. Prerequisite: Permission of the dance program coordinator.

DANC 495. Internship in Dance. 1-3 credits. Offered fall and spring. A faculty arranged, prepared and monitored internship program designed
to provide practical experiences in dance. Prerequisite: Permission of dance area coordinator.

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

**Early Childhood Education**

**College of Education**

ECED 371. Practicum in Early Childhood Education. 2 credits.

Preschool and kindergarten placements will provide for extensive observation and experience with young children and the opportunity to assist teachers as they facilitate children's growth and learning in contexts that are culturally varied. Prerequisite: Admission to teacher education. Corequisites: READ 366 and ECED 372.

ECED 372. Introduction to Early Childhood Education. 3 credits.

Introductory study of the role of the teacher, the role of the learner and the developing child as the basis for designing programs and developing curriculum for children 0-8 with different abilities and from various cultures. Prerequisite: Admission to teacher education. Corequisites: READ 366 and ECED 371.

ECED 401. Problems in Early Childhood Education. 1-3 credits.

Considers current problems and issues in early childhood education. Prerequisite: Permission of the program coordinator.

ECED 412. Natural and Social Sciences for Young Children. 3 credits.

Study of content, processes, teaching methods and materials for teaching science and social studies in the early childhood classroom. Knowledge of cognitive development as applied to the selection of content in method will be examined. Prerequisites: Grades of 'C' or better in ECED 371, ECED 372 and READ 366; ECED 441, ECED 443, ELED 444 and READ 436. Corequisite: ECED 461.

ECED 441. Practicum in Child Development. 1 credit.

This course is a supervised field experience working in an early childhood laboratory classroom with pre-kindergarten age children. It emphasizes applications of age-appropriate guidance strategies for facilitating children's total development, including children with diverse needs. Observational strategies for assessing growth and progress are developed. Prerequisites: Grades of 'C' or better in ECED 371, ECED 372 and READ 366; a current TB test. Corequisites: ECED 442, ECED 443 and READ 436.

ECED 442. The Young Child. 3 credits.

This course integrates child development knowledge and theories, academic content knowledge, and age/stage appropriate guidance strategies for teaching children pre-kindergarten through grade three. Emphasis on observational/assessment strategies and inquiry processes related to young children's growth and development as a basis for teaching decisions. Prerequisites: Grades of 'C' or better in ECED 371, ECED 372 and READ 366; a current TB test. Corequisites: ECED 441, ECED 443, ELED 444 and READ 436.

ECED 443. Practicum in Primary Grades. 1 credit.

This two-hour, weekly practicum in first or second grade will provide students with experience in planning and implementing math and literacy experiences for young children. Prerequisites: Grades of 'C' or better in ECED 371, ECED 372 and READ 366. Corequisites: ECED 441, ECED 442; ELED 444 and READ 436.

ECED 461. Integrated Day Practicum. 3 credits. Offered fall and spring.

This all-day, primary-grade practicum allows students to demonstrate their educational decision-making skills through planning, implementing and evaluating appropriate activities for children of diverse interests, needs and abilities. Strategies to assess learning, guide behavior, work with professionals and family involvement are applied in this practicum and accompanying seminar. Prerequisites: Grades of 'C' or better in ECED 361, ECED 372, ECED 441, ECED 442, ECED 443, READ 366, READ 436 and ELED 444, and current TB test. Corequisites: ECED 464, ELED 462.

ECED 481. Fieldwork in Family and Community. 2 credits. Offered fall and spring.

This fieldwork is designed to provide support for students and reinforces skills and concepts learned during the education program which are being applied during student teaching. Special attention is given to school and family/community unity. Prerequisites: Grades of 'C' or better in ECED 361, ECED 372, ECED 441, ECED 442, ECED 443, ECED 454, ECED 461, READ 366, READ 436, ELED 444 and ELED 462. Corequisite: ECED 480.

ECED 490. Special Studies in Early Childhood Education. 1-3 credits. Offered fall and spring.

Designed to give capable students opportunities to complete independent research on educational problems under faculty guidance. The plan for the study must be presented to the department head in prescribed form for approval prior to registration.

ECED 499. Honors in Early Childhood Education. 3 credits. Offered fall and spring.

**Economics**

**College of Business**

GECON 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. Offering to be announced.

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

ECON 270. International Economics. 3 credits. Offered fall, spring and summer.

A survey of the relationships among national economies, including trade theory, trade policy, international monetary relations and the balance of payments. Not open to students who are enrolled in or have already received credit in ECON 370 or 372. Prerequisites: ECON 201 and GECON 200.

ECON 300. Special 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: GECON 200 and ECON 201 or equivalent.

ECON 301. Economies 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 GECON 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 GECON 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. Offering 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. Offering 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 GECON 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 GECON 200.

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