

## Descriptions—Criminal Justice of Courses

### 886. Security Administration

Spring. 3(3-0) R: Open only to master's students in the School of Criminal Justice or to doctoral students in the Social Science-Criminal Justice major.

Administrative and quantitative techniques for security operations. Statistical analyses. Analysis of financial statements. Operations research and computer techniques.

### 887. Quantitative Methods in Criminal Justice Research

Spring. 3(3-0) P: CJ 811. R: Open only to master's students in the School of Criminal Justice or to doctoral students in the Social Science-Criminal Justice major.

Descriptive and inferential statistics and computer use in criminal justice research.

### 890. Independent Study

Fall, Spring. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to master's students in the School of Criminal Justice or to doctoral students in the Social Science-Criminal Justice major. Approval of school.

Individual research and writing under faculty supervision.

### 894. Practicum

Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to master's students in the School of Criminal Justice or to doctoral students in the Social Science-Criminal Justice major. Approval of school.

Observation, study, and work in selected criminal justice agencies. Participation in domestic and foreign criminal justice systems.

### 896. Policy Analysis under Conditions of Change

Spring. 3(3-0) P: (CJ 811) R: Open only to master's students in the School of Criminal Justice or to doctoral students in the Social Science-Criminal Justice major.

Methods of policy analysis in criminal justice settings. Policy analysis for the formulation, adoption and implementation of changes.

### 899. Master's Thesis Research

Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to master's students in the School of Criminal Justice or to doctoral students in the Social Science-Criminal Justice major.

Planned research and writing directed by student's thesis committee.

### 901. Seminar in Contemporary Criminal Justice Theory

Fall. 3(3-0) R: Open only to graduate students in Criminal Justice or in Social Science-Criminal Justice.

Theoretical perspectives and issues in criminal justice and criminology

### 902. Seminar in Criminal Justice Systems

Spring of even years. 3(3-0) R: Open only to graduate students in Criminal Justice or in Social Science-Criminal Justice.

Contemporary issues in the criminal justice system.

### 903. Research Utilization in Criminal Justice

Spring of odd years. 3(3-0) R: Open only to graduate students in Criminal Justice or in Social Science-Criminal Justice.

Research application in criminal justice theory and practice.

## CROP AND SOIL SCIENCES

CSS

### Department of Crop and Soil Sciences College of Agriculture and Natural Resources

#### 101. Introduction to Crop Science

Fall. 3(2-2)

Principles of crop management, improvement, and fertilization. International and sustainable agriculture. Water quality issues.

#### 110. Computer Applications in Agronomy

Fall. 2(1-2) R: Open only to students in the College of Agriculture and Natural Resources. Not open to students with credit in CSE 101.

Use of computers in agriculture. Basic computer operating systems. Management and use of storage media. Laboratory experience in word processing, spread sheets, data bases, programming languages, networking, and software related to agriculture.

#### 201. Forage Crops

Fall. 3(2-2)

Forage crop production, management, and utilization. Crop identification. Soil fertilization. Planting and harvesting of grasses and legumes.

#### 210. Fundamentals of Soil and Landscape Science

Fall, Spring. 3(2-3) Interdepartmental with Forestry. P: (CEM 141)

Agricultural and natural resource ecosystems: soil, vegetation and ground water components. Energy, water and nutrient cycles. Soil classification and mapping. Land management and use issues.

#### 222. New Horizons in Biotechnology

Fall. 2(2-0) Interdepartmental with Entomology. Perspectives on biotechnology for safer food production, environmental quality, and improved human health. Impacts of biotechnology on the national economy. Political and ethical ramifications of applied biotechnology.

#### 232. Introduction to Turfgrass Management

Fall. 3(2-2) P: (CSS 210 or concurrently) (CSS 110 or CSE 101)

Turfgrass utilization, identification, establishment and management principles. Responses to various cultural practices.

#### 242. Athletic Field Maintenance

Fall. 2(2-0) P: (CSS 232)

Art and science of athletic field maintenance including root-zone modification, traffic wear management, field preparation techniques, wet weather strategies, safety concerns, legal issues, and crisis management. Field trips required.

#### 262. Turfgrass Management Seminar

Fall. 1(2-0) P: (CSS 232 or concurrently)

Presentations by individuals involved in turfgrass and golf course management. Topics include golf course construction and operations, preparation for tournaments, and public relations.

#### 289. Civilizations, Food Crops and the Environment

Fall, Spring. 3(3-0) Interdepartmental with Agriculture and Natural Resources. Administered by Agriculture and Natural Resources.

Role of the major food crops in the survival of civilizations and cultures from the past to the present, and the resulting environmental impacts.

SA: TCC 289

#### 310. Soil Management and Environmental Impact

Spring. 3(2-3) P: (CSS 210)

Management of soil physical and chemical properties for the production of food and fiber. Soil management systems that reduce the environmental impact on soil, water and air resources and maximize crop production potential.

#### 332. Advanced Turf Management

Spring. 3(3-0) P: (CSS 232) and completion of Tier I writing requirement.

Effect of light, heat, cold, drought, and traffic on turfgrass growth and development. Impact of practices such as mowing, cultivation, and compaction on the growth of grasses.

#### 342. Turfgrass Soil Management

Fall. 3(3-0) P: (CSS 210)

Fertility and pH control of turf soils. Drainage, irrigation programming, cultivation, topdressing, and soil amendments. Environmental impacts. Specialized soils.

#### 350. Introduction to Plant Genetics

Spring. 3(4-0) P: (BOT 105 or BS 111) R: Not open to freshmen or sophomores.

Fundamentals of plant genetics with applications to agriculture and natural resources.

#### 362. Management of Turfgrass Pests

Fall. 4(3-2) Interdepartmental with Botany and Plant Pathology; and Entomology. P: (CSS 232)

Chemical, biological, and cultural methods of managing weeds, diseases, and insect pests of turfgrass. Environmental considerations in pest management.

**370. Agricultural Cropping Systems Management**

Fall. 3(2-3) P: (CSS 101 or CSS 210) and (MTH 103 and MTH 104) or (MTH 110 or MTH 116 or LBS 117) and completion of Tier I writing requirement. R: Not open to freshmen or sophomores.

Interdisciplinary decision making to select crop and production systems based upon soil productivity, climatic adaptation, environmental impacts, and economic constraints.

**380. Crop Physiology**

Spring of even years. 3(2-3) P: (CSS 101) and (BOT 105 or BOT 301)

Physiological and metabolic function of plants from a whole plant viewpoint. Environmental effects on crop growth, development, and yield.

**402. Principles of Weed Science**

Fall. 3(2-2) P: (BOT 105 and CEM 143) R: Not open to freshmen or sophomores.

Weed biology and ecology. Cultural, mechanical, biological, and chemical control practices. Herbicide action, selectivity in plants, and effects on environment.

**404. Forest and Agricultural Ecology**

Fall. 4(3-3) Interdepartmental with Forestry. Administered by Forestry. P: CSS 210; BOT 105 or BS 110

Structure and function of ecosystems managed for crop and wood production. Productivity, nutrient cycling, community dynamics as affected by management intensity and natural disturbance. Dynamics of managed versus natural ecosystems.

**406. Seed Production and Technology**

Fall of even years. 3(2-2) P: (CSS 101 and CSS 350) R: Not open to freshmen or sophomores.

Principles and practices of field seed production. Crop improvement, variety release, seed production, seed technology and evaluation involved in producing high quality field crop seed.

**409. Forest Hydrology**

Spring. 3(2-2) Interdepartmental with Forestry; Resource Development. Administered by Forestry. P: CSS 210, MTH 116 R: Not open to freshmen or sophomores.

Science and technology of the hydrologic cycle and water resources in forest, wildland, wetland, and rural watersheds.

**425. Microbial Ecology**

Spring. 3(3-0) Interdepartmental with Microbiology. Administered by Microbiology. P: (MIC 301) Microbial population and community interactions. Microbial activities in natural systems, including associations with plants or animals. SA: MPH 425

**426. Biogeochemistry**

Summer. 3 credits. Given only at W.K. Kellogg Biological Station. Interdepartmental with Microbiology; Geological Sciences; and Zoology. Administered by Microbiology. P: (BS 110 or LBS 144 or LBS 148H or BS 111 or LBS 145 or LBS 149H) and (CEM 143 or CEM 251)

Integration of the principles of ecology, microbiology, geochemistry, and environmental chemistry. Societal applications of research in aquatic and terrestrial habitats.

SA: MPH 426

**430. Soil Fertility and Chemistry**

Spring. 3(2-2) P: (CSS 210) R: Not open to freshmen or sophomores.

Application of chemistry to diagnosing and improving soil fertility. Soil amendments including macro- and micro-nutrients. Reducing environmental degradation.

**440. Soil Biophysics**

Fall of even years. 3(2-2) P: (CSS 210) R: Not open to freshmen or sophomores.

Plant growth properties and soil physical conditions which influence productivity. Principles and applications of soil texture, structure, mechanical impedance, aeration and water. Root responses to the environment.

**441. Plant Breeding and Biotechnology**

Spring of even years. 4(3-2) Interdepartmental with Forestry; and Horticulture. P: (CSS 350)

Plant improvement by genetic manipulation. Genetic variability in plants. Traditional and biotechnological means of creating and disseminating recombinant genotypes and cultivars.

**451. Cellular and Molecular Principles and Techniques for Plant Sciences**

Spring. 4(2-6) Interdepartmental with Forestry; and Horticulture. P: (CSS 350 or ZOL 341)

Principles, concepts, and techniques of agricultural plant biotechnology. Recombinant DNA technology, plant molecular biology, transformation, cell tissue, and organ culture in relation to plant improvement.

**455. Pollutants in the Soil Environment**

Fall. 3(3-0) P: (CEM 143) and completion of Tier I writing requirement. R: Open only to seniors or graduate students.

Chemical and biological reactions of organic and inorganic pollutants in soils.

**464. Statistical Methods for Biologists I**

Fall. 3(3-0) Interdepartmental with Statistics and Probability; and Animal Science. Administered by Statistics and Probability. P: STT 421.

Biological random variables. Estimation of population parameters. Testing hypotheses. Linear correlation and regression (prediction). Analyses of counted and measured data to compare several biological groups (contingency tables and analysis of variance).

**465. Statistical Methods for Biologists II**

Spring. 3(3-0) Interdepartmental with Statistics and Probability; and Animal Science. Administered by Statistics and Probability. P: STT 464.

Concepts of reducing experimental error: covariance, complete and incomplete block designs, latin squares, split plots, repeated-measures designs, regression applications, and response surface designs.

**470. Soil Resources**

Fall. 3(2-3) P: (CSS 210) R: Not open to freshmen or sophomores.

Evaluation of the properties, genesis, and classification of soil resources to assist in making land-use decisions. Field trips required.

**477. Pest Management I: Pesticides in Management Systems**

Fall. 3(3-0) Interdepartmental with Entomology; Fisheries and Wildlife; and Horticulture. Administered by Entomology. P: CEM 143; BOT 405 or CSS 402, ENT 404 or ENT 470 or FW 328.

Chemistry, efficient use, and environmental fate of pesticides. Legal and social aspects of pesticide use.

**478. Pest Management II: Biological Components of Management Systems (W)**

Spring of even years. 3 credits. Interdepartmental with Entomology; Forestry; Fisheries and Wildlife; and Horticulture. Administered by Entomology. P: ENT 404 or ENT 470 or BOT 405 or CSS 402 or FW 328. R: Completion of Tier I writing requirement.

Principles of host plant resistance and biological control and their relationship to the design of agroecosystems. Classification of insect biological control agents.

**486. Biotechnology in Agriculture: Applications and Ethical Issues**

Spring of even years. 3(3-0) Interdepartmental with Horticulture; Forestry; Philosophy. Administered by Horticulture. P: BS 111 or BOT 105. R: Not open to freshmen and sophomores.

Current and future roles of biotechnology in agriculture: scientific basis, applications. Environmental, social, and ethical concerns.

**490. Independent Study**

Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. P: (CSS 101 or CSS 210) R: Approval of department; application required.

Individual work on field, laboratory, or library research problem of special interest to the student.

**491. Special Topics**

Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. P: (CSS 101 or CSS 210)

Topics from crop production, crop physiology, turfgrass management, organic soils, turfgrass soils, soil fertility, plant and soil relationships, genetics, biotechnology, environmental science, or sustainable agriculture.

**492. Seminar**

Fall. 1(1-0) P: (CSS 210) and (CSS 342 or CSS 370) and completion of Tier I writing requirement. R: Open only to seniors in the Department of Crop and Soil Sciences.

Synthesis, integration and application of agronomic principles to current issues in agronomy via discussion and oral and written communication.

**805. Herbicide Action and Metabolism**

Spring of odd years. 2(2-0)

Properties and characteristics of herbicides. Processes involved in herbicide action, transport, and fate in plants and soils.

## Descriptions—Crop and Soil Sciences of Courses

### 819. Advanced Plant Breeding

Fall. 3(3-0) Interdepartmental with Horticulture; and Forestry. Administered by Horticulture. P: CSS 450, STT 422.

Genetic expectations resulting from breeding strategies with cross- and self-pollinated crop plants. Germplasm collections, mapping populations, and modifications of reproductive biology useful for crop improvement.

### 823. Methods in Genetic Engineering of Plants

Fall of even years. 4(0-8) Interdepartmental with Forestry; and Horticulture.

Bacterial transformation. Plant transformation via Ti-plasmid, protoplast/PEG, and electroporation methods. Detection of foreign gene integration and expression.

### 825. Clay Mineralogy and Soils Genesis

Spring of even years. 4(3-2) Interdepartmental with Geological Sciences. R: Open only to graduate students in College of Agriculture and Natural Resources, College of Engineering, or College of Natural Science.

Mineral structures. X-ray diffraction, pedogenic processes, and mineral transformations and stability.

### 827. Techniques in Cytogenetics

Fall of odd years. 1(0-3) Interdepartmental with Forestry; and Horticulture.

Preparation of chromosomes from commercially important plants for cytogenetic analysis.

### 829. Advanced Microbial Ecology

Fall of even years. 3(3-0) Interdepartmental with Microbiology. Administered by Microbiology.

Functional roles of microorganisms, their population dynamics and interactions, and their mechanisms of evolutionary change in natural communities, laboratory experiments, and mathematical models.

### 831. Soil and Plant Resources for Sustained World Food Production

Spring of odd years. 3(3-0)

World food production capacities related to soil and climatic resources. Management and utilization of genetic resources for sustained production of human foods and animal feeds.

### 832. Environmental and Natural Resource Law

Fall. 3(3-0) Interdepartmental with Resource Development; Agricultural Economics; Forestry; and Geography. Administered by Resource Development. P: RD 430.

Origin and development of environmental law. Theories of power, jurisdiction, sovereignty, property interests, pollution, and other bases for legal controls of natural resources. Common law and constitutional limitations on governmental power.

### 836. Plant Evolution and the Origin of Crop Species

Fall of even years. 3(3-0) Interdepartmental with Horticulture; Forestry. Administered by Horticulture. P: CSS 350.

Cultural and biological aspects of the evolution of domestic plants. Origin and diversity of cultivated plants.

### 837. Confocal Microscopy

Fall, Spring. 2(2-2) Interdepartmental with Natural Science. R: Approval of department; application required.

Confocal imaging, theory and practice. Basic optics. Lasers. Light paths for transmission, fluorescence and reflection. Image quality, analysis and processing.

### 840. Soil Physics

Fall of odd years. 3(2-3) R: Open only to graduate students in College of Agriculture and Natural Resources, College of Engineering, or College of Natural Science.

Physical properties of soil including texture, structure, consistency, aeration, moisture content, and temperature. Quantitative measurement of plant growth. Agronomic and engineering practices.

### 841. Soil Microbiology

Spring of even years. 3(3-0) Interdepartmental with Microbiology. Administered by Microbiology. P: MIC 425.

Ecology, physiology, and biochemistry of microorganisms indigenous to soil.

SA: MPH 841

### 842. Population Genetics, Genealogy and Genomics

Fall. 3(3-0) Interdepartmental with Forestry; Animal Science; Genetics; Fisheries and Wildlife; and Horticulture. Administered by Forestry. RB: Pre-calculus, basic genetics

Population genetic processes underlying patterns of molecular genetic variation. Genealogical approaches to the study of genomic diversity, phylogenetic reconstruction, and molecular ecology.

### 850. Soil Chemistry

Spring. 3(3-3) R: Open only to graduate students in College of Agriculture and Natural Resources, College of Engineering, or College of Natural Science.

Ion activities, ionic exchange and equilibrium reactions. Soil pH, macro- and micronutrients, saline soils and availability of nutrients to plants.

### 853. Plant Mineral Nutrition

Fall of odd years. 3(3-0) Interdepartmental with Horticulture. P: BOT 301.

Inorganic ion transport in plant cells and tissues. Physiological responses and adaptation to problem soils. Genetic diversity in nutrient uptake and use by plants. Physiological roles of elemental nutrients in crop growth.

### 855. Interfacial Environmental Chemistry

Fall of even years. 4(4-0) R: Open only to graduate students in College of Agriculture and Natural Resources, College of Engineering, or College of Natural Science.

Principles and mechanisms of reactions at solid-liquid interfaces emphasizing environmental chemistry. Sorption of ionic and organic compounds. Properties of colloids. Kinetics of surface reactions.

### 863. Mineral-Water Interactions

Spring of odd years. 4(3-2) Interdepartmental with Geological Sciences. Administered by Geological Sciences. R: Open only to graduate students in Crop and Soil Sciences or Geological Sciences or Geography.

Mineralogy, petrology and geochemistry of fluid-rock reactions in geologic, sedimentary and geochemical cycles. Rock and mineral weathering, soil formation, genesis and burial diagenesis of sediments and sedimentary rocks, and metamorphism.

### 865. Organic Chemistry of Soils

Spring of odd years. 2(2-0)

Chemistry of natural and anthropogenic organic substances in soils.

### 890. Independent Study

Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 8 credits in all enrollments for this course. R: Open only to graduate students in College of Agriculture and Natural Resources, College of Engineering, or College of Natural Science.

Individual study on field, laboratory, or library research.

### 891. Current Topics in Ecology and Evolution

Summer. 1 credit. Given only at W.K. Kellogg Biological Station. A student may earn a maximum of 8 credits in all enrollments for this course. Interdepartmental with Zoology; and Botany and Plant Pathology. Administered by Zoology.

Presentation and critical evaluation of theoretical and empirical developments by visiting scientists.

### 891B. Selected Topics in Plant Breeding and Genetics

Fall, Spring, Summer. 1 to 2 credits. A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with Horticulture; Forestry. Administered by Horticulture. R: Open only to graduate students in Plant Breeding and Genetics or Genetics. Approval of department.

Selected topics in plant breeding.

### 892. Plant Breeding and Genetics Seminar

Fall, Spring, Summer. 1(1-0) A student may earn a maximum of 8 credits in all enrollments for this course. Interdepartmental with Horticulture; and Forestry. Administered by Horticulture.

Experience in review, organization, oral presentation, and analysis of research.

### 893. Selected Topics

Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to graduate students in College of Agriculture and Natural Resources, College of Engineering, or College of Natural Science.

Selected topics in crop and soil sciences of current interest and importance.

### 899. Master's Thesis Research

Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open only to master's students in Crop and Soil Sciences.

**921. Contemporary Statistical Models in Biology**

*Fall of odd years. 3(3-0) P: STT 465 or approval of department. Working knowledge of SAS. Estimating functions. Growth models, generalized linear models, linear and non-linear mixed models. Field experiments with spatial trends. Longitudinal data. Modeling in the presence of spatial and temporal correlations.*

**930. Advanced Forest Genetics**

*Fall of odd years. 2(1-2) Interdepartmental with Forestry; and Horticulture. Administered by Forestry. P: HRT 819 or HRT 836. Applications of genetics, plant breeding, and biotechnology to the improvement, and preservation of diversity, of tree species.*

**941. Quantitative Genetics in Plant Breeding**

*Spring of even years. 3(3-0) Interdepartmental with Forestry; and Horticulture. P: CSS 450, STT 422. Theoretical genetic basis of plant breeding with emphasis on traits exhibiting continuous variation. Classical and contemporary approaches to the study and manipulation of quantitative trait loci.*

**943. Techniques of Analyzing Unbalanced Research Data**

*Spring. 4(4-0) Interdepartmental with Animal Science; Forestry; Fisheries and Wildlife; and Horticulture. Administered by Animal Science. P: STT 464. R: Open only to graduate students in the College of Agriculture and Natural Resources. Linear model techniques to analyze research data characterized by missing and unequal number of observations in classes. Simultaneous consideration of multiple factors. Estimable comparisons. Hypothesis testing. Computational strategies. Variance and covariance components. Breeding values.*

**999. Doctoral Dissertation Research**

*Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open only to doctoral students in Crop and Soil Sciences.*

**EARTH SCIENCE ES**

**Department of Geological Sciences  
College of Natural Science**

**445. Field Studies in Earth Science**

*Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Approval of department. Field experience and techniques in geological sciences or oceanology.*

**446. Laboratory Investigations in Earth Science**

*Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Approval of department. Laboratory techniques and investigations in geological sciences or oceanology.*

**800. Special Problems in Earth Science**

*Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Approval of department. Individual faculty directed study on topics in earth science.*

**ECONOMICS EC**

**Department of Economics  
The Eli Broad College of Business  
and The Eli Broad Graduate  
School of Management**

**201. Introduction to Microeconomics**

*Fall, Spring, Summer. 3(3-0) Not open to students with credit in EC 251H. Economic institutions, reasoning and analysis. Consumption, production, determination of price and quantity in different markets. Income distribution, market structure and normative analysis.*

**201T. Introduction to Microeconomics**

*Fall, Spring. 3(2-2) Not open to students with credit in EC 201 or EC 251H. Microeconomic reasoning and analysis. Determination of price and quantity in different markets. Income distribution, market structure, and normative analysis. Extensive use of computer exercises and internet technology.*

**202. Introduction to Macroeconomics**

*Fall, Spring, Summer. 3(3-0) Not open to students with credit in EC 252H. Determinants of Gross National Product, unemployment, inflation and economic growth. National income accounting and fiscal policy. Aggregate demand, supply management and monetary policy.*

**210. Economics Principles Using Calculus**

*Fall. 3(3-0) P: (MTH 133 or MTH 153H or MTH 126) Not open to students with credit in EC 201 or EC 202. A combined microeconomics and macroeconomics course. Emphasis on topics of interest in engineering and management, such as discounting, cost-benefit analysis, innovation, externalities, and the role of government regulation.*

**251H. Microeconomics and Public Policy**

*Fall, Spring. 4(4-0) Not open to students with credit in EC 301. Theories of consumer behavior, production and cost. Output and price determination in competition and monopolies. Welfare economics, general equilibrium, externalities, and public goods.*

**252H. Macroeconomics and Public Policy**

*Fall, Spring. 3(3-0) P: (EC 201 and EC 301) or (EC 251H) Not open to students with credit in EC 302. Theory of national income, unemployment, inflation and economic growth and its application to economic analysis and policy.*

**301. Intermediate Microeconomics**

*Fall, Spring, Summer. 3(3-0) P: (EC 201) (EC 202) Not open to students with credit in EC 251H. Theories of consumer choice, production, cost, perfect competition, and monopoly. Welfare economics, general equilibrium, externalities and public goods.*

**302. Intermediate Macroeconomics**

*Fall, Spring, Summer. 3(3-0) P: (EC 201 and EC 202) Not open to students with credit in EC 252H. National income accounting. Determination of aggregate output, employment, price level, and inflation rate. Policy implications.*

**303. Economic Thought I**

*Fall. 3(3-0) P: (EC 201 or EC 251H) and (EC 202 or EC 252H) Forerunners of classical economics. Classical economic thought from Adam Smith to J.S. Mill. The socialist reaction. SA: EC 403*

**304. Economic Thought II**

*Spring. 3(3-0) P: (EC 201 or EC 251H) and (EC 202 or EC 252H) Decline of classical economics and rise of marginalist value and distribution theory. Marxism and institutionalism. SA: EC 404*

**306. Comparative Economic Systems**

*Fall. 3(3-0) P: (EC 201 or EC 251H) and (EC 202 or EC 252H) Characteristics and functions of economic systems. Alternative patterns of economic control, planning, and market structure. Theories, philosophies, and experiences associated with capitalism, socialism, and mixed economies.*

**310. Economics of Developing Countries**

*Spring. 3(3-0) P: (EC 201 or EC 251H) Overview of economic patterns and policy issues of developing countries such as modern economic growth and structural transformation, state controls versus markets, poverty and human welfare, investments in human resources, and trade and industrialization.*

**320. Analysis of Economic Data**

*Fall, Spring. 3(3-0) P: (EC 201 or EC 251H) and (EC 202 or EC 252H) R: Not open to students in the Department of Accounting or Department of Finance or School of Hospitality Business or Department of Management or Department of Marketing and Supply Chain Management. Sources of economic data. Techniques for presenting and summarizing economic data. Testing theories of economic behavior. Methods for forecasting in uncertain economic environments. Evaluation of current quantitative work in economics.*

**330. Money, Banking, and Financial Markets**

*Fall, Spring, Summer. 3(3-0) P: (EC 201 or EC 251H) and (EC 202 or EC 252H) Money markets and financial intermediation. Money, the Federal Reserve System, and monetary policy. Regulation of money markets.*

**335. Taxes, Government Spending and Public Policy**

*Fall, Spring, Summer. 3(3-0) Interdepartmental with Public Resource Management. P: (EC 201 or EC 251H) Not open to students with credit in EC 435 or EC 436. Economics of the public sector. Public goods, externalities, design and incidence of the tax system. Equity and efficiency effects of government programs.*