

AGRICULTURAL AND APPLIED ECONOMICS (A A E)

A A E 1 – COOPERATIVE EDUCATION/CO-OP IN AGRICULTURAL & APPLIED ECONOMICS

1 credit.

Full-time off-campus work experience which combines classroom theory with practical knowledge of operations to provide students with a background upon which to base a professional career. Students receive credit only for the term in which they are actively enrolled and working. The same work experience may not count towards credit in A A E 399. Students must have a declared major in Agricultural and Applied Economics or Agricultural Business Management and will require consent of the supervising instructor and academic advisor.

Requisites: Consent of instructor

Course Designation: Workplace - Workplace Experience Course

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Spring 2015

A A E 215 – INTRODUCTION TO AGRICULTURAL AND APPLIED ECONOMICS

4 credits.

Introduction to economic ways of thinking about a wide range of problems and issues. Topics include consumption, production, prices, markets, finance, trade, pollution, growth, farms, taxes, and development.

Requisites: Satisfied Quantitative Reasoning (QR) A requirement

Course Designation: Gen Ed - Quantitative Reasoning Part B

Breadth - Social Science

Level - Elementary

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Spring 2024

A A E/ENVIR ST 244 – THE ENVIRONMENT AND THE GLOBAL ECONOMY

4 credits.

The "economic way of thinking" about global and regional environmental issues. Topics include climate change, biodiversity preservation, ocean fisheries, environmental impacts of international trade, poverty and the environment, and sustainability.

Requisites: None

Course Designation: Breadth - Social Science

Level - Elementary

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Spring 2024

A A E 246 – CLIMATE CHANGE ECONOMICS AND POLICY

3 credits.

Climate change and the role of applied economics in related policy analysis and research. Economics of mitigation, adaptation and geo-engineering; integrated assessment; environmental implications of energy use; climate change impacts on land use. Use of economic analysis and modeling for public policy design.

Requisites: None

Course Designation: Breadth - Social Science

Level - Elementary

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Spring 2024

A A E 267 – CAREER DEVELOPMENT FOR AAE & ABM MAJORS

1 credit.

Career and professional development geared toward the field of agricultural and applied economics or agricultural business management. Topics include resumes, cover letters, interviewing skills, internship and job applications, writing, career exploration, and networking. Panelists include faculty, alumni, and employers.

Requisites: Sophomore standing and declared in Agricultural and Applied Economics or Agricultural Business Management BS

Repeatable for Credit: No

Last Taught: Fall 2023

A A E 289 – HONORS INDEPENDENT STUDY

1-2 credits.

Research work under direct guidance of an AAE faculty or instructional academic staff member. Students are responsible for arranging the work and credits with the supervising instructor. Intended for students in the CALS Honors Program.

Requisites: Consent of instructor

Course Designation: Honors - Honors Only Courses (H)

Repeatable for Credit: Yes, unlimited number of completions

A A E 299 – INDEPENDENT STUDY

1-3 credits.

Research work under direct guidance of a faculty or instructional academic staff member. Students are responsible for arranging the work and credits with the supervising instructor.

Requisites: Consent of instructor

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Fall 2023

A A E/ECON/REAL EST/URB R PL 306 – THE REAL ESTATE PROCESS

3 credits.

Introductory overview focused on the key aspects of the real estate process: developing real estate, permitting real estate, buying and selling real estate, understanding the economics of real estate, financing real estate, valuing real estate, leasing real estate, and managing real estate.

Requisites: (ECON 101, 111, or A A E 215) or declared in undergraduate Business Exchange program

Course Designation: Breadth - Social Science

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Spring 2024

A A E 319 – THE INTERNATIONAL AGRICULTURAL ECONOMY

3 credits.

The nature of trade in agricultural products, trade policies and practices of importing and exporting nations, agricultural policies of major trading blocks, market instability and other primary commodity problems, recent history and current developments in multilateral trade policy.

Requisites: A A E 215, ECON 101, or 111

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Fall 2022

A A E 320 – AGRICULTURAL SYSTEMS MANAGEMENT

3 credits.

Application of economics to managing agricultural production systems. Topics include optimizing agricultural production, farm financial analysis, tax management, business entities, federal commodity support programs, and the structure and challenges in the US agricultural sector.

Requisites: A A E 215, ECON 101, or 111

Repeatable for Credit: No

Last Taught: Fall 2023

A A E 322 – COMMODITY MARKETS

4 credits.

Principles and practices in marketing systems for U.S. agricultural commodities. Vertical organization; forward contracts, future markets, agricultural options and price formation. Alternate management at the farm, processor, wholesale and retail levels.

Requisites: A A E 215, ECON 101, or 111

Course Designation: Breadth - Social Science

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Spring 2024

A A E 323 – COOPERATIVES AND ALTERNATIVE FORMS OF ENTERPRISE OWNERSHIP

3 credits.

Cooperatives, credit unions, and other alternative forms of enterprise are unique businesses in which users (rather than investors) are the owners. Topics will include why these models emerge, who they serve, how they differ from other forms of enterprise, and the ways in which they can be used to address social, economic, and environmental challenges.

Requisites: Sophomore standing and satisfied Quantitative Reasoning (QR) A requirement

Course Designation: Breadth - Social Science

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Spring 2024

A A E 335 – INTRODUCTION TO DATA ANALYSIS USING SPREADSHEETS

2 credits.

Introduction to data analysis for social scientists using spreadsheets software - with specific applications to economics, business and finance - including data management and manipulation; formulas and calculations; data visualization and presentation using charts and graphics; statistical and visual analysis of economic indicators using tables, functions, graphs and descriptive statistics; and optimization of functions with economic and financial data.

Requisites: None

Repeatable for Credit: No

Last Taught: Fall 2023

A A E/C&E SOC/SOC 340 – ISSUES IN FOOD SYSTEMS

3-4 credits.

With primary emphasis on the U.S., the course covers social, economic and biological dimensions of food systems. Using classroom and community experience, the course combines academic approaches with practitioner knowledge. A community project is required.

Requisites: SOC/C&E SOC 140, SOC 181, 210, or 211

Course Designation: Breadth - Social Science

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Fall 2023

A A E/ECON/ENVIR ST 343 – ENVIRONMENTAL ECONOMICS

3-4 credits.

Microeconomic principles underlying the use of natural resources such as air, water, forests, fisheries, minerals and energy. These principles are applied in the examination of pollution control, preservation vs. development, deforestation, and other environmental issues.

Requisites: A A E 215, ECON 101, or 111

Course Designation: Breadth - Social Science

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Spring 2024

A A E/AGRONOMY/NUTR SCI 350 – WORLD HUNGER AND MALNUTRITION

3 credits.

Hunger and poverty in developing countries and the United States. Topics include: nutrition and health, population, food production and availability, and income distribution and employment.

Requisites: None**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No**Last Taught:** Spring 2024**A A E 352 – GLOBAL HEALTH: ECONOMICS, NATURAL SYSTEMS, AND POLICY**

4 credits.

Sustaining global health and well-being depends critically on interactions between human and natural systems at multiple spatial and temporal scales. Economics provides a useful paradigm for understanding these interactions and the pathways through which individual and societal decisions made in the face of scarce resources, and threats to the natural environment, generate health and well-being outcomes. Provides students with an opportunity to use basic economic and social science reasoning to describe global health challenges; understand the causes and consequences of health discrepancies; evaluate health and environmental policies; and appreciate the interconnectedness of planetary health and economic outcomes.

Requisites: Satisfied Quantitative Reasoning (QR) A requirement**Course Designation:** Breadth - Social Science

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No**Last Taught:** Fall 2023**A A E/AGRONOMY/HORT/PL PATH 367 – INTRODUCTION TO ORGANIC AGRICULTURE: PRODUCTION, MARKETS, AND POLICY**

3 credits.

Provides an in-depth understanding of the history of organic agriculture, its production, processing, marketing, and social dimensions, and its impact on environmental, community, and human health.

Requisites: ENVIR ST/AGROECOL/AGRONOMY/C&E SOC/ENTOM 103 or graduate/professional standing**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

Level - Elementary

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No**Last Taught:** Spring 2024**A A E/ECON 371 – ENERGY, RESOURCES AND ECONOMICS**

3 credits.

Use microeconomic theory to analyze energy markets. Discuss the economics of oil, gas, and electricity and learn about applications to contemporary issues and policy questions.

Requisites: A A E 215, ECON 101, or 111**Course Designation:** Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No**Last Taught:** Fall 2023**A A E/INTL ST 373 – GLOBALIZATION, POVERTY AND DEVELOPMENT**

3 credits.

Addresses the process of globalization -- trade, international capital flows, labor migration and remittances, and aid -- from the perspective of developing economies and the development process.

Requisites: A A E 215, ECON 101, 102, or 111**Course Designation:** Breadth - Social Science

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No**Last Taught:** Fall 2023**A A E/INTL ST 374 – THE GROWTH AND DEVELOPMENT OF NATIONS IN THE GLOBAL ECONOMY**

3 credits.

This course explores the roles of markets, states, and civil institutions, using economic theory, computer simulations, and historical experience to better understand the forces that shape the wealth and well-being of nations and people around the world.

Requisites: A A E 215, ECON 101, 102, or 111**Course Designation:** Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No**Last Taught:** Spring 2024**A A E 375 – SPECIAL TOPICS**

1-4 credits.

Special topics on contemporary issues relevant to agricultural and applied economics.

Requisites: None**Repeatable for Credit:** Yes, unlimited number of completions**Last Taught:** Spring 2024

A A E 399 – COORDINATIVE INTERNSHIP/COOPERATIVE EDUCATION

1-8 credits.

An internship under guidance of a faculty or instructional academic staff member in Agricultural and Applied Economics and internship site supervisor. Students are responsible for arranging the work and credits with the AAE faculty or instructional academic staff member and the internship site supervisor.

Requisites: Consent of instructor**Course Designation:** Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Workplace - Workplace Experience Course

Repeatable for Credit: Yes, unlimited number of completions**Last Taught:** Fall 2023**A A E 400 – STUDY ABROAD IN AGRICULTURAL AND APPLIED ECONOMICS**

1-6 credits.

Provides an area equivalency for courses taken on Madison Study Abroad Programs that do not equate to existing UW courses. Current enrollment in a UW-Madison study abroad program

Requisites: None**Repeatable for Credit:** Yes, unlimited number of completions**A A E 419 – AGRICULTURAL FINANCE**

3 credits.

Introduction to basic finance concepts. Topics include financial statements, ratio analysis and interpretation, investment analysis, capital budgeting, credit concepts, and capital markets.

Requisites: A A E 215, ECON 101, 111, or graduate/professional standing**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Spring 2024**A A E/ECON 421 – ECONOMIC DECISION ANALYSIS**

4 credits.

Managerial oriented, applied presentation of microeconomic theory. Quantitative emphasis with extensive homework use of spreadsheets and written executive summaries of applied economic analyses. Applications on natural resources and agricultural markets.

Requisites: STAT 301, 371, ECON 310, SOC/C&E SOC 360, PSYCH 210, or (GEN BUS 306 and 307)**Course Designation:** Breadth - Social Science

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No**Last Taught:** Fall 2023**A A E 422 – FOOD SYSTEMS AND SUPPLY CHAINS**

3 credits.

Examination of the structure of supply chains for food and agriculture and key business decisions in the the broader context of food systems.

Requisites: A A E 215, ECON 101, 111, or graduate/professional standing**Course Designation:** Breadth - Social Science

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No**Last Taught:** Fall 2023**A A E/ECON/INTL BUS 462 – LATIN AMERICAN ECONOMIC DEVELOPMENT**

3 credits.

A historico-institutional analysis of development problems in the principal Latin American countries, with attention to differentiation of national growth patterns and alternative development strategies.

Requisites: A A E 215, ECON 101, or 111**Course Designation:** Breadth - Social Science

Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No**Last Taught:** Spring 2023**A A E/ECON 473 – ECONOMIC GROWTH AND DEVELOPMENT IN SOUTHEAST ASIA**

3 credits.

Evaluates economic development strategies in Southeast Asia and their implications for growth, distribution and environment. Students learn trade and development theory as well as specific knowledge of Southeast Asian economic development.

Requisites: A A E 215, ECON 101, 111, or graduate/professional standing**Course Designation:** Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No**Last Taught:** Fall 2021**A A E/ECON 474 – ECONOMIC PROBLEMS OF DEVELOPING AREAS**

3 credits.

Analyzes aggregate growth, income distribution and poverty in lower income economies. Uses microeconomics of imperfect labor, capital and insurance markets to explore why some individuals advance economically as their economies grow and others fall behind. Considers implications of aggregate and micro analysis for national and international economic policy.

Requisites: A A E 215, ECON 101, or 111**Course Designation:** Breadth - Social Science

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No**Last Taught:** Fall 2023

A A E/ECON 477 – AGRICULTURAL AND ECONOMIC DEVELOPMENT IN AFRICA

3 credits.

Composition, organization, and techniques of agricultural production; economic change and development of agriculture, economic policies, special problems of developing African agriculture.

Requisites: A A E 215, ECON 101, 111, or graduate/professional standing

Course Designation: Breadth - Social Science

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2024

A A E 500 – SENIOR CAPSTONE EXPERIENCE

3 credits.

Teaches students how to apply economic theory to economic problems, utilize quantitative techniques in economic analyses, and communicate findings and results of economic analyses.

Requisites: Senior standing and (declared in Agricultural & Applied Economics, B.S. or Agricultural Business Management, B.S.)

Repeatable for Credit: No

Last Taught: Spring 2024

A A E/REAL EST/URB R PL 520 – COMMUNITY ECONOMIC ANALYSIS

3 credits.

Economic theory (location and growth) applicable to community economic development; the role of private and public sector in local economic development, and techniques for economic analysis of community.

Requisites: ECON 301 or 311 or graduate/professional standing

Course Designation: Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2024

A A E/ECON 526 – QUANTITATIVE METHODS IN AGRICULTURAL AND APPLIED ECONOMICS

4 credits.

Use of quantitative methods (mathematics, statistics, and optimization) to analyze problems faced by decision makers in natural resources and agriculture. Extensive homework requiring use of quantitative methods via spreadsheet tools to solve problems from an applied decision context.

Requisites: (MATH 211 or 221), ECON 301, and STAT 301, or graduate/professional standing

Course Designation: Breadth - Social Science

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2023

A A E/ECON/F&W ECOL 531 – NATURAL RESOURCE ECONOMICS

3 credits.

Economic concepts and tools relating to management and use of natural resources, including pricing principles, cost-benefit analysis, equity, externalities, economic rent, renewable and nonrenewable resources, and resource policy issues.

Requisites: ECON 301 or 311 or graduate/professional standing

Course Designation: Breadth - Social Science

Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2024

A A E/M H R 540 – INTELLECTUAL PROPERTY RIGHTS, INNOVATION AND TECHNOLOGY

3 credits.

Uses economic concepts to illustrate the nature of technological innovation, competition, and economic growth. Topics: economics of the intellectual property protection (IPP); market structure and innovation; interaction between public and private sectors; IPP and anticompetitive policies; globalization.

Requisites: Graduate/professional standing and (ECON 301 or 311)

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2021

A A E/CIV ENGR/ENVIR ST/URB R PL 561 – ENERGY MARKETS

3 credits.

Energy resources are an essential element of the world's business, political, technical and environmental landscape. Analytic tools provided by the discipline of economics expands our understanding of this critical issue. Energy supply markets reviewed include both fossil fuels and renewable resources. Energy demand sectors include residential, commercial, industrial and transportation. Electricity represents an intermediate energy market. The interactions among these markets participants indicate how scarce resources are allocated among competing needs in the world economy.

Requisites: A A E 215, ECON 101, 111, or graduate/professional standing

Course Designation: Breadth - Social Science

Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2017

A A E 601 – APPLIED ECONOMICS

3 credits.

Micro- and macroeconomic analysis of consumer behavior, markets, business strategy and government policy. Topics include supply and demand, equilibrium, elasticity, welfare, trade, externalities, market structure, economic growth, unemployment, and inflation.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

A A E 625 – AGRIBUSINESS ECONOMICS AND MANAGEMENT

3 credits.

Includes a sequential study of subject material in agribusiness management and managerial economics related to the management of agricultural businesses. Topics related to agribusiness management in the U.S., including organizational structure, marketing, strategy, financial statements, financing and production planning. Concepts from managerial economics as applied to the agribusiness firm, including production theory, cost analysis, pricing strategies, cost-benefit analysis, investment decisions and competition strategies.

Requisites: (ECON 301 or 311) and A A E 335, or graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2024

A A E 635 – APPLIED MICROECONOMIC THEORY

3 credits.

Microeconomic theory applied to consumers, producers, markets, and welfare analysis. Emphasis is on the mathematics of duality and optimization methods. Computer applications of the theory. One semester of linear algebra highly recommended.

Requisites: MATH 222 and (ECON 301 or 311), or graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2023

A A E 636 – APPLIED ECONOMETRIC ANALYSIS I

3 credits.

Introduction to the standard linear regression model with an emphasis on application issues. Includes statistical foundation, hypothesis testing, functional form, model selection and procedures for handling violations of model assumption.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2023

A A E 637 – APPLIED ECONOMETRIC ANALYSIS II

4 credits.

Focus on extending the standard regression model. Topics include nonlinear regression models, maximum likelihood estimation, panel data, simultaneous equations, linear and nonlinear systems, analysis of discrete choice, limited dependent variables, empirical economic applications and policy analysis.

Requisites: A A E 636

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2024

A A E 641 – FOUNDATIONS OF AGRICULTURAL ECONOMICS

3 credits.

Overview of the economic performance of agriculture in feeding the growing world population. Examines contemporary economic issues in the food sector, along with research methods used in their analysis. Covers production analysis, risk and uncertainty, food demand, market structure, policy and welfare analysis.

Requisites: A A E 635 and 636

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2024

A A E 642 – FOUNDATIONS OF DEVELOPMENT ECONOMICS

3 credits.

An overview of development economics, covering both basic theory and empirical applications. Topics include economic growth, trade, measurement of poverty and inequality, human capital, agricultural household models, technology adoption, migration, credit, savings, insurance, infrastructure, and the environment.

Requisites: A A E 635 and 636

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2023

A A E 643 – FOUNDATIONS OF ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS

3 credits.

Survey of historical topics and contemporary research questions in environmental and resource economics. Focus areas include foundational models of human/environment interaction, definition and evaluation of the suite of environmental policy instruments, measuring environmental costs and benefits, and examining natural resource use.

Requisites: A A E 635 and 636

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2024

A A E/F&W ECOL 652 – DECISION METHODS FOR NATURAL RESOURCE MANAGERS

3 credits.

Applications of quantitative methods, including optimization and simulation, to the management of natural resources, especially forests.

Requisites: MATH 112, 114, or 171 or placement into MATH 211 or 221

Course Designation: Breadth - Social Science Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

Last Taught: Spring 2024

A A E 670 – MATHEMATICS FOR AGRICULTURAL AND APPLIED ECONOMICS

3 credits.

The fundamental mathematics and statistics necessary for the study of quantitative methods in agricultural and applied economics (AAE). Topics include the mathematics of optimization and its role in basic welfare theory and consumer demand; linear and matrix algebra and their application in both modeling consumer behavior and the statistical analysis of models; and the fundamentals of statistical analysis relevant to econometric analysis, including probability theory, sampling distributions and statistical inference.

Requisites: (ECON 101, 111 or A A E 215) and (MATH 211, 217, 221 or 275) or graduate/professional standing

Repeatable for Credit: No

Last Taught: Summer 2023

A A E/ECON/ENVIR ST/URB R PL 671 – ENERGY ECONOMICS

3 credits.

The method, application, and limitations of traditional economic approaches to the study of energy problems. Topics include microeconomic foundations of energy demand and supply; optimal pricing and allocation of energy resources; energy market structure, conduct, and performance; macro linkages of energy and the economy; and the economics of regulatory and other public policy approaches to the social control of energy.

Requisites: Graduate/professional standing or (senior standing and A A E 215, ECON 101, or 111)

Course Designation: Breadth - Social Science

Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2020

A A E 681 – SENIOR HONORS THESIS

2-4 credits.

Individual study for majors completing theses for Honors degrees as arranged with a faculty member. Requires consent of supervising instructor. Enrolled in CALS Honors Program.

Requisites: Consent of instructor

Course Designation: Honors - Honors Only Courses (H)

Repeatable for Credit: No

Last Taught: Fall 2009

A A E 682 – SENIOR HONORS THESIS

2-4 credits.

Individual study for majors completing theses for Honors degrees as arranged with a faculty member. Requires consent of supervising instructor. Continuation of 681. Enrolled in CALS Honors Program.

Requisites: Consent of instructor

Course Designation: Honors - Honors Only Courses (H)

Repeatable for Credit: No

Last Taught: Spring 2010

A A E 691 – SENIOR THESIS

2 credits.

Individual study for majors completing theses for AAE degrees as arranged with a faculty member. Requires consent of supervising instructor.

Requisites: Consent of instructor

Repeatable for Credit: No

Last Taught: Fall 2022

A A E 692 – SENIOR THESIS

2 credits.

Individual study for majors completing theses for AAE degrees as arranged with a faculty member. Requires consent of supervising instructor.

Continuation of A A E 691.

Requisites: Consent of instructor

Repeatable for Credit: No

Last Taught: Spring 2023

A A E 699 – SPECIAL PROBLEMS

1-4 credits.

Independent research guided by an AAE faculty or instructional academic staff member. Students are responsible for arranging the work and credits with the supervising instructor.

Requisites: Consent of instructor

Course Designation: Level - Advanced

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Spring 2024

A A E 701 – APPLIED ECONOMIC DATA ANALYSIS

4 credits.

Application of data science methods to economic analyses. Integration of data acquisition, cleaning, analysis, and interpretation in managerial contexts. Emphasis on applications in the agri-food supply chain.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

A A E 705 – APPLIED MICROECONOMICS

3 credits.

Focuses on developing a conceptual as well as empirical analysis of microeconomic behavior, including production and consumption analysis, technical change, and investment. Emphasizes empirical applications of microeconomics, with implications for efficiency and welfare analysis. Knowledge of statistics such as STAT/MATH 309 is recommended.

Requisites: A A E 635 and graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2020

A A E 706 – APPLIED RISK ANALYSIS

3 credits.

Conceptual empirical analysis of economic behavior under risk and its implications for management and policy decisions. Emphasis on economic applications to the agricultural and food sector.

Requisites: A A E 635 and graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2023

A A E 718 – DATA SCIENCE FOR AGRICULTURAL AND APPLIED ECONOMICS

3 credits.

Introduction to data and data processing using both Python and R programming languages. Concepts covered include loading data, data acquisition, cleaning data, visualization/exploring data, and storing data.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Summer 2023

A A E 719 – APPLIED BUSINESS ECONOMICS

3 credits.

Overview of fundamental topics related to macroeconomics, economic measurement and financial markets, with specific applications to agricultural business and policy. Concepts include fiscal and monetary policy, the money system, models of aggregate supply and demand, business cycles, financial instruments, productivity, measurements and indicators of employment and economic growth, financial institutions, forecasting, and international trade and finance.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2024

A A E 720 – SEMINAR IN QUANTITATIVE AND APPLIED ECONOMICS

1 credit.

This is a 1 credit seminar that will be offered each spring. There will be different presenters each year.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Fall 2023

A A E 721 – PROFESSIONAL COMMUNICATION OF APPLIED ECONOMIC ANALYSIS

1 credit.

Focuses on professional communication in a variety of contexts. Examples include but are not limited to: presenting results for technical and non-technical audiences, writing about research findings, synthesizing knowledge from multiple sources, and summarizing and critiquing different analysis strategies. Students will develop their writing and speaking skills by completing stand-alone tasks, and by coordinating communication tasks with exercises in simultaneously offered theory and econometric classes.

Requisites: Concurrent enrollment in A A E 636 and 771

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2024

A A E 722 – MACHINE LEARNING IN APPLIED ECONOMIC ANALYSIS

4 credits.

The basic methods, implementation and applications of machine learning for understanding contemporary economic issues using large data sets. Building upon understanding of standard econometric models, the topics include data mining techniques; regression model selection and regularization; post selection inference and economic applications; tree-based methods; neural networks; random forests and casual inference; and unsupervised learning.

Requisites: A A E 636 or ECON 704

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2023

A A E 723 – PROFESSIONAL DEVELOPMENT SEMINAR

1 credit.

Professional development for applied economists in sequential contexts. Examples include understanding and preparing for the professional economist job market; preparing and packaging job search materials; technical and non-technical interactions with potential employers and clients; understanding leadership styles and exploring leadership potential; examining professional ethics and norms; and gaining exposure to trends in professional development. Students will develop career skills by completing stand-alone activities, and by coordinating soft skill development tasks with exercises in simultaneously or previously offered theory and econometric classes.

Requisites: A A E 721

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2023

A A E 724 – PRACTICUM FOR APPLIED ECONOMISTS

4 credits.

One part of a series of courses to train students in the quantitative methods typically used by economic analysts in a professional setting. Provides students with the opportunity to synthesize the material they've learned in their coursework in a start-to-finish econometric analysis similar in scope and timeline to what they often would be expected to do in a professional setting. The final course product is a professional report. Students should think of this report as a professional analyst's Master's thesis - a demonstration of the student's training and capability for professional work, to be shared with prospective employers.

Requisites: A A E 637**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Fall 2023**A A E 730 – FRONTIERS IN DEVELOPMENT ECONOMICS 1**

3 credits.

Theory and empirical evidence on growth and development in low-income countries. Topics may include: measurement of poverty and inequality, risk and insurance, social networks, technology adoption, education, corruption, institutions, and behavioral economics.

Requisites: ECON 709 and 711**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Spring 2024**A A E 731 – FRONTIERS IN DEVELOPMENT ECONOMICS 2**

3 credits.

Theory and evidence on growth and development in emerging economies, with primary focus on globalization, trade, labor markets and human capital. We use open-economy general equilibrium models to examine welfare implications of global shocks and domestic economic policies.

Requisites: ECON 709 and 711**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Fall 2023**A A E 737 – APPLIED ECONOMETRIC ANALYSIS III**

3 credits.

Prepares students for their own empirical work by examining contemporary econometric techniques as they are used in development, environment and natural resources, and agricultural economics. Guides students through a selection of applied models using past and current research as examples. By hearing lectures and working through papers, problem sets, replication exercises, and/or research projects, students will develop a deeper understanding of the many facets of empirical research in economics.

Requisites: ECON 709 and 710**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Fall 2022**A A E 746 – FRONTIERS IN AGRICULTURAL ECONOMICS 1**

3 credits.

Economics of agricultural technology innovation and adoption, properties and measurement of production and productivity, and impact evaluation. Empirical methods, including surveys, experiments, randomized trials, and instrumental variable methods of testing applied microeconomic models.

Requisites: ECON 709 and 711**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Fall 2016**A A E/ECON 747 – FRONTIERS IN AGRICULTURAL ECONOMICS 2**

3 credits.

Organization, design, and performance of food and agricultural markets. Industrial organization; firm boundaries, contracting, and collective action; spatial, temporal, and quality dimensions of market design.

Requisites: ECON 709 and 711**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Fall 2021**A A E 750 – PROFESSIONAL DEVELOPMENT FOR AGRIBUSINESS MANAGERS**

3 credits.

Development of professional and communication skills beyond standard technical training critical for career success. Foster interpersonal and professional career skills by engaging with academic practitioners and industry professionals. Topics include verbal and written communication, project management, leadership, networking, strategic decision-making, active listening, business intelligence, teamwork, and business culture.

Requisites: Graduate/professional standing**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**A A E 760 – FRONTIERS IN ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS 1**

3 credits.

Economic tools and principles pertaining to the optimal management of natural resources. Theoretical models characterize efficient resource use and predict management decisions under different institutional settings. Empirical applications relate to public and private management of forests, fish, wildlife, minerals, and energy resources. Examples highlight the importance of discount rates, property rights, and government policies.

Requisites: ECON 709 and 711**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Spring 2024

A A E 762 – FRONTIERS IN ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS 2

3 credits.

The role of markets and government in the allocation of environmental goods and services. Topics include public goods, externalities and market failure; policy instruments for dealing with environmental quality problems such as air pollution; and distributional impacts of environmental regulations.

Requisites: ECON 709 and 711**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Fall 2023**A A E 770 – INTRODUCTION TO QUANTITATIVE METHODS IN RESOURCE AND ENERGY ECONOMICS**

3 credits.

The fundamental mathematics and statistics necessary for the study of quantitative methods in resource and energy demand. Topics include the mathematics of optimization and its role in basic welfare theory and consumer demand; linear and matrix algebra and their application in both modeling consumer behavior and the statistical analysis of models; and the fundamentals of statistical analysis relevant to econometric analysis of resource and energy demand, including probability theory, sampling distributions, and statistical inference.

Requisites: Declared in the Resource and Energy Demand Analysis program**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Summer 2020**A A E 771 – MICROECONOMICS OF RESOURCES AND ENERGY: THEORY TO PRACTICE**

3 credits.

Applying economic theory to the practice of resource and energy demand analysis. Topics include consumer demand theory and the proper modeling of demand systems, theoretical underpinnings of behavioral economics, welfare theory, cost benefit analysis and cost-effectiveness analysis, and technology adoption and diffusion.

Requisites: Declared in the Resource and Energy Demand Analysis program**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Fall 2020**A A E 772 – APPLIED ECONOMETRICS OF RESOURCE AND ENERGY DEMAND**

4 credits.

The estimation of the economic models of resource and energy demand, including evaluation of energy and resource programs, estimating demand systems in the study of dynamic pricing models, estimating discrete choice models, forecasting resource and energy demand from econometric models, and topics in the application of big-data analytics in resource and energy demand analysis.

Requisites: A A E 636 and declared in Agricultural Applied Economics: Resource and Energy Demand Analysis**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Spring 2022**A A E 773 – SEMINAR IN RESOURCE AND ENERGY DEMAND ANALYSIS**

1-2 credits.

Current issues in resource and demand analysis, with presentations by academic researchers and industry professionals, to introduce students to current issues in resource and demand analysis, and to develop their critical thinking about addressing these issues.

Requisites: Declared in the Resource and Energy Demand Analysis program**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** Yes, unlimited number of completions**Last Taught:** Spring 2021**A A E 774 – PRACTICUM IN RESOURCE AND ENERGY DEMAND ANALYSIS I**

1 credit.

The first in a 2-course sequence that comprises the capstone course in Resource and Energy Demand Analysis, in which students synthesize their training in a simulated "real world" analysis. The course is designed to reflect the full range of professional responsibilities of a resource/energy demand analyst, from data retrieval/cleaning to analysis to reporting.

Requisites: A A E 636 and declared in Agricultural Applied Economics: Resource and Energy Demand Analysis**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Spring 2021**A A E 776 – PRACTICUM IN RESOURCE AND ENERGY DEMAND ANALYSIS II**

3 credits.

The second in a 2-course sequence that comprises the capstone course in Resource and Energy Demand Analysis, in which students synthesize their training in a simulated "real world" analysis. The courses is designed to reflect the full range of professional responsibilities of a resource/energy demand analyst, from data retrieval/cleaning, to analysis, to reporting.

Requisites: A A E 772 and declared in Agricultural Applied Economics: Resource and Energy Demand Analysis**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Summer 2021

A A E 777 – SURVEY AND SAMPLE DESIGN IN APPLIED ECONOMICS

2 credits.

Teaches generation and use of survey data. Topics include identification of target population, random, stratified, cluster sampling, power analysis, survey collection implementation, retrospective and prospective surveys of respondent choice, experimental choice in survey design, and econometric modeling of respondent choices.

Requisites: Declared in the Resource and Energy Demand Analysis program

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2021

A A E 780 – RESEARCH COLLOQUIUM

3 credits.

For AAE Ph.D. students to develop a dissertation proposal. Working in groups and with some additional feedback from individual advisors. Developing research questions, literature search, word models, math models, testable hypotheses, identification strategies. Working with data, using LATEX, giving presentations. Peer review of weekly assignments. Developing cohort for subsequent feedback through dissertation writing and job search.

Requisites: Declared in Agricultural & Applied Economics, Ph.D.

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2024

A A E 799 – PRACTICUM IN AGRICULTURAL AND APPLIED ECONOMICS TEACHING

1-3 credits.

Instructional orientation to teaching at the higher education level in the agricultural and life sciences, direct teaching experience under faculty supervision, experience in testing and evaluation of students, and the analysis of teaching performance.

Requisites: Consent of instructor

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2018

A A E/POLI SCI 835 – GAME THEORY AND POLITICAL ANALYSIS

3 credits.

An introduction to the tools of game theoretic analysis, with reference to the use of game theory in political science. Intended for those desiring a basic familiarity with the theory, and for those planning further work in formal modeling.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Spring 2024

A A E 875 – SPECIAL TOPICS

1-4 credits.

Special topics on contemporary issues relevant to agricultural and applied economics.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Fall 2021

A A E/ENVIR ST/POP HLTH/PUB AFFR 881 – BENEFIT-COST ANALYSIS

3 credits.

Presents the welfare economics underpinnings for evaluating the social benefits and costs of government activities. Issues such as uncertainty, the social discount rate, and welfare weights will be discussed; case studies from the environmental, social policy, and agricultural areas will be studied.

Requisites: Graduate/professional standing and (PUB AFFR 818 and 880), or POP HLTH/ISY E 875, or A A E 635

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

Last Taught: Fall 2023

A A E 899 – AAE GRADUATE PRACTICAL TRAINING/INTERNSHIP

1-6 credits.

Real-world, hands-on collaboration with industry partners to offer practical training projects or internships under the direction and oversight of an instructor in the Department of Agricultural and Applied Economics. The goal of both internships and practical training is to offer valuable opportunities to acquire practical, industry-related skills through hands-on learning.

Requisites: Consent of instructor

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, for 3 number of completions

A A E/ANTHRO/C&E SOC/GEOG/HISTORY/LACIS/POLI SCI/PORTUG/SOC/SPANISH 982 – INTERDEPARTMENTAL SEMINAR IN THE LATIN-AMERICAN AREA

1-3 credits.

Interdisciplinary inquiry in Latin American society and culture.

Requisites: Graduate/professional standing

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Fall 2023

A A E 990 – RESEARCH AND THESIS

1-12 credits.

Independent research and writing to complete dissertation requirement.

Requisites: Consent of instructor

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Spring 2024

A A E 999 – SPECIAL WORK - AGRICULTURAL AND APPLIED ECONOMICS

1-3 credits.

Directed study projects for graduate students as arranged with a faculty member.

Requisites: Consent of instructor

Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Spring 2024