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. Enroll Info: 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. Enroll Info: None  
**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 2019

**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. Enroll Info: None  
**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 2019

**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. Enroll Info: None  
**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:** Fall 2018

**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. Enroll Info: None  
**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. Enroll Info: None  
**Requisites:** Consent of instructor  
**Repeatable for Credit:** Yes, unlimited number of completions  
**Last Taught:** Spring 2018

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

3 credits.

Introductory survey course. Decision-making processes for the manufacture, marketing, management and financing of real estate space. Survey of institutional context, economics of urbanization, historical pattern and structure of city growth, and public policy issues regarding urban environment and business management. Enroll Info: None  
**Requisites:** Sophomore standing and (ECON 101 or 111) or member of 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 2019

**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. Enroll Info: None  
**Requisites:** A A E 215, ECON 101, or 111  
**Repeatable for Credit:** Yes, unlimited number of completions  
**Last Taught:** Fall 2018
A A E 320 — FARMING SYSTEMS MANAGEMENT
3 credits.
Methods of economic analysis, planning and management applied to conventional and alternative farming systems. Enroll Info: None
Requisites: A A E 215, ECON 101, or 111
Repeatable for Credit: No
Last Taught: Fall 2018

A A E 322 — COMMODITY MARKETS
3 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. Enroll Info: None
Requisites: A A E 215, ECON 101, or 111
Repeatable for Credit: No
Last Taught: Spring 2019

A A E 323 — COOPERATIVES
3 credits.
Cooperatives: Analysis of basic principles, structure and organization, legal bases, finance, history and role in U.S. economy. Different types and uses as tools in the U.S. and developing countries. Enroll Info: None
Requisites: Junior or senior standing only
Repeatable for Credit: No
Last Taught: Fall 2018

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. Enroll Info: None
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 2018

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. Enroll Info: None
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 2019

A A E/AGRONY/INTER-AG/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. Enroll Info: None
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 2019

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. Enroll Info: None
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: Spring 2019

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. Enroll Info: None
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: Fall 2018

A A E 375 — SPECIAL TOPICS
1-4 credits.
Special topics on contemporary issues relevant to agricultural and applied economics. Enroll Info: None
Requisites: None
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2019
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. Enroll Info: None
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 2018

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. Enroll Info: 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. Enroll Info: None
Requisites: A A E 215, ECON 101, or 111
Repeatable for Credit: No
Last Taught: Fall 2018

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. Enroll Info: None
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 2018

A A E/ECON/INTL BUS 462 — LATIN AMERICAN ECONOMIC DEVELOPMENT
3 credits.

A historic-institutional analysis of development problems in the principal Latin American countries, with attention to differentiation of national growth patterns and alternative development strategies. Enroll Info: None
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 2019

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. Enroll Info: None
Requisites: A A E 215, ECON 101, or 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 2016

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. Enroll Info: None
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 2019

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. Enroll Info: None
Requisites: A A E 215, ECON 101, or 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 2018

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. Enroll Info: None
Requisites: Senior standing and (declared in Agricultural & Applied Economics, B.S. or Agricultural Business Management, B.S.)
Repeatable for Credit: No
Last Taught: Spring 2019
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. Enroll Info: None
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 2019

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. Enroll Info: None
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 2018

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. Enroll Info: None
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 2019

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. Enroll Info: None
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 2018

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. Enroll Info: None
Requisites: A A E 215, ECON 101, or 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/ECON 567 — PUBLIC FINANCE IN LESS DEVELOPED COUNTRIES
3 credits.

Potential and limitations of fiscal policy as a development instrument in low-income countries; tax harmonization in economic integration; case studies in tax reform; budgeting and planning. Enroll Info: Introductory course in economic theory, public finance or economic development recommended.
Requisites: Junior 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 2012

A A E 575 — SPECIAL TOPICS
1-4 credits.

Special topics in Agricultural Economics at the intermediate level. Topics will vary from semester to semester. Enroll Info: None
Requisites: Junior standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2012

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. Enroll Info: 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 2018
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. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2018

A A E 637 — APPLIED ECONOMETRIC ANALYSIS II
3 credits.

Extension of the standard regression model is the primary focus. Topics: 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. Enroll Info: None
Requisites: A A E 636
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2018

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. Enroll Info: None
Requisites: A A E 635 and 636
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2019

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. Enroll Info: None
Requisites: A A E 635 and 636
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2019

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. Enroll Info: None
Requisites: A A E 635 and 636
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2019

A A E/ENVIR ST/F&W ECOL 652 — DECISION METHODS FOR NATURAL RESOURCE MANAGERS
3-4 credits.

Applications of quantitative methods, including optimization and simulation, to the management of natural resources, especially forests. Enroll Info: None
Requisites: A A E 215, ECON 101, or 111
Course Designation: Gen Ed - Quantitative Reasoning Part B
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 2019

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. Enroll Info: None
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 2019

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. Enroll Info: 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. Enroll Info: 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. Enroll Info: None
Requisites: Consent of instructor
Repeatable for Credit: No
Last Taught: Fall 2014

A A E 692 — SENIOR THESIS
2 credits.

Individual study for majors completing theses for AAE degrees as arranged with a faculty member. Enroll Info: Requires consent of supervising instructor. Continuation of A A E 691.
Requisites: Consent of instructor
Repeatable for Credit: No
Last Taught: Spring 2015

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. Enroll Info: None
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 2019

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. Enroll Info: 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: Spring 2012

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. Enroll Info: None
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 2019

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. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2019

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. Enroll Info: None
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: Fall 2018

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. Enroll Info: None
Requisites: A A E 636 or ECON 704
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
A A E 729 — THE MICRODYNAMICS OF ENVIRONMENT AND DEVELOPMENT
3 credits.
Explores the intersection of environmental and development economics using advanced theoretical and empirical models to examine rural conservation and development, technology adoption and diffusion, and the dynamics of investment behavior in the presence of imperfect capital markets. Enroll Info: Prior completion of ECON 711 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 2012

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. Enroll Info: None 
**Requisites:** ECON 709 and 711 
**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement 
**Repeatable for Credit:** No 
**Last Taught:** Spring 2019

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. Enroll Info: None 
**Requisites:** ECON 709 and 711 
**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement 
**Repeatable for Credit:** No 
**Last Taught:** Fall 2018

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. Enroll Info: None 
**Requisites:** ECON 709 and 710 
**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement 
**Repeatable for Credit:** No 
**Last Taught:** Fall 2017

A A E 741 — ADVANCED POLICY ANALYSIS
3 credits.
Economic efficiency and welfare at the micro and macro levels. Role of contracts and effects of policy instruments related to pricing and trade policy, under uncertainty. Role of technology and effects of globalization in developed and developing countries. Enroll Info: None 
**Requisites:** ECON 711 
**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement 
**Repeatable for Credit:** No 
**Last Taught:** Fall 2011

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. Enroll Info: None 
**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. Enroll Info: None 
**Requisites:** ECON 709 and 711 
**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement 
**Repeatable for Credit:** No 
**Last Taught:** Fall 2011

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. Enroll Info: None 
**Requisites:** ECON 709 and 711 
**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement 
**Repeatable for Credit:** No 
**Last Taught:** Spring 2019
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. Enroll Info: None
Requisites: ECON 709 and 711
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2018

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. Enroll Info: None
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 2018

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. Enroll Info: None
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 2018

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. Enroll Info: None
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 2019

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. Enroll Info: None
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 2019

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. Enroll Info: None
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 2019
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 are designed to reflect the full range of professional responsibilities of a resource/energy demand analyst, from data retrieval/cleaning, to analysis, to reporting. Enroll Info: None
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: Spring 2019

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. Enroll Info: None
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 2018

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. Enroll Info: None
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 2019

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. Enroll Info: None
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 875 — SPECIAL TOPICS
1-4 credits.

Special topics on contemporary issues relevant to agricultural and applied economics. Enroll Info: None
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 2016

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. Enroll Info: None
Requisites: Graduate/professional standing and (PUB AFFR 818 and 880), or POP HLTH/I SY E 875, or A A E 635
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2018

A A E/ANTHRO/C&E SOC/GEOG/HISTORY/LACIS/PO6 SCI/PORTUG/ SOC/SPANISH 982 — INTERDEPARTMENTAL SEMINAR IN THE LATIN-AMERICAN AREA
1-3 credits.

Interdisciplinary inquiry in Latin American society and culture. Enroll Info: None
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 2018

A A E 990 — RESEARCH AND THESIS
1-12 credits.

Independent research and writing to complete dissertation requirement. Enroll Info: None
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 2019
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. Enroll Info: None

Requisites: Consent of instructor

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

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Fall 2018