

AGRICULTURAL AND APPLIED ECONOMICS (A A E)

A A E 101 – 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 2026

Learning Outcomes: 1. Demonstrate competency in fundamental economic concepts.

Audience: Undergraduate

2. Develop analytical tools necessary to critically analyze applied economic topics including agricultural economics.

Audience: Undergraduate

3. Evaluate a variety of economic issues and relevant policies, such as the challenges facing agriculture and related government interventions.

Audience: Undergraduate

4. Apply concepts to real life examples.

Audience: Undergraduate

5. Explain the social, economic, and/or environmental dimensions of the sustainability challenges related to farming, pollution, and population growth.

Audience: Undergraduate

6. Analyze the causes of and solutions for the sustainability challenge of agricultural and industrial production.

Audience: Undergraduate

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: Fall 2025

Learning Outcomes: 1. Demonstrate knowledge of economic concepts to think critically about relationships between economic activity and global environmental challenges ranging from climate change to biodiversity loss.

Audience: Undergraduate

2. Use appropriate tools to analyze how governmental policies affect the use and conservation of natural resources.

Audience: Undergraduate

3. Explain the social, economic, and/or environmental dimensions of the sustainability challenges of balancing healthy global economies with environmental quality.

Audience: Undergraduate

4. Analyze the causes of and solutions for the sustainability challenges of maintaining environmental quality and healthy economies.

Audience: Undergraduate

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 2026

Learning Outcomes: 1. Understand why climate change arises due to a market failure.

Audience: Undergraduate

2. Evaluate policies for reducing carbon emissions using economic concepts such as marginal costs and total welfare.

Audience: Undergraduate

3. Explain the social, economic, and/or environmental dimensions of the sustainability challenge(s) of climate change.

Audience: Undergraduate

4. Analyze the causes of and solutions for the sustainability challenge of climate change.

Audience: Undergraduate

A A E 250 – TRADING FUTURES IN COMMODITY MARKETS

1 credit.

Introduction to the engaging world of commodity futures trading. Learn to analyze market trends and make informed trading decisions using both fundamental and technical analysis techniques. Hands-on experience with real world platforms. Develop the skills needed to excel in the futures market.

Requisites: A A E 101 (215 prior to Fall 2024), ECON 101, or 111

Repeatable for Credit: No

Last Taught: Spring 2026

Learning Outcomes: 1. Apply fundamental and technical analysis skills for trading commodity futures

Audience: Undergraduate

2. Execute mock trades on commodity futures using a popular trading platform.

Audience: Undergraduate

3. Explain the real-world application of trading techniques, including risk management and brokerage practices

Audience: Undergraduate

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 2025

Learning Outcomes: 1. Develop professional skills that will lead to success in future endeavors, including preparing a resume, writing a cover letter, building a professional network, finding an internship, having a successful interview, and maximizing the job or internship experience

Audience: Undergraduate

2. Apply principles of the career development process to create short- and long-term personal career goals and implement a plan to evaluate progress toward them

Audience: Undergraduate

3. Use campus resources to help search and apply for internships and jobs

Audience: Undergraduate

4. Create professional relationships with fellow students, department alumni, potential employers, and AAE and ABM faculty and staff

Audience: Undergraduate

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

Learning Outcomes: 1. Investigate an economic topic in conjunction with other investigators to develop a deep understanding of a research problem.

Audience: Undergraduate

2. Identify a research problem and develop a basic knowledge of the academic literature on this topic.

Audience: Undergraduate

3. Use basic economic theory to frame the problem and state testable hypotheses.

Audience: Undergraduate

4. Communicate the results of investigations via written and/or oral means to an appropriate audience.

Audience: Undergraduate

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: Spring 2026

Learning Outcomes: 1. Investigate an economic topic in conjunction with other investigators to develop a deep understanding of a research problem.

Audience: Undergraduate

2. Identify a research problem and develop a basic knowledge of the academic literature on this topic.

Audience: Undergraduate

3. Use basic economic theory to frame the problem and state testable hypotheses.

Audience: Undergraduate

4. Communicate the results of investigations via written and/or oral means to an appropriate audience.

Audience: Undergraduate

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, A A E 101, or 215 prior to Fall 2024) 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 2026

Learning Outcomes: 1. Develop a working knowledge of the real estate process, including the roles of the various key real estate professionals and the unique challenges associated with the real estate asset class.

Audience: Undergraduate

2. Explain the characteristics, advantages, and disadvantages of the primary commercial real estate property types.

Audience: Undergraduate

3. Discuss the role of debt and equity in a real estate transaction as well as the fundamental terms, conditions, and requirements of commercial real estate financing.

Audience: Undergraduate

4. Navigate the basic regulatory framework governing the real estate process, including land use planning, zoning and the required project approvals.

Audience: Undergraduate

5. Describe the role of leasing in the commercial real estate transaction, including the critical terms and conditions of commercial leases.

Audience: Undergraduate

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 101 (215 prior to Fall 2024), ECON 101, or 111

Repeatable for Credit: Yes, unlimited number of completions

Last Taught: Fall 2022

Learning Outcomes: 1. Apply basic models of international trade to agricultural markets.

Audience: Undergraduate

2. Describe how different domestic policies shape international agricultural trade flows.

Audience: Undergraduate

3. Demonstrate how factors including comparative advantage, market power, and market instability impact international agricultural trade for both small and large countries.

Audience: Undergraduate

4. Summarize the current state of international agricultural trade and its effects on economic, social, and environmental outcomes.

Audience: Undergraduate

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 101 (215 prior to Fall 2024), ECON 101, or 111

Repeatable for Credit: No

Last Taught: Fall 2025

Learning Outcomes: 1. Apply economic principles for optimizing input use in agricultural production.

Audience: Undergraduate

2. Analyze a balance sheet and income statement and common agricultural modifications for depreciation, valuation basis and cash accounting.

Audience: Undergraduate

3. Describe major taxes applying to agricultural operations, commonly used business entities and their tax and legal implications, including transfer of farm assets.

Audience: Undergraduate

4. Define major federal risk management programs that support agriculture and how they function, including crop insurance and commodity support programs.

Audience: Undergraduate

5. Describe Wisconsin agriculture and the US food system, and the justification for income and commodity support programs.

Audience: Undergraduate

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 101 (215 prior to Fall 2024), 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 2026

Learning Outcomes: 1. Understand the purpose of and major operations in commodity market institutions.

Audience: Undergraduate

2. Apply economic logic and quantitative techniques to understand price relations in commodity markets.

Audience: Undergraduate

3. Understand spatial and temporal dynamics of futures prices of agricultural commodities.

Audience: Undergraduate

4. Analyze risk management strategies using futures and options.

Audience: Undergraduate

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 2026

Learning Outcomes: 1. Communicate the characteristics of cooperatives, credit unions, and other alternative forms of enterprise and their role in our economy and society.

Audience: Undergraduate

2. Describe the social, economic, and environmental dimensions of enterprise ownership structures and identify potential tradeoffs and interrelationships among these dimensions at a level appropriate to the course.

Audience: Undergraduate

3. Discern when a cooperative or alternative form of enterprise ownership is the appropriate response to a social, economic, or environmental challenge.

Audience: Undergraduate

4. Appreciate how ownership structures affect enterprise behavior, strategy, and decision-making.

Audience: Undergraduate

5. Apply knowledge of cooperatives and alternative ownership models to a real world community economic development challenge.

Audience: Undergraduate

6. Use sustainability principles for developing personal goals and professional values.

Audience: Undergraduate

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:** Spring 2026

Learning Outcomes: 1. Use basic Excel software, download and manipulate economic and financial data, and create basic formulas and functions.

Audience: Undergraduate

2. Create, refine and interpret Excel charts and other graphics with real world economic and financial data, and display and organize data using tables and PivotTables.

Audience: Undergraduate

3. Present, analyze and interpret trends and relationships among and between various economic indicators.

Audience: Undergraduate

4. Use Solver and Goal Seek to numerically find optimal solutions.

Audience: Undergraduate

A A E 336 – ECONOMIC ANALYSIS USING SPREADSHEETS

1 credit.

Build practical skills related to economic analysis and interpretation of macroeconomic data using spreadsheet software, including downloading and cleaning data; statistical analysis of economic indicators using tables, functions and descriptive statistics; and data visualization using graphs, charts and maps. Apply knowledge to real-world data sets and interpret and analyze data via a final report.

Requisites: A A E 335 or concurrent enrollment**Repeatable for Credit:** No**Last Taught:** Spring 2026

Learning Outcomes: 1. Identify appropriate economic indicators, download them to Excel, and clean, organize and prepare data for further statistical analysis.

Audience: Undergraduate

2. Create, refine and interpret Excel graphs and descriptive statistics with real world economic and financial data, and display and organize data using tables, graphs, maps and charts.

Audience: Undergraduate

3. Utilize economic theory to interpret trends in important economic indicators over time, and relationships among and between economic indicators.

Audience: Undergraduate

A A E 337 – DATA VISUALIZATION FOR AGRICULTURAL AND LIFE SCIENCES

3 credits.

Introduction to principles data visualization with applications in agricultural and life sciences. Learn to effectively communicate quantitative data via visual graphics and critically evaluate graphical data in the news and popular media. Develop practical data visualization skills in Microsoft-based programs Excel and Power BI, including tables, maps, dashboards, charts and other graphics that display trends and relationships within and between quantitative variables.

Requisites: A A E 335 or GEN BUS 106**Repeatable for Credit:** No

Learning Outcomes: 1. Identify, download and modify data related to agricultural and life sciences using Excel and Power BI.

Audience: Undergraduate

2. Apply principles of effective data visualization in Excel and Power BI, including how to choose the appropriate chart or graphic given your specific data.

Audience: Undergraduate

3. Effectively utilize color, space, axes, legends, labels and text in data visualizations.

Audience: Undergraduate

4. Critique graphs and charts used in the media and describe how graphs are designed and manipulated to tell a particular story.

Audience: Undergraduate

5. Create and design tables, charts, maps, dashboards and other graphs that are visually appealing, clear and effective at honestly representing your data.

Audience: Undergraduate

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 2025

Learning Outcomes: 1. Analyze the community food system from production, distribution, and consumption including cultural, environmental and social factors that influence food options.

Audience: Undergraduate

2. Investigate strategies communities engage to access nutrient-rich foods, including food justice/security/sovereignty movements

Audience: Undergraduate

3. Develop and conduct survey research and family oral histories to understand the significance of cultural food ways

Audience: Undergraduate

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 101 (215 prior to Fall 2024), 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 2026

Learning Outcomes: 1. Understand why environmental problems occur in a market-based economy.

Audience: Undergraduate

2. Identify market-based environmental policies to address market failures.

Audience: Undergraduate

3. Explain the social, economic, and/or environmental dimensions of the sustainability challenge(s) of pollution control.

Audience: Undergraduate

4. Apply sustainability principles and/or frameworks to addressing the challenge of optimizing the use of scarce resources over time.

Audience: Undergraduate

A A E/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 2026

Learning Outcomes: 1. Demonstrate a basic understanding of the complex links between nutrition and malnutrition.

Audience: Undergraduate

2. Learn and apply the economic tools of supply and demand to solving/analyzing issues including income and population growth, income and population policies, and agricultural supply topics.

Audience: Undergraduate

3. Synthesize knowledge about the economics and nutritional aspects of world hunger to better understand solutions.

Audience: Undergraduate

4. Communicate effectively through written reports and online discussions.

Audience: Undergraduate

5. Apply sustainability principles and/or frameworks to addressing the challenge of addressing issues of population growth, hunger and poverty.

Audience: Undergraduate

6. Describe the social, economic, and environmental dimensions of food, hunger and malnutrition. Identify potential tradeoffs and interrelationships among these dimensions at a level appropriate to the course.

Audience: Undergraduate

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 2025

Learning Outcomes: 1. Discuss the multitude of mechanisms through which human interactions with natural systems condition health and well-being outcomes in both developing and developed country contexts.

Audience: Undergraduate

2. Use positive (descriptive) economic reasoning to identify how individual and community decisions made in the face of income, political, policy, cultural, and environmental constraints lead to differential health and well-being outcomes.

Audience: Undergraduate

3. Use normative (prescriptive) economic reasoning to evaluate the efficacy of social, health, and environmental policies affecting human well-being.

Audience: Undergraduate

4. Demonstrate basic knowledge in challenge areas such air and water pollution, climate change and fisheries depletion.

Audience: Undergraduate

A A E/PL PATH/PLANTSCI 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/C&E SOC/ENTOM 103, AGRONOMY 100, HORT 120, PLANTSCI 110, BOTANY/PL PATH 123, SOC/C&E SOC 222, 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 2026

Learning Outcomes: 1. Describe the history of current organic systems and how it influences the way that organic farms and industries work.

Audience: Both Grad & Undergrad

2. Explore the biological, ecological, and agricultural underpinnings of organic production systems.

Audience: Both Grad & Undergrad

3. Examine how organic systems, social initiatives, and regulations are developed and how they shape business activities, community development efforts, and human and environmental health outcomes.

Audience: Both Grad & Undergrad

4. Evaluate the benefits and limitations of organic systems, social initiatives, and regulations from environmental, social, economic, and racial justice perspectives.

Audience: Both Grad & Undergrad

5. Analyze sustainability issues and/or practices using a systems-based approach.

Audience: Both Grad & Undergrad

6. Describe the social, economic, and environmental dimensions of organic farming and identify potential tradeoffs and interrelationships among these dimensions at a level appropriate to the course.

Audience: Both Grad & Undergrad

7. Develop the capacity to evaluate sustainability and resilience outcomes of organic and other agricultural production and processing systems using interdisciplinary methods.

Audience: Graduate

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 101 (215 prior to Fall 2024), 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 2024

Learning Outcomes: 1. Use economic tools to describe energy demand
Audience: Undergraduate

2. Apply economic models of competition to energy markets
Audience: Undergraduate

3. Analyze how policies to mitigate climate change affect energy markets
Audience: Undergraduate

4. Analyze the causes of and solutions for the sustainability challenge of climate change
Audience: Undergraduate

5. Describe the social, economic, and environmental dimensions of energy policy and identify potential tradeoffs and interrelationships among these dimensions at a level appropriate to the course
Audience: Undergraduate

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 101 (215 prior to Fall 2024), 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 2025

Learning Outcomes: 1. Develop an informed perspective on economic drivers of globalization over the past 30 years and the links between globalization, economic development and poverty in low-income countries.
Audience: Undergraduate

2. Gain familiarity with ongoing debates concerning economic policy in developing countries and the role of international institutions in influencing those decisions.
Audience: Undergraduate

3. Learn multiple sources of information regarding economic circumstances of poverty-vulnerable countries.
Audience: Undergraduate

4. Use Excel and other computational tools to analyze and interpret large, multi-dimensional datasets.
Audience: Undergraduate

5. Demonstrate competence in writing about economic issues through reflections on topic reading assignments and in academic style in two longer writing assignments.
Audience: Undergraduate

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 101 (215 prior to Fall 2024), 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 2026

Learning Outcomes: 1. Evaluate the importance of economic growth and globalization in the process of economic development of nations.

Audience: Undergraduate

2. Understand how economic theory and data can help identify and measure factors contributing to economic growth and the effects of globalization.

Audience: Undergraduate

3. Assess the historical and recent evolution of economic growth and globalization over time and across countries.

Audience: Undergraduate

4. Understand the role of policy and its effects on economic growth, globalization, and on the process of economic development.

Audience: Undergraduate

5. Demonstrate basic economic and statistical literacy for evaluating economic growth and globalization.

Audience: Undergraduate

6. Explain the social, economic, and/or environmental dimensions of the sustainability challenges of economic growth and globalization.

Audience: Undergraduate

7. Describe the social, economic, and environmental dimensions of economic growth and globalization and identify potential tradeoffs and interrelationships among these dimensions at a level appropriate to the course.

Audience: Undergraduate

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: Fall 2025

Learning Outcomes: 1. Investigate a special topic in conjunction with other investigators to develop an understanding of how economists would approach this topic.

Audience: Undergraduate

2. Understand the basic economic principles involved in the topic.

Audience: Undergraduate

3. Use basic economic theory to frame the problem and state testable hypotheses.

Audience: Undergraduate

4. Communicate the results of investigations via written and/or oral means to an appropriate audience.

Audience: Undergraduate

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 2025

Learning Outcomes: 1. Perform assigned responsibilities in a professional setting.

Audience: Undergraduate

2. Identify and employ standards of professionalism at work site.

Audience: Undergraduate

3. Articulate through discussion with faculty mentor how concepts learned in applied economics relate to real work situations.

Audience: Undergraduate

4. Synthesize and apply knowledge from the ag & applied economics curriculum and broader coursework to solve problems on the worksite.

Audience: Undergraduate

5. Create and submit a final report to a faculty mentor.

Audience: Undergraduate

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 101 (215 prior to Fall 2024), ECON 101, 111, or graduate/professional standing**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Spring 2026**Learning Outcomes:** 1. Correctly interpret accounting and financial statements

Audience: Undergraduate

2. Explain the time value of money and how this concept relates to interest rates

Audience: Undergraduate

3. Conduct firm-level investment analyses and develop capital budgeting strategies

Audience: Undergraduate

4. Summarize characteristics of agricultural credit and capital markets for both borrowers and lenders

Audience: Undergraduate

5. Construct comprehensive financial analyses of agricultural enterprises, employing advanced quantitative methodologies and techniques that extend beyond basic financial statement interpretation

Audience: Graduate

6. Integrate recent literature in financial analyses to support informed decision-making in management.

Audience: Graduate

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 2025**Learning Outcomes:** 1. Manipulate, organize, and visualize quantitative economic data using computer software.

Audience: Undergraduate

2. Conduct statistical analyses and estimate basic linear regression models of economic data.

Audience: Undergraduate

3. Correctly report and interpret results from statistical analyses in the context of informing economic decisions.

Audience: Undergraduate

4. Set up and solve linear and non-linear programming problems that inform economic decision-making using computer software.

Audience: Undergraduate

5. Integrate uncertainty into the analysis of economic decisions and articulate how uncertainty influences economic behavior.

Audience: Undergraduate

6. Effectively communicate verbally, visually, and in writing the process and results of economic decision analyses.

Audience: Undergraduate

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 101 (215 prior to Fall 2024), 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 2025

Learning Outcomes: 1. Describe food supply chain (network) components, processes, objectives, drivers and performance metrics, and the main differences in characteristics and management practices for food and agricultural supply chains compared to supply chains for non-food manufactured products.

Audience: Both Grad & Undergrad

2. Analyze sourcing and purchasing decisions for raw materials or finished goods, use business process analyses for food supply chain improvement and determine appropriate production or service capacity strategic decisions for food supply chains.

Audience: Both Grad & Undergrad

3. Apply basic inventory management decision methods, such as the Economic Order Quantity (EOQ) and Re-Order Point (ROP), decision models for logistics including transportation modes and distribution network configurations, and Sales & Operations Plans (Aggregate Plans) for a food manufacturer.

Audience: Both Grad & Undergrad

4. Describe the metrics and processes that food businesses use to monitor and improve sustainability, in the context of Corporate Social Responsibility.

Audience: Both Grad & Undergrad

5. Define the basic characteristics of a food system and its linkages to food and agricultural supply chains, and use basic systems modeling concepts for the development of qualitative assessment of food systems and understand their use in quantitative models of food systems.

Audience: Both Grad & Undergrad

6. Use systems modeling approaches to assess key food supply chain and food system issues such as the impacts of food supply chains on human nutrition, programs for farmers, agriculture research and development and localization of food systems.

Audience: Both Grad & Undergrad

7. Undertake a review of a subset of relevant literature on a topic or issue related to food supply chains or food systems (with pre-approval of the instructor), and relate the content of that review to the concepts covered in this course.

Audience: Graduate

A A E/F&W ECOL 430 – 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. Not open to students with credit for A A E 652 prior to Fall 2025.

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 2026

Learning Outcomes: 1. Quantify the timber and non-timber values of forest resources

Audience: Undergraduate

2. Describe and apply financial decision criteria to evaluate forest investments

Audience: Undergraduate

3. Explain how optimal rotation ages are determined and what factors affect this calculation

Audience: Undergraduate

4. Create harvest scheduling models and apply them to diverse landowner objectives

Audience: Undergraduate

5. Apply knowledge of mathematical models and financial theory to determine optimal rotation age for a given species and communicate findings in written and verbal formats

Audience: Undergraduate

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 101 (215 prior to Fall 2024), 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

Learning Outcomes: 1. Demonstrate mastery of the language of international development economics

Audience: Undergraduate

2. Develop proficiency in an array of concepts from primary product exports to conditional cash transfers to migration and remittances to corruption and civil conflict.

Audience: Undergraduate

3. Examine how markets and distinct development strategies and processes provide different opportunities and returns for the rich and the poor, urban and rural, latino and indigenous peoples, large and small countries, and so on.

Audience: Undergraduate

4. Explain the strengths and weaknesses of contending theories of economic development.

Audience: Undergraduate

5. Apply contending theories to markets, state policies, social initiatives, and historical experiences in Latin American countries.

Audience: Undergraduate

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 101 (215 prior to Fall 2024), 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

Learning Outcomes: 1. Demonstrate basic economic and statistical literacy relevant to the study of economic development.

Audience: Both Grad & Undergrad

2. Understand basic models of international trade and economic growth.

Audience: Both Grad & Undergrad

3. Demonstrate a working knowledge of available data on the economies of Southeast Asia.

Audience: Both Grad & Undergrad

4. Identify and analyze problems of economic development in Southeast Asia.

Audience: Undergraduate

5. Identify and analyze problems of economic development in Southeast Asia using formal methods of economic theory and evidence.

Audience: Graduate

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 101 (215 prior to Fall 2024), 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 2026

Learning Outcomes: 1. Demonstrate knowledge of current research in development economics to explain cases and identify areas that policy can influence.

Audience: Undergraduate

2. Calculate basic measures of poverty, inequality and economic development.

Audience: Undergraduate

3. Differentiate empirical methods used to analyze poverty and poverty alleviation.

Audience: Undergraduate

4. Use economic models and empirical methods to evaluate development policy.

Audience: Undergraduate

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 101 (215 prior to Fall 2024), 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 2026

Learning Outcomes: 1. Explain the economic problems of African nations including economic history, different sectors of the economy, economic development, and economic growth.

Audience: Both Grad & Undergrad

2. Use empirical evidence to evaluate an economic argument, including interpreting and explaining economic data.

Audience: Both Grad & Undergrad

3. Apply the tools of economic analysis (both theoretical and empirical tools) to evaluate specific policy proposals, especially as they relate to contemporary issues in African development.

Audience: Graduate

4. Communicate effectively in written and graphical form about issues in African development.

Audience: Both Grad & Undergrad

5. Explain the social, economic, and/or environmental dimensions of the sustainability challenges of development of African nations.

Audience: Both Grad & Undergrad

6. Analyze the causes of and solutions for the sustainability challenge of generating agricultural and economic development of African countries.

Audience: Both Grad & Undergrad

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 2026

Learning Outcomes: 1. Apply economic and business theories and tools to real world applied economic and business problems.

Audience: Undergraduate

2. Write a clear report that uses the tools of applied economics and business to answer consultant, business, and/or research questions and communicates clearly the results of analysis and data to a reader.

Audience: Undergraduate

3. Communicate effectively an oral summary of a research or consulting report or a business plan to an audience.

Audience: Undergraduate

4. Work in teams including effective project and time management, communication, and teamwork.

Audience: Undergraduate

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 2025

Learning Outcomes: 1. Synthesize an overview of economic theory as applied to small open economies.

Audience: Both Grad & Undergrad

2. Identify the strengths and weaknesses of the community's economy.

Audience: Both Grad & Undergrad

3. Implement alternative processes for affecting change at the community level.

Audience: Both Grad & Undergrad

4. Demonstrate literacy of economic factors affecting change at the local level.

Audience: Both Grad & Undergrad

5. Describe the community within a sustainable systems thinking approach.

Audience: Both Grad & Undergrad

6. Identify appropriate roles for community economic development practitioners in a variety of community settings.

Audience: Graduate

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

Learning Outcomes: 1. Develop an understanding of the use of calibrated economic models to study economic policy and the underlying applied price theory.

Audience: Both Grad & Undergrad

2. Gain expertise in the formulation of numerical economic equilibrium models with application to trade, public finance, climate and energy policy applications.

Audience: Both Grad & Undergrad

3. Describe data sources for sectoral and economy-wide policy applications of calibrated economic equilibrium models.

Audience: Both Grad & Undergrad

4. Use GAMS, Excel and other visualization tools to analyze and interpret large, multi-dimensional datasets and models.

Audience: Both Grad & Undergrad

5. Demonstrate competence in writing about economic issues on the basis of evidence-based analysis of economic policy proposals.

Audience: Both Grad & Undergrad

6. Learn equivalent formulations of partial and general economic equilibrium models in primal, dual and complementarity formats.

Audience: Graduate

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 2026

Learning Outcomes: 1. Employ appropriate concepts in order to correctly define the economic benefits accrued from different natural resources.

Audience: Both Grad & Undergrad

2. Apply appropriate methodologies and tools to demonstrate the conditions under which the benefits are likely to be captured or dissipated by real world actors.

Audience: Both Grad & Undergrad

3. Explain the social, economic, and/or environmental dimensions of the sustainability challenges of maintaining healthy supplies of forests, biodiversity, fish and wildlife, and freshwater.

Audience: Both Grad & Undergrad

4. Analyze the causes of and solutions for the sustainability challenges of maintaining healthy supplies of forests, biodiversity, fish and wildlife, and freshwater.

Audience: Both Grad & Undergrad

5. Apply academic principles of natural resource economics to a real-world policy problem.

Audience: Graduate

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

Learning Outcomes: 1. Describe major issues in economics of intellectual property protection (IPP), technology and innovation.

Audience: Both Grad & Undergrad

2. Employ basic economic analysis of IPP, technology and innovation related policy issues.

Audience: Both Grad & Undergrad

3. Articulate and critique theories and firms' commercial strategies related to IPP, technology and innovation.

Audience: Graduate

4. Communicate clearly economic and policy issues related to IPP, technology and innovation.

Audience: Both Grad & Undergrad

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 101 (215 prior to Fall 2024), 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: Spring 2026

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

Last Taught: Summer 2025

Learning Outcomes: 1. Apply microeconomic theories to explain consumer behavior and business strategy

Audience: Graduate

2. Explain market equilibrium and price determination

Audience: Graduate

3. Evaluate government policy, such as taxes, regulation, and subsidies

Audience: Graduate

4. Describe the costs and benefits of international trade

Audience: Graduate

5. Discuss fundamental macroeconomic concepts, such as GDP, unemployment, and inflation

Audience: Graduate

6. Critically evaluate economic arguments in media and policy sources

Audience: Graduate

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 2026

Learning Outcomes: 1. Evaluate the different organizational and operational structures of contemporary agricultural businesses and the advantages and disadvantages of each.

Audience: Both Grad & Undergrad

2. Identify the role and impact of marketing and human resource management used in decision making within the firm and across the supply chain.

Audience: Both Grad & Undergrad

3. Interpret financial statements and calculate and analyze a variety of important financial ratios used in making managerial decisions.

Audience: Both Grad & Undergrad

4. Examine an agricultural business to determine its strengths, weaknesses, and opportunities for improvement.

Audience: Both Grad & Undergrad

5. Explain the profit function and how to determine areas of profit maximization and cost minimization.

Audience: Graduate

6. Evaluate various pricing and competition strategies.

Audience: Graduate

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 2025

Learning Outcomes: 1. Apply models of economic problems such as production and consumption allocations and the efficiency consequences.
Audience: Both Grad & Undergrad

2. Use models for applied economic analysis.

Audience: Both Grad & Undergrad

3. Articulate and critique theories and practices in such analyses.

Audience: Graduate

4. Communicate clearly economic and policy issues related to such analyses.

Audience: Graduate

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 2025

Learning Outcomes: 1. Understand the technical aspects of linear regression and statistical inference.

Audience: Graduate

2. Critically evaluate estimates of linear models.

Audience: Graduate

3. Gauge the appropriateness of different model assumptions for different types of applied problems.

Audience: Graduate

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 2026

Learning Outcomes: 1. Extend the standard linear regression models to nonlinear regression models, estimate them, and interpret the results.

Audience: Graduate

2. Estimate models beyond ordinary least squares (OLS), to include Maximum Likelihood (MLE), analysis of discrete choice and limited dependent variables.

Audience: Graduate

3. Provide an overview of the latest techniques being developed using panel data and apply these methods in an independent estimation exercise.

Audience: Graduate

4. Select the experimental or quasi-experimental method appropriate for the analysis at hand.

Audience: Graduate

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

Learning Outcomes: 1. Understand common models used by economists who study agriculture.

Audience: Graduate

2. Describe the importance of institutions (formal and informal) common to food and agricultural industries.

Audience: Graduate

3. Understand contemporary issues related to agricultural economics and linkages between agriculture and the broader economy, including interactions with land, water and soil resources; connections to food, fuel, and fiber industries; role in early development of societies and nation states; rural-urban population flows; and growth and development of modern economies.

Audience: Graduate

4. Analyze policies that are a response to market frictions and distributive conflict among populations.

Audience: Graduate

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 2025

Learning Outcomes: 1. Articulate and critique theories of development economics, including basic closed and open economy macroeconomic models, microeconomic models of individual and household decisions to invest in human capital, agricultural household models, models of credit and insurance markets in developing countries, and a basic understanding of technology adoption decisions.

Audience: Graduate

2. Apply measures of poverty and inequality using household data.

Audience: Graduate

3. Identify and apply empirical approaches used to analyze problems in development, including the use of observational data, both cross-sectional and panel, natural experiments, and intentional experiments.

Audience: Graduate

4. Use economic models and empirical methods to evaluate development policy or issues relevant to developing economies and be able to clearly communicate this analysis orally and in writing.

Audience: Graduate

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

Learning Outcomes: 1. Summarize the breadth of topics that constitute the field of environmental economics.

Audience: Graduate

2. Use the field's historical canon to organize current research topics.

Audience: Graduate

3. Critically read and assess research papers in the field.

Audience: Graduate

4. Identify knowledge gaps in the field.

Audience: Graduate

5. Demonstrate knowledge about significant research in the field by writing a literature summary.

Audience: Graduate

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, A A E 101, or 215 prior to Fall 2024) and (MATH 211, 217, or 221) or graduate/professional standing

Repeatable for Credit: No

Last Taught: Summer 2024

Learning Outcomes: 1. Solve a constrained optimization problem by applying calculus rules.

Audience: Undergraduate

2. Create and interpret basic data visualizations.

Audience: Undergraduate

3. Articulate the law of large numbers as it pertains to empirical economic analysis.

Audience: Undergraduate

4. Determine statistical significance of parameter estimates & interpret the results.

Audience: Undergraduate

5. Use R for basic calculations and simulations.

Audience: Undergraduate

6. Explain statistical concepts to a general audience.

Audience: Undergraduate

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 ECON 101, 111, A A E 101, or 215 prior to Fall 2024)

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

Learning Outcomes: 1. Understand fundamentals of energy sources and technologies.

Audience: Both Grad & Undergrad

2. Be familiar with microeconomic theory with applications to energy industries and markets.

Audience: Both Grad & Undergrad

3. Build analytical skills in economic analysis and be able to apply the economic thinking to historical and contemporary energy-related issues.

Audience: Graduate

4. Analyze the causes of and solutions for the sustainability challenge of affordable and clean energy.

Audience: Both Grad & Undergrad

5. Apply sustainability principles and/or frameworks to addressing the challenge of affordable and clean energy.

Audience: Both Grad & Undergrad

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

Learning Outcomes: 1. Investigate a topic in conjunction with other investigators to develop a deep understanding of a research problem.

Audience: Undergraduate

2. Identify a research problem and develop a set of testable hypotheses.

Audience: Undergraduate

3. Carry out analysis using data and/or economic models related to the research problem under investigation.

Audience: Undergraduate

4. Communicate the results of investigations via written and/or oral means to an appropriate audience.

Audience: Undergraduate

5. Write an honors thesis that contains an abstract, background, a demonstration of research skills, analysis of the research question, and a summary of the impact of the work.

Audience: Undergraduate

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

Learning Outcomes: 1. Investigate a topic in conjunction with other investigators to develop a deep understanding of a research problem.

Audience: Undergraduate

2. Identify a research problem and develop a set of testable hypotheses.

Audience: Undergraduate

3. Carry out analysis using data and/or economic models related to the research problem under investigation.

Audience: Undergraduate

4. Communicate the results of investigations via written and/or oral means to an appropriate audience.

Audience: Undergraduate

5. Write an honors thesis that contains an abstract, background, a demonstration of research skills, analysis of the research question, and a summary of the impact of the work.

Audience: Undergraduate

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

Learning Outcomes: 1. Investigate a topic in conjunction with other investigators to develop a deep understanding of a research problem.

Audience: Undergraduate

2. Identify a research problem and develop a set of testable hypotheses.

Audience: Undergraduate

3. Carry out analysis using data and/or economic models related to the research problem under investigation.

Audience: Undergraduate

4. Communicate the results of investigations via written and/or oral means to an appropriate audience.

Audience: Undergraduate

5. Write a thesis that contextualizes the work, presents the research question, describes the analysis performed to answer the question, and analyzes the results.

Audience: Undergraduate

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

Learning Outcomes: 1. Investigate a topic in conjunction with other investigators to develop a deep understanding of a research problem.

Audience: Undergraduate

2. Identify a research problem and develop a set of testable hypotheses.

Audience: Undergraduate

3. Carry out analysis using data and/or economic models related to the research problem under investigation.

Audience: Undergraduate

4. Communicate the results of investigations via written and/or oral means to an appropriate audience.

Audience: Undergraduate

5. Write a thesis that contextualizes the work, presents the research question, describes the analysis performed to answer the question, and analyzes the results.

Audience: Undergraduate

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: Fall 2025

Learning Outcomes: 1. Investigate a special topic in conjunction with the faculty member and other investigators to develop an understanding of how economists would approach this topic.

Audience: Undergraduate

2. Meet with the faculty member based on their requirements and demonstrate how the independent work is progressing.

Audience: Undergraduate

3. Communicate the results of investigations via written and/or oral means to an appropriate audience.

Audience: Undergraduate

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

Learning Outcomes: 1. Manipulate, organize, and visualize quantitative economic data using computer software

Audience: Graduate

2. Conduct statistical analyses and estimate basic linear regression models of economic data

Audience: Graduate

3. Correctly report and interpret results from statistical analyses of economic data in the context of informing managerial decisions

Audience: Graduate

4. Set up and solve linear and non-linear programming problems that inform economic decision-making using computer software

Audience: Graduate

5. Integrate uncertainty into the analysis of economic decisions and articulate how uncertainty influences managerial decisionmaking

Audience: Graduate

6. Effectively communicate verbally, visually, and in writing the process and results of data analysis for managerial decisionmaking

Audience: Graduate

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

Learning Outcomes: 1. Understand formal models of economic problems such as production and consumption allocations and the efficiency consequences.

Audience: Graduate

2. Employ analytical and mathematical models to analyze economic problems.

Audience: Graduate

3. Articulate and critique theories and practices in such analyses.

Audience: Graduate

4. Communicate clearly economic and policy issues related to such analyses.

Audience: Graduate

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

Learning Outcomes: 1. Evaluate the linkages between economic theory and the analysis of behavior under risk.

Audience: Graduate

2. Describe and employ alternative models used in risk analysis.

Audience: Graduate

3. Formulate, analyze and report on current and emerging issues related to risk assessment, risk management and public decision making related to risk management.

Audience: Graduate

4. Conduct applied risk analysis.

Audience: Graduate

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 2025

Learning Outcomes: 1. Use Python and R to load, clean and visualize data.

Audience: Graduate

2. Prepare and manipulate/transform data to support analysis in Python and R.

Audience: Graduate

3. Create effective visualizations to communicate complex data.

Audience: Graduate

4. Implement Simple Linear Regression in Python and R.

Audience: Graduate

5. Apply the above R and Python methods to public-use datasets related to agricultural and applied economics.

Audience: Graduate

A A E 719 – APPLIED BUSINESS ECONOMICS

4 credits.

Overview of fundamental topics related to macroeconomics, economic measurement, financial markets and forecasting. 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, international trade and finance, and various forecasting methods and models.

Requisites: Graduate/professional standing**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Spring 2026**Learning Outcomes:** 1. Explain, contrast and analyze topics related to business economics such as forecasting, business cycle analysis, fiscal and monetary policy, and financial markets.

Audience: Graduate

2. Compare and contrast the relevant strengths and weaknesses of established macroeconomic theories.

Audience: Graduate

3. Identify and visualize data related to business economics, analyze trends in light of macroeconomic principles, and apply forecasting methods.

Audience: Graduate

4. Effectively communicate relevant ideas through writing and presentation.

Audience: Graduate

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 2025**Learning Outcomes:** 1. Understand and evaluate the arguments and methods of presentations from industry and academia.

Audience: Graduate

2. Employ the vocabulary relevant to an economics topic, understand the economic context for the issue, and pros/cons associated with potential solutions.

Audience: Graduate

3. Professionally present results of economic analysis.

Audience: Graduate

A A E 721 – PROFESSIONAL COMMUNICATION OF APPLIED ECONOMIC ANALYSIS

1 credit.

Professional communication for careers in applied economics. Writing for technical and non-technical audiences, including writing about research findings, client memos executive summaries, detailed analysis reports etc.

Requisites: A A E 636**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Last Taught:** Spring 2026**Learning Outcomes:** 1. Identify and use elements of reader-friendly writing strategies

Audience: Graduate

2. Communicate effectively with technical and non-technical audiences

Audience: Graduate

3. Summarize different types of econometric analyses and explain the intuition behind them to non-economists

Audience: Graduate

4. Situate analysis results into a larger context and reflect on their implications

Audience: Graduate

5. Differentiate between some of the ethical and non-ethical uses of generative AI tools as writing/editing assistants in a professional setting

Audience: Graduate

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 2025**Learning Outcomes:** 1. Describe and explain the mechanics of basic machine learning methods

Audience: Graduate

2. Employ data exploration and visualization tools for analyzing large amounts of data

Audience: Graduate

3. Select model and conduct post-selection inference of high-dimensional data

Audience: Graduate

4. Apply machine learning methods on large data sets for economic and policy analysis

Audience: Graduate

5. Demonstrate the ability to use statistical packages for methods covered in the course

Audience: Graduate

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 2025**Learning Outcomes:** 1. Summarize different career paths for applied economists.

Audience: Graduate

2. Produce a suite of written materials, including a resume, curriculum vitae, online webpage and short project proposals.

Audience: Graduate

3. Identify and apply for specific jobs, including writing targeted cover letters.

Audience: Graduate

4. Organize and apply strategies for in-person interviewing by participating in practice interviews.

Audience: Graduate

A A E 724 – PRACTICUM FOR APPLIED ECONOMISTS

4 credits.

Quantitative methods typically used by economic analysts in a professional setting. Synthesize and apply previous coursework to conduct econometric analysis and produce a professional report.

Requisites: A A E 637 or 719

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

Repeatable for Credit: No

Last Taught: Spring 2026

Learning Outcomes: 1. Identify and clarify project objectives

Audience: Graduate

2. Identify and prepare the data to be used to meet the project objectives

Audience: Graduate

3. Develop the relevant analytical approach and the models to be used in the analysis

Audience: Graduate

4. Conduct the analysis and report analysis results and conclusions in a written report

Audience: Graduate

5. Communicate clearly both in written report and oral presentation relevant applied economic and policy issues in the analysis

Audience: Graduate

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

Learning Outcomes: 1. Construct models of credit and insurance markets in developing countries and measure their impacts empirically.

Audience: Graduate

2. Measure corruption and governance and their impact on economic development.

Audience: Graduate

3. Use and evaluate econometric concepts including fixed effects, attenuation bias, and instrumental variables.

Audience: Graduate

4. Think critically about empirical research and write a referee report.

Audience: Graduate

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 2025

Learning Outcomes: 1. Understand the general equilibrium approach to problems of economic growth and development.

Audience: Graduate

2. Understand intersectoral linkages in factor and product markets as well as the constraints imposed by resource endowments, international markets, and domestic technology and preferences.

Audience: Graduate

3. Apply models to parse the economic effects of exogenous events such as resource export booms, world market shocks and domestic policy innovations on prices, sectoral production, investment incentives, incomes and income distribution, and key measures of poverty and household welfare.

Audience: Graduate

4. Interpret the implications of these results for long-run economic growth and development, including some political economy aspects.

Audience: Graduate

5. Understand and work creatively with models of international trade and globalization insofar as they inform the development process.

Audience: Graduate

A A E 737 – APPLIED ECONOMETRIC ANALYSIS III

3 credits.

Preparation for empirical work by examining contemporary econometric techniques as they are used in development, environment and natural resources, and agricultural economics. Review a selection of applied models using past and current research as examples. Develop a deeper understanding of the many facets of empirical research in economics.

Requisites: (ECON 709 and 710) or (A A E 636 and 637)

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

Repeatable for Credit: No

Last Taught: Fall 2024

Learning Outcomes: 1. Explain and assess the concepts of causal inference and identification in econometric analyses.

Audience: Graduate

2. Articulate the necessary assumptions underpinning various applied identification strategies.

Audience: Graduate

3. Assess and critique specific applications of various identification strategies.

Audience: Graduate

4. Conduct and interpret econometric analyses applying various identification strategies using statistical software.

Audience: Graduate

5. Summarize ongoing debates about the validity of empirical research in economics including issues of internal validity, external validity, and replicability.

Audience: Graduate

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 2025

Learning Outcomes: 1. Understand the tools used in applied policy analysis.

Audience: Graduate

2. Apply economic concepts to analyze efficiency and equity impacts of policies.

Audience: Graduate

3. Understand the role of uncertainty in analyzing impacts of policy.

Audience: Graduate

4. Understand how political factors may constrain or impact policy choices.

Audience: Graduate

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

Learning Outcomes: 1. Describe the general state and history of the American agricultural sector, agricultural policy, and the major subfields of agricultural economics.

Audience: Graduate

2. Apply and extend economic models in agricultural contexts to evaluate or predict economic behavior or outcomes.

Audience: Graduate

3. Conduct and interpret econometric analyses motivated by economic theory.

Audience: Graduate

4. Synthesize and summarize research in the field of agricultural economics through clear writing.

Audience: Graduate

5. Generate interesting and relevant research questions informed by the economic literature.

Audience: Graduate

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

Learning Outcomes: 1. Describe and evaluate information presented orally through the use of active listening skills

Audience: Graduate

2. Communicate orally and in writing with technical and non-technical audiences

Audience: Graduate

3. Apply communication skills to the larger context of strategic decision-making

Audience: Graduate

4. Assess the implications of management decisions

Audience: Graduate

5. Discuss professional ethics and norms, leadership styles, and business culture

Audience: Graduate

6. Develop written materials for the job-search

Audience: Graduate

7. Communicate formally and informally with potential employers

Audience: Graduate

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 2026

Learning Outcomes: 1. Model the dynamic management of natural resources by rational economic actors.

Audience: Graduate

2. Apply appropriate methodologies to demonstrate the conditions under which benefits from resources are likely to be captured or dissipated by real world actors.

Audience: Graduate

3. Develop and hone presentation skills.

Audience: Graduate

4. Develop the beginning of their own research agenda.

Audience: Graduate

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 2025

Learning Outcomes: 1. Read research papers with an eye towards understanding, critiquing, and extending research in environmental economics.

Audience: Graduate

2. Hone presentation skills related to peer interactions about research ideas.

Audience: Graduate

3. Develop a working knowledge of the frontier or research in key areas in environmental economics.

Audience: Graduate

4. Begin to develop their own research ideas.

Audience: Graduate

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 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 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.

Covers research methods to support development of a research paper proposal in agricultural and applied economics. Supports development of research interests and provides structured opportunities to develop skills in fully executing a research paper. Opportunities to refine research interests, identify gaps in the literature, and explore academic creativity. Gain experience lining up data, doing analysis, sifting through and presenting results, framing a contribution, producing a full paper, responding to critiques, and orally presenting findings.

Requisites: Declared in Agricultural & Applied Economics PhD

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

Repeatable for Credit: No

Last Taught: Spring 2026

Learning Outcomes: 1. Give constructive peer feedback.

Audience: Graduate

2. Compose a research paper proposal.

Audience: Graduate

3. Produce a clear and professional research paper proposal presentation.

Audience: Graduate

4. Summarize the main characteristics of the data and empirical strategy for the paper.

Audience: Graduate

A A E 781 – APPLIED ECONOMICS RESEARCH AND WRITING COLLOQUIUM

1 credit.

Provides structured guidance in executing, writing, and presenting a research paper, with emphasis on data analysis, interpreting and framing results, drafting and revising the paper, and delivering an oral presentation.

Requisites: A A E 780**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement**Repeatable for Credit:** No**Learning Outcomes:** 1. Communicate research questions, methods, and findings clearly to academic audiences.

Audience: Graduate

2. Revise and refine scholarly writing to meet standards of originality, rigor, and clarity.

Audience: Graduate

3. Incorporate constructive feedback effectively into the development of a research paper.

Audience: Graduate

4. Synthesize data analysis, literature, and argumentation into a coherent research paper.

Audience: Graduate

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 2026**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 2025**Learning Outcomes:** 1. Analyze and critique research in applied economics.

Audience: Graduate

2. Evaluate the significance of current research in applied economics by presenting and/or critiquing scientific presentations.

Audience: Graduate

3. Synthesize the state of the literature related to the applied economics topic being studied.

Audience: Graduate

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 2025**Learning Outcomes:** 1. Explain the basic mechanics of performing a Cost Benefit Analysis, including methods for valuing costs and benefits, aggregating over time, and analyzing uncertainties.

Audience: Graduate

2. Evaluate the strengths and weaknesses of different CBAs and propose strategies to address any shortcomings.

Audience: Graduate

3. Debate the advantages and limitations of CBA for public policy and compare it to other approaches.

Audience: Graduate

4. Create a CBA for a real-world client from beginning to end, including scoping, background research, valuation of costs and benefits, uncertainty analysis, and interpretation.

Audience: Graduate

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**Last Taught:** Spring 2026

Learning Outcomes: 1. Apply theoretical knowledge gained in coursework to an experiential learning opportunity with a stakeholder business/organization
Audience: Graduate

2. Produce and deliver recommendations to stakeholder business/organization through a formal written report and professional oral presentation

Audience: Graduate

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 2025**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 2026

Learning Outcomes: 1. Conduct and report on applied economics research under the guidance of a qualified instructor.

Audience: Graduate

2. Develop novel research questions and propose methods to answer the questions using tools from applied economics.

Audience: Graduate

3. Connect their research clearly to other research in their field of study.

Audience: Graduate

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:** Fall 2025

Learning Outcomes: 1. Conduct and report on independent applied economics research topic under the guidance of a qualified instructor.
Audience: Graduate

2. Independently develop research questions in agricultural or applied economics.

Audience: Graduate

3. Connect their research to the broader literature and express where the research makes new contributions.

Audience: Graduate