

# AGRICULTURAL ECONOMICS

The Department of Agricultural Economics at Oklahoma State University offers programs of study leading to the BS, MS, MAg and PhD degrees in Agricultural Economics and the BS and MAg degree in Agribusiness. Agricultural economics and agribusiness curricula study the economic relationships among individuals, firms and service agencies in agriculture and between the agricultural sector and other sectors of the economy. The department's courses emphasize the economic issues and concepts associated with producing, processing, marketing, and consuming agricultural goods and services and those used in the industry.

Undergraduate programs in Agricultural Economics and Agribusiness combine instruction in technical agricultural sciences with education in the application of economic and business management principles and tools. The agricultural economist or agribusiness person draws upon the physical and social sciences to outline, understand and solve economic problems created by agriculture's dynamic operating environment. Curricula in the Department of Agricultural Economics emphasize the decision-making and problem-solving skills used in the management of agricultural production and marketing firms.

Study in agricultural economics or agribusiness prepares students to excel in many challenging careers. Many graduates work to improve food production and processing throughout the world. Other graduates work with government policies that affect the food and fiber sector. Others assist rural communities to adjust and thrive in the rapidly changing world. Graduates also help protect and maintain natural resources and the environment for the greatest benefit of society. Many graduates choose career paths that lead them far from the farm; and others choose to return to family businesses.

## Agricultural Economics

The Agricultural Economics BS degree trains students to analyze problems and make decisions using a solid framework of economic, business, mathematical and statistical principles. Students may tailor study to a wide variety of career interests. The Agricultural Economics degree plan emphasizes in quantitative studies including calculus and statistical methods. The degree prepares students for graduate study in agricultural economics or related fields or for a variety of employment opportunities at competitive salaries in private industry and government agencies that require more quantitative skills.

## Agribusiness

The Agribusiness BS degree trains students to analyze problems and make decisions using a solid framework of economic and business principles. In addition, the agribusiness degree targets the skills needed for careers in agribusiness firms, including all areas of food and fiber production, processing and marketing. Students may choose from nine degree options: Farm and Ranch Management, Crop and Soil Science, International, Pre-Law, Pre-Veterinary Business Management, Natural Resources, and Community and Regional Analysis, or a double major with Agricultural Communications or Accounting. Agribusiness students also may develop a minor area of study or other double major by selecting various course electives. Employment opportunities for agribusiness graduates are widely diverse, including jobs with farms, agricultural advisors, processing firms, wholesalers and retailers of food and fiber products, farm input supply firms, banks and other financial services firms, utilities and educational institutions.

## Minor in Agricultural Economics and Agribusiness

The minor helps students understand the basics of economics and business within the context of Agricultural Sciences and Natural Resources. Requirements of the minor include an introduction to Agricultural Economics or Microeconomics and Financial Accounting or Survey of Accounting plus 15 hours controlled electives of upper division Agricultural Economics courses.

## Minor in Environmental Economics, Politics and Policy

This minor offered in cooperation with Political Science helps students understand economics, politics and policy issues related to environmental issues. Requirements of the minor include an introduction to Agricultural Economics or Microeconomics, a 3000-level environmental economics course, Environmental Economics and Resource Development and 12 hours controlled electives from related upper-division courses.

## Minor in Agricultural Real Estate Appraisal

This minor helps students understand the basis of agricultural real estate appraisal. Requirements of the minor include financial and managerial accounting or survey of accounting and foundational accounting skills, statistics, quantitative methods in agricultural economics, farm and agribusiness management, agricultural finance and farm appraisal.

## Courses

### AGEC 1101 Agricultural Economics and Agribusiness Experience

**Description:** Developing connections between the student's major curriculum, career goals specific to agricultural economics or agribusiness, and networking with other students, faculty and alumni.

**Credit hours:** 1

**Contact hours:** Lecture: 1 Contact: 1

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Agricultural Economics

### AGEC 1113 Introduction to Agricultural Economics (S)

**Description:** Economic theory of production, marketing, and consumption of agricultural products and natural resources. The role and structure of agricultural sciences and natural resources within the American economy. Policies to achieve efficiency and welfare goals in agriculture.

No general education credit for students also taking ECON 1113 or ECON 2103. Previously offered as AGECE 1114.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Agricultural Economics

**General Education and other Course Attributes:** Society & Human Behavior

**AGEC 2303 Food Marketing to a Diverse Population (D)**

**Description:** Food and beverage demand and preferences of socially and ethnically constructed groups in American Society. Real life issues of marketing to a diverse population, including Native, Asian, African and Hispanic Americans, and low-income populations.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Agricultural Economics

**General Education and other Course Attributes:** Diversity

**AGEC 2313 Case Studies in Agricultural Trade and Development**

**Prerequisites:** A course in economics or marketing.

**Description:** Real world issues in international trade and development of agricultural and food products. Development of an understanding of issues facing policymakers, producers, consumers, and other groups in examining the costs and benefits of various trade and development programs.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Agricultural Economics

**AGEC 2990 Problems in Agricultural Economics and Agribusiness**

**Description:** Directed study on topics related to agricultural economics or agribusiness. Offered for variable credit, 1-3 credit hours, maximum of 6 credit hours.

**Credit hours:** 1-6

**Contact hours:** Contact: 1-6 Other: 1-6

**Levels:** Undergraduate

**Schedule types:** Independent Study

**Department/School:** Agricultural Economics

**AGEC 3010 Internship in Agricultural Economics**

**Prerequisites:** Approval of internship committee and advisor.

**Description:** Supervised work experience with approved public and private employers in agricultural economics, including banks, farm credit services, agriculture chemical firms, Soil Conservation Service, congressional offices and other opportunities. Credit will not substitute for required courses. Graded on a pass-fail basis. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.

**Credit hours:** 1-3

**Contact hours:** Contact: 1-3 Other: 1-3

**Levels:** Undergraduate

**Schedule types:** Independent Study

**Department/School:** Agricultural Economics

**AGEC 3023 Farm to Fork**

**Description:** Survey of agriculture and natural resources and their relationships to society. Role of advanced scientific technologies in alternative systems of food production and distribution.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Agricultural Economics

**AGEC 3101 Professional Career Development**

**Prerequisites:** Major in Agricultural Economics or Agribusiness or consent of instructor.

**Description:** Overview of the various areas of specialization within agricultural economics and agribusiness and their associated career opportunities and obligations. Development and improvement of written communication, oral communication and leadership skills. Previously offered as AGECE 4902.

**Credit hours:** 1

**Contact hours:** Lecture: 1 Contact: 1

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Agricultural Economics

**AGEC 3183 Agribusiness Accounting and Taxation**

**Prerequisites:** 60 semester credit hours, including ENGL 1113 and MATH 1513 or equivalent.

**Description:** Development of the ability to read, analyze, and use accounting information to improve decision-making and tax planning. Same course as ACCT 3183.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Agricultural Economics

**AGEC 3213 Quantitative Methods in Agricultural Economics**

**Prerequisites:** (AGEC 1113 or ECON 2003 or ECON 2103) and (MATH 1483 or MATH 1513 or MATH 2103 or MATH 2144, each with a grade of "C" or better; or Math placement score required for MATH 2103 (see placement.okstate.edu)).

**Description:** Indices, graphics, budgeting, interest calculations, compounding and discounting, basic statistic measures, regression, optimization and computer applications.

**Credit hours:** 3

**Contact hours:** Lecture: 2 Lab: 2 Contact: 4

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Agricultural Economics

**AGEC 3323 Agricultural Product Marketing and Sales**

**Prerequisites:** 40 semester credit hours, including (AGEC 1113 or ECON 2003 or ECON 2103) and ENGL 1113.

**Description:** Fundamentals of agricultural marketing management and planning applied to specific agricultural product (input and output) marketing problems. Institutional differences between agricultural and non-agricultural marketing environments. The role of the individual sales representative in a marketing and sales organization. Written and oral presentations of marketing and sales information required of all students. Previously offered as AGECE 4313.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Agricultural Economics

**AGEC 3333 Agricultural Marketing and Price Analysis****Prerequisites:** AGECE 3213.**Description:** Supply, demand, and price determination within the institutional environment of agricultural commodity markets. Roles provided by government intervention, marketing agreements, and cooperatives in agricultural markets. Includes graphical, mathematical, and statistical analysis of commodity markets. Fundamentals of futures markets applied to agriculture. Previously offered as AGECE 3303.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGECE 3403 Agricultural Small Business Management****Prerequisites:** (AGECE 1113 or ECON 2003 or ECON 2103) and (ACCT 2003 or ACCT 2103 or ACCT 3183 or AGECE 3183).**Description:** The essentials of operating an agricultural small business. An introduction to the planning, organizing, marketing, managing, financing, controlling and operating an agricultural small business. Not recommended for agricultural economics or agribusiness majors. No credit for students with prior credit in 4423.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGECE 3423 Farm and Agribusiness Management****Prerequisites:** (AGECE 1113 or ECON 2003 or ECON 2103) and (ACCT 2003 or ACCT 2103 or ACCT 3183 or AGECE 3183).**Description:** Fundamentals of managerial functions as applied to agricultural firms. Organization and management of human, financial, and physical assets for the profitable operation of an agricultural business. An introduction to business planning, enterprise budgeting, financial statements and record keeping. Previously offered as AGECE 3413.**Credit hours:** 3**Contact hours:** Lecture: 2 Contact: 3 Other: 1**Levels:** Undergraduate**Schedule types:** Discussion, Combined lecture & discussion, Lecture**Department/School:** Agricultural Economics**AGECE 3463 Agricultural Cooperatives****Prerequisites:** AGECE 1113 or ECON 2003 or ECON 2103.**Description:** An evaluation of the fundamental principles, objectives, structure, finance, and management associated with the cooperative organization. An analysis of the cooperative business organization within the modern economy: history, legislation and evolution. An examination of careers related to cooperatives. Previously offered as AGECE 3313.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGECE 3503 Natural Resource Economics****Prerequisites:** AGECE 1113 or ECON 2003 or ECON 2103.**Description:** Framework for analyzing natural resource management decisions. Applications of microeconomic theory to the management of soil, water, and other resources, with special emphasis on the institutions having an impact on management opportunities. Supply of and demand for natural resources, resource allocation over time, rights of ownership, public issues of taxation, police power and eminent domain.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGECE 3603 Agricultural Finance****Prerequisites:** ("C" or better in AGECE 3213 and AGECE 3423) and (ACCT 2203 or ACCT 2003).**Description:** Analyze farm and agribusiness financial statements. Understand the relationship between firm growth and financial leverage. Time value of money concepts and their application to capital budgeting. Discuss how agricultural lenders acquire and use funds.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGECE 3703 Issues in Agricultural Policy****Prerequisites:** AGECE 1113 or ECON 2003 or ECON 2103.**Description:** Emerging issues related to agricultural policy in the United States.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGECE 3713 Agricultural Law****Prerequisites:** 40 semester credit hours, including AGECE 1113 or ECON 2003 or ECON 2103.**Description:** Survey of law with emphasis on agricultural problems, applications, and strategies for managing legal risk in the agribusiness setting. Contract law, tort law, property law, real estate transactions, business organization, estate planning, debtor/creditor law, environmental law and water/resources law. Previously offered as AGECE 4413.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGECE 3723 Environmental Law for Agriculture and Natural Resources****Description:** Analysis of U.S. environmental laws and regulations with application to agricultural production and natural resource management.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Agricultural Economics

**AGEC 3803 International Agricultural Economics Tour (I)****Prerequisites:** Consent of instructor.**Description:** A two-three week international travel component. An integrated approach to the cultural, agricultural, historical, technological, political, economic, and religious backgrounds of the region. Comparison of the agricultural business environment of the region to that of the U.S. Previously offered as AGEC 4803.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**General Education and other Course Attributes:** International Dimension**AGEC 3810 Domestic Agricultural Economics Tour****Prerequisites:** Consent of instructor.**Description:** An integrated approach to the cultural, agricultural, historical, technological, political and economic backgrounds of an agricultural region of the United States. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.**Credit hours:** 1-3**Contact hours:** Lecture: 1-3 Contact: 1-3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 3990 Special Problems in Agricultural Economics****Description:** Directed study of selected agricultural economics topics. Offered for variable credit, 1-3 credit hours, maximum of 3 credit hours.**Credit hours:** 1-3**Contact hours:** Contact: 1-3 Other: 1-3**Levels:** Undergraduate**Schedule types:** Independent Study**Department/School:** Agricultural Economics**AGEC 4101 Agricultural Economics Seminar****Prerequisites:** Senior standing and agricultural economics or agribusiness major status.**Description:** Contemporary problems in agricultural economics. Previously offered as AGEC 4911.**Credit hours:** 1**Contact hours:** Lecture: 1 Contact: 1**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 4213 Advanced Quantitative Methods in Agricultural Economics****Prerequisites:** ("C" or better in AGEC 3213) and (MATH 2103 or MATH 2123 or MATH 2144).**Description:** Quantitative analysis of agricultural production and markets including risk and uncertainty. Introduction to simulation. Development of statistical and software skills. Written presentation of an analysis of data. Previously offered as AGEC 3203. May not be used for Degree Credit with AGEC 5013.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 4223 Quantitative Supply Chain Management in Agribusiness****Prerequisites:** ("C" or better in AGEC 3213) and (MATH 2103 or MATH 2123 or MATH 2144).**Description:** Challenge in food supply chain management. Tools to solve logistics problems including traveling salesperson, vehicle routing, and distribution center problems. Forecasting sales and queuing theory. Introduction to specialized software used in supply chain management. May not be used for Degree Credit with AGEC 5023.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 4243 Researching Consumer Food Preferences****Prerequisites:** (AGEC 1113 or ECON 2003 or ECON 2103) and (ANSI 1124 or FDSC 1133) and (STAT 2013 or STAT 2023 or STAT 4013).**Description:** Design, implementation, and interpretation of research in consumer food preferences. Includes design of consumer surveys, conducting consumer interviews, preparing food and questionnaires for taste-test experiments, targeting and recruiting scientifically valid samples, the statistical analysis of data, and communication of results. Previously offered as FDSC 4243.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 4333 Commodity Futures Markets****Prerequisites:** ("C" or better in AGEC 3213 and AGEC 3333).**Description:** The economics of commodity futures markets. The vocabulary of futures markets and the mechanics of trading and hedging. Basis and producer marketing strategies. Fundamental analysis and statistical analysis of data. Technical analysis, behavioral finance, efficient market hypothesis and basics of option pricing. May not be used for degree credit with AGEC 5033.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 4343 International Agricultural Markets and Trade (I)****Prerequisites:** ECON 3023 OR ECON 3113.**Description:** Contemporary international agricultural trade theory and applications. Tools to identify, evaluate critically, and seek solutions to complex international trade and development problems, such as gains from trade, comparative advantage, impacts of trade barriers on social welfare, export promotion effectiveness, trade impacts on environment and land degradation, free trade areas and impacts of genetically modified crops on trade.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**General Education and other Course Attributes:** International Dimension



**AGEC 4403 Advanced Farm and Ranch Management**

**Prerequisites:** ("C" or better in AGEC 3423) and (AGEC 3603 or concurrent).

**Description:** The development of problem solving and risk management skills needed on the modern farm or ranch. Use of spreadsheets to perform production planning and analysis of farm and ranch problems with linear programming, simulations, and other tools. Analysis of the acquisition of resources and the use of information systems in managing the individual farm or ranch business. May not be used for Degree Credit with AGEC 5043.

**Credit hours:** 3

**Contact hours:** Lecture: 1 Contact: 3 Other: 2

**Levels:** Undergraduate

**Schedule types:** Discussion, Combined lecture & discussion, Lecture

**Department/School:** Agricultural Economics

**AGEC 4423 Advanced Agribusiness Management**

**Prerequisites:** AGEC 3333 and (AGEC 3603 or concurrent).

**Description:** Application of modern decision theory in the uncertain environment that the agricultural business operates. Planning, organizing, implementing, coordinating, and controlling problems associated with establishing an agricultural business, achieving firm growth and operating the firm through time. Use of spreadsheets to perform production planning and analysis related to agricultural business operation with linear programming, simulations, and other tools. Analysis of the interaction of resources, prices and production alternatives. Previously offered as AGEC 4323. May not be used for Degree Credit with AGEC 5423.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Agricultural Economics

**AGEC 4503 Environmental Economics and Resource Development**

**Prerequisites:** AGEC 3503 or ECON 3023 or ECON 3113 or consent of instructor.

**Description:** Economic, social, and political factors relating to conservation, natural resource development, and environmental quality. Valuation of priced and non-priced natural and environmental resources. Analysis of environmental and natural resource policy and the role of public and private agencies in conservation and development. May not be used for Degree Credit with AGEC 5053.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Agricultural Economics

**AGEC 4513 Farm Appraisal**

**Prerequisites:** AGEC 3423.

**Description:** Estimating the market value of agricultural real estate using the three approaches to value - sales comparison, cost and income approaches. Analysis of sales to value the different characteristics of the farm. May not be used for Degree Credit with AGEC 5513.

**Credit hours:** 3

**Contact hours:** Lecture: 2 Lab: 2 Contact: 4

**Levels:** Undergraduate

**Schedule types:** Lab, Lecture, Combined lecture and lab

**Department/School:** Agricultural Economics

**AGEC 4613 Advanced Agricultural Finance**

**Prerequisites:** (AGEC 3603 or FIN 3113 with a grade of "B" or better), (ECON 3023 or ECON 3113), and (STAT 2013 or STAT 2023 or STAT 2053 or STAT 4013 or STAT 4053).

**Description:** Advanced time value of money and financial management concepts as applied to the management of agricultural firms. Incorporating risk into agricultural investment and financial management decisions. Introduction to risk modeling. May not be used for degree credit with AGEC 5603.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Agricultural Economics

**AGEC 4703 American Agricultural Policy**

**Prerequisites:** ("C" or better in AGEC 3333), (MATH 2103 or MATH 2123 or MATH 2144), and (ECON 3023 or ECON 3113 or concurrent).

**Description:** Economic characteristics and problems of agriculture; evolution and significance of programs and policies. May not be used for Degree Credit with AGEC 5703.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Agricultural Economics

**AGEC 4723 Rural Economics Development**

**Prerequisites:** AGEC 3213.

**Description:** Concepts, theories, and applications of regional and community economics, including the theories of economic development, analytic techniques, infrastructure and community services, targeted development and associated policies. Focus on domestic rural areas. May not be used for Degree Credit with AGEC 5073.

**Credit hours:** 3

**Contact hours:** Lecture: 3 Contact: 3

**Levels:** Undergraduate

**Schedule types:** Lecture

**Department/School:** Agricultural Economics

**AGEC 4990 Problems of Agricultural Economics**

**Prerequisites:** Consent of instructor.

**Description:** Research on special problems in agricultural economics. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.

**Credit hours:** 1-6

**Contact hours:** Contact: 1-6 Other: 1-6

**Levels:** Undergraduate

**Schedule types:** Independent Study

**Department/School:** Agricultural Economics

**AGEC 5000 Master's Thesis/Report**

**Description:** For students working on an MS degree in agricultural economics. Independent research and thesis under the direction and supervision of a major professor. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.

**Credit hours:** 1-6

**Contact hours:** Contact: 1-6 Other: 1-6

**Levels:** Graduate

**Schedule types:** Independent Study

**Department/School:** Agricultural Economics

**AGEC 5010 Professional Experience in Agricultural Economics or Agribusiness****Prerequisites:** Approval of internship committee and advisor.**Description:** Supervised professional experience with approved public and private employers in agricultural economics or agribusiness. Designed for Master of Agriculture program. Graded on pass-fail basis. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.**Credit hours:** 1-6**Contact hours:** Contact: 1-6 Other: 1-6**Levels:** Graduate**Schedule types:** Independent Study**Department/School:** Agricultural Economics**AGEC 5013 Advanced Quantitative Methods in Agricultural Economics****Prerequisites:** ("C" or better in AGECE 3213) and (MATH 2103 or MATH 2123 or MATH 2144).**Description:** Quantitative analysis of agricultural production and markets including risk and uncertainty. Introduction to simulation. Development of statistical and software skills. Written presentation of an analysis of data. May not be used for degree credit with AGECE 4213.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5023 Quantitative Supply Chain Management in Agribusiness****Prerequisites:** ("C" or better in AGECE 3213) and (MATH 2103 or MATH 2123 or MATH 2144).**Description:** Challenge in food supply chain management. Tools to solve logistics problems including traveling salesperson, vehicle routing, and distribution center problems. Forecasting sales and queuing theory. Introduction to specialized software used in supply chain management. May not be used for degree credit with AGECE 4223.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5033 Commodity Futures Markets****Prerequisites:** ("C" or better in AGECE 3213 and AGECE 3333).**Description:** The economics of commodity futures markets. The vocabulary of futures markets and the mechanics of trading and hedging. Basis and producer marketing strategies. Fundamental analysis and statistical analysis of data. Technical analysis, behavioral finance, efficient market hypothesis and basics of option pricing. May not be used for degree credit with AGECE 4333.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5043 Advanced Farm and Ranch Management****Prerequisites:** ("C" or better in AGECE 3423) and (AGECE 3603 or concurrent).**Description:** The development of problem solving and risk management skills needed on the modern farm or ranch. Use of spreadsheets to perform production planning and analysis of farm and ranch problems with linear programming, simulations, and other tools. Analysis of the acquisition of resources and the use of information systems in managing the individual farm or ranch business. May not be used for Degree Credit with AGECE 4403.**Credit hours:** 3**Contact hours:** Lecture: 1 Contact: 3 Other: 2**Levels:** Graduate**Schedule types:** Discussion, Combined lecture & discussion, Lecture**Department/School:** Agricultural Economics**AGEC 5053 Environmental Economics and Resource Development****Prerequisites:** AGECE 3503 or ECON 3023 or ECON 3113 or consent of instructor.**Description:** Economic, social, and political factors relating to conservation, natural resource development, and environmental quality. Valuation of priced and non-priced natural and environmental resources. Analysis of environmental and natural resource policy and the role of public and private agencies in conservation and development. May not be used for degree credit with AGECE 4503.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5073 Rural Economics Development****Prerequisites:** AGECE 3213.**Description:** Concepts, theories, and applications of regional and community economics, including the theories of economic development, analytic techniques, infrastructure and community services, targeted development and associated policies. Focus on domestic rural areas. May not be used for degree credit with AGECE 4723.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5101 Research Methodology****Prerequisites:** Selection of a thesis advisor and a thesis topic.**Description:** Using the scientific method to solve problems related to agriculture. Preparation of a thesis proposal required.**Credit hours:** 1**Contact hours:** Lecture: 1 Contact: 1**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5103 Mathematical Economics****Prerequisites:** MATH 2103 or MATH 2123 or MATH 2144, and ECON 3113.**Description:** Mathematical tools necessary for formulation and application of economic theory and economic models.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics

**AGEC 5113 Applications of Mathematical Programming****Prerequisites:** AGECE 5103 or AGECE 5403.**Description:** The application of concepts and principles of existing linear and nonlinear programming techniques to agricultural problems.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5203 Advanced Agricultural Prices****Prerequisites:** AGECE 5103, STAT 4043.**Description:** Demand and price structures, price discovery, time series and agricultural price research methods.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5213 Econometric Methods****Prerequisites:** AGECE 5103 and ECON 4213 or STAT 4043.**Description:** Application of econometric techniques to agricultural economic problems, theory and estimation of structural economic parameters.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5233 Primary Data Analysis in Economic Research****Prerequisites:** AGECE 5213 or concurrent enrollment.**Description:** Sampling theory and model-based hypothesis testing for the analysis and reporting of economic models of observational or experimental data. Introduction of classes of general linear models, including qualitative and limited dependent variable models, commonly used to analyze economic problems. Differences and commonalities between frequentist and Bayesian estimation methods and interpretation. Examples pertain to food and fiber markets and production agriculture.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5303 Agricultural Market Policy and Organization****Prerequisites:** ECON 3112, MATH 2103 or MATH 2144, and STAT 2023 or equivalent.**Description:** Role of markets in the food system; Price variation across space, time, and form; Structure, conduct and performance of agricultural industries; Interregional trade theory; and government policies that influence decisions. Previously offered as AGECE 5311.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5321 Agricultural Marketing and Economic Development****Prerequisites:** AGECE 5311.**Description:** Role of marketing in economic development, focusing on international economics; role of institutions in a market economy.**Credit hours:** 1**Contact hours:** Lecture: 1 Contact: 1**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5331 Agricultural Marketing: Advanced Concepts****Prerequisites:** AGECE 5311.**Description:** Advanced topics in price variation across space, time, and form. Market and firm efficiency. Market structure, conduct and performance; role of information in a market economy; and other selected topics.**Credit hours:** 1**Contact hours:** Lecture: 1 Contact: 1**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5343 International Agricultural Markets and Trade****Description:** Contemporary international agricultural trade theory and applications. Broaden students' understanding of contemporary cultural and economic issues outside the U.S. that affect global demand. Gains from trade and the theory of comparative advantage. No credit for students with credit in AGECE 4343.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5403 Production Economics****Prerequisites:** AGECE 5103.**Description:** Analysis of micro-static production economics problems; factor-product, factor-factor and product-product relationships; functional forms for technical unit and aggregate production functions; maximizing and minimizing choice rules; firm cost structure; scale relationships.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5423 Agribusiness Management****Prerequisites:** AGECE 3333 and (AGECE 3603 or concurrent).**Description:** Application of quantitative analysis to the evaluation of business plans for agribusiness firms. Preparation of business plans, including mission statements, financial analyses, marketing plans, personnel and organization requirements of the firm, production and operations plans as well as a contingency plan. Analysis of risk factors associated with agriculturally-based companies. No credit for students with credit in AGECE 4423.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics

**AGEC 5463 Advanced Agricultural Cooperatives****Prerequisites:** AGEC 3463 or consent of instructor.**Description:** Advanced understanding of cooperative business model and management skills. Advanced cooperative finance including profit center analysis, equity management, working capital management, budgeting and capital budgeting.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5483 Bio-Energy Feasibility and Commercialization****Prerequisites:** AGEC 1113 or ECON 2103.**Description:** Feasibility and commercialization of bio-fuel and bio-based projects. Issues and processes in transitioning a project from pilot scale into commercialization.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate, Undergraduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5503 Economics of Natural and Environmental Resource Policy****Prerequisites:** AGEC 4503, ECON 3113, or ECON 3023; and MATH 2103.**Description:** Economics of long-term resource use with particular emphasis on agricultural and environmental problems. Methods for estimation of nonmarket prices. Cost benefits analysis of long-term natural resource use and environmental policy. Elementary computer simulation of long-term resource use and environmental policy.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5513 Farm Appraisal****Prerequisites:** AGEC 3423.**Description:** Estimating the market value of agricultural real estate using the three approaches to value - sales comparison, cost and income approaches. Analysis of sales to value the different characteristics of the farm. May not be used for degree credit with AGEC 4513.**Credit hours:** 3**Contact hours:** Lecture: 2 Lab: 2 Contact: 4**Levels:** Graduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Agricultural Economics**AGEC 5603 Advanced Agricultural Finance****Prerequisites:** AGEC 3603 or FIN 3113, ECON 3023 or ECON 3113 and STAT 2023 or equivalent.**Description:** Advanced investment and financial management concepts applied firms that operate in the agricultural sector. Incorporating uncertainty and risk into financial modeling and decision making via stochastic simulation and other tools. Risk/return tradeoff for stocks, portfolio management and business investments. May not be used for degree credit with AGEC 4613. Same course as AGEC 4613.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5703 American Agricultural Policy****Prerequisites:** ("C" or better in AGEC 3333), (MATH 2103 or MATH 2123 or MATH 2144), and (ECON 3023 or ECON 3113 or concurrent).**Description:** Economic characteristics and problems of agriculture; evolution and significance of programs and policies. May not be used for degree credit with AGEC 4703.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5713 Rural Regional Analysis****Prerequisites:** AGEC 5103.**Description:** Concepts of market and nonmarket based rural welfare; theories of regional growth as applied to rural areas; methods of regional analysis including computable general equilibrium; analysis of policies and programs for improving welfare of rural population groups.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5723 Plan & Pol Devlpmnt****Prerequisites:** Master's-level microeconomics, macroeconomics and regression analysis.**Description:** Economics of market-based planning and policy analysis for developing countries, topics and tools in macro- and microeconomics of development, and social cost-benefit and project analysis with emphasis on agricultural and public policy. Hands-on application of econometrics, input-output analysis and cost-benefit analysis using econometric software.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5733 Food Import Demand and Trade Policy****Description:** Global welfare analysis of national food and agricultural trade and development policies of developed and developing countries. Analysis of import demand systems using real world data and incorporating economic and demographic variables.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 5783 Bio-Energy Economics and Sustainability****Prerequisites:** AGEC 1113 or ECON 2103.**Description:** Economic issues related to supply chains producing bio-energy and bio-based products. Economic, sustainability and social dimensions of these industries. Triple bottom line objectives, life cycle analysis and the principles of feasibility analysis.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate, Undergraduate**Schedule types:** Lecture**Department/School:** Agricultural Economics



**AGEC 5990 Advanced Studies****Prerequisites:** Consent of instructor.**Description:** Investigation in designated areas of agricultural economics. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.**Credit hours:** 1-6**Contact hours:** Contact: 1-6 Other: 1-6**Levels:** Graduate**Schedule types:** Independent Study**Department/School:** Agricultural Economics**AGEC 6000 Doctoral Dissertation****Description:** Open to students pursuing graduate study in agricultural economics beyond the requirements for a master's degree. Independent research and thesis under the direction and supervision of a major professor. Offered for variable credit, 1-15 credit hours, maximum of 24 credit hours.**Credit hours:** 1-15**Contact hours:** Contact: 1-15 Other: 1-15**Levels:** Graduate**Schedule types:** Independent Study**Department/School:** Agricultural Economics**AGEC 6102 Teaching Practicum in Agricultural Economics****Prerequisites:** Two semesters of graduate study in agricultural economics.**Description:** Philosophies of resident and nonresident teaching, general tasks performed, review, evaluation and lecture organization, preparation and presentation.**Credit hours:** 2**Contact hours:** Contact: 2 Other: 2**Levels:** Graduate**Schedule types:** Independent Study**Department/School:** Agricultural Economics**AGEC 6103 Advanced Applications of Mathematical Programming****Prerequisites:** AGEC 5103, AGEC 5113.**Description:** General presentation of nonlinear optimization theory and methods followed by applications of nonlinear programming. Use of GAMS/MINOS optimization software package.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 6213 Advanced Econometrics****Prerequisites:** AGEC 5213 or ECON 5243; STAT 4203 and AGEC 4213 recommended.**Description:** Using advanced econometric techniques in applied research. Linear and nonlinear hypothesis testing; non-nested hypothesis tests; Monte Carlo hypothesis testing; stochastic simulation; misspecification testing. Extensive use of SAS statistical software package.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 6222 Spatial Econometrics****Description:** Develop concept of spatial dependence. Introduce tools and techniques used to explore spatial dependence including spatial statistics and regression. Use of geographic information system (GIS) software in spatial analysis.**Credit hours:** 2**Contact hours:** Lecture: 2 Contact: 2**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 6300 Agricultural Marketing Seminar****Prerequisites:** Consent of instructor.**Description:** Current developments in theory, techniques for evaluating marketing behavior, market legislation and market development. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.**Credit hours:** 1-6**Contact hours:** Lecture: 1-6 Contact: 1-6**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 6303 Advanced Agricultural Marketing****Prerequisites:** AGEC 5303.**Description:** Marketing theory, market structure and performance, governmental regulation and policy and bargaining in agricultural markets.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics**AGEC 6400 Seminar in Farm Management and Production Economics****Prerequisites:** AGEC 5403 or consent of instructor.**Description:** Scientific research methodology applied to problems of resource efficiency. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.**Credit hours:** 1-6**Contact hours:** Contact: 1-6 Other: 1-6**Levels:** Graduate**Schedule types:** Independent Study**Department/School:** Agricultural Economics**AGEC 6403 Advanced Production Economics****Prerequisites:** AGEC 5403.**Description:** Formulating and solving applied economic optimization problems in agricultural production economics. Expected profit maximization; analyzing data from agronomic experiments; credit scoring; risk models such as stochastic dominance and expected utility.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Graduate**Schedule types:** Lecture**Department/School:** Agricultural Economics

**AGEC 6700 Agricultural Policy and Rural Resource Development Seminar**

**Description:** Frontier issues in agricultural policy, natural resources and rural development. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.

**Credit hours:** 1-6

**Contact hours:** Contact: 1-6 Other: 1-6

**Levels:** Graduate

**Schedule types:** Independent Study

**Department/School:** Agricultural Economics

## Undergraduate Programs

- Agribusiness, BSAG (<http://catalog.okstate.edu/ferguson-college-agriculture/agricultural-economics/agribusiness-bsag/>)
- Agribusiness: Accounting Double Major, BSAG (<http://catalog.okstate.edu/ferguson-college-agriculture/agricultural-economics/agribusiness-accounting-double-major-bsag/>)
- Agribusiness: Agricultural Communications Double Major, BSAG (<http://catalog.okstate.edu/ferguson-college-agriculture/agricultural-economics/agribusiness-communications-double-major-bsag/>)
- Agribusiness: Community and Regional Analysis, BSAG (<http://catalog.okstate.edu/ferguson-college-agriculture/agricultural-economics/agribusiness-community-and-regional-analysis/>)
- Agribusiness: Crop and Soil Sciences, BSAG (<http://catalog.okstate.edu/ferguson-college-agriculture/agricultural-economics/agribusiness-crop-soil-sciences-bsag/>)
- Agribusiness: Farm and Ranch Management, BSAG (<http://catalog.okstate.edu/ferguson-college-agriculture/agricultural-economics/agribusiness-farm-ranch-management-bsag/>)
- Agribusiness: International, BSAG (<http://catalog.okstate.edu/ferguson-college-agriculture/agricultural-economics/agribusiness-international-bsag/>)
- Agribusiness: Natural Resources, BSAG (<http://catalog.okstate.edu/ferguson-college-agriculture/agricultural-economics/agribusiness-natural-resources-bsag/>)
- Agribusiness: Pre-Law, BSAG (<http://catalog.okstate.edu/ferguson-college-agriculture/agricultural-economics/agribusiness-pre-law-bsag/>)
- Agribusiness: Pre-Veterinary Business Management, BSAG (<http://catalog.okstate.edu/ferguson-college-agriculture/agricultural-economics/agribusiness-pre-veterinary-business-management-bsag/>)
- Agricultural Economics, BSAG (<http://catalog.okstate.edu/ferguson-college-agriculture/agricultural-economics/bsag/>)

## Graduate Programs

The department offers graduate work leading to the Master of Science, the Master of Agriculture and the Doctor of Philosophy degrees. Both thesis and non-thesis options are available at the MS level. PhD students complete a teaching practicum in addition to the research thesis as a part of the degree requirements.

The graduate program stresses development of superior professional competence, suited to the demands of the modern business, academic, government and research environments. Advanced courses concentrate on economic analysis applied to problems of production, distribution and consumption of agricultural products. Courses in economic theory, econometrics, mathematical programming and statistics are an integral part of the program. Primary data analysis, natural resource use,

international trade, planning, policy and development are also important topics included in graduate courses.

The faculty provide direction and individual guidance to student research in marketing, production, management of agricultural enterprises, demand and price analysis, land and water use and development, non-market valuation, rural development and planning, agricultural finance, international trade, farm appraisal, agricultural policy, econometrics and experimental economics. Students specialize through course electives and research topics. In addition, an advisory committee guides each student in preparing the program of study to ensure that the student's background, graduate coursework, and research program together lead to the desired depth and breadth of proficiency.

## Admission Requirements

Prerequisites to advanced training in agricultural economics are:

1. the desire to understand and solve the complex and changing economic problems faced by agriculture and rural society, and
2. the desire and ability to learn methods of rigorous logical analysis.

In addition, differential calculus, statistics and intermediate macro- and micro-economic theory constitute a minimum background for advanced study in agricultural economics. In certain cases, a student can take part of this work after admission but the work will not count toward a graduate degree.

Acceptance by an advisor in the department is not required prior to admission to the departmental graduate program. GRE test scores are required for admission to the program.

## Minors

- Agricultural Economics and Agribusiness (AEAB), Minor (<http://catalog.okstate.edu/ferguson-college-agriculture/agricultural-economics/agricultural-economics-agribusiness-minor/>)
- Agricultural Real Estate Appraisal (AREA), Minor (<http://catalog.okstate.edu/ferguson-college-agriculture/agricultural-economics/agricultural-real-estate-proposal-minor/>)
- Environmental Economics, Politics and Policy (EEPP), Minor (<http://catalog.okstate.edu/ferguson-college-agriculture/agricultural-economics/environmental-economics-politics-policy-minor/>)

## Faculty

Cheryl S. DeVuyst, PhD—Professor and Department Head

**Regents Professors:** B. Wade Brorsen, PhD; Damona G. Doye, PhD; Phil Kenkel, PhD; Jayson Lusk, PhD

**Professors:** Chanjin Chung, PhD; Cynda R. Clary, PhD; Eric DeVuyst, PhD; Shannon Ferrell, JD; Rodney Holcomb, PhD; Rodney Jones, PhD; Dayton Lambert, PhD; F. Bailey Norwood, PhD; Derrell S. Peel, PhD; Kellie Raper, PhD; Brian Whitacre, PhD

**Associate Professors:** Amy Hagerman, PhD; Deepthi Kolady, PhD; John Michael Riley, PhD; Jeff Vitale, PhD

**Assistant Professors:** Courtney Bir, PhD; Lixia He Lambert, PhD; K. Aleks Schaefer, PhD; Hannah Shear, PhD; Bhawna Thapa, PhD

**Non-Tenure Track Teaching Assistant Professors:** Elizabeth Norwood, PhD

**Non-Tenure Track Extension Associates:** J.C. Hobbs, MS; Roger Sahs, MS